

relevant results and theoretical developments
of science and research

14

2024
issue 2, special XLV.

AD ALTA

Journal of Interdisciplinary Research

AD ALTA: Journal of Interdisciplinary Research

Double-Blind Peer-Reviewed

Volume 14, Issue 2, Special Issue XLV., 2024

Number of regular issues per year: 2

© The Authors (October, 2024)

MAGNANIMITAS Assn.

AD ALTA: JOURNAL OF INTERDISCIPLINARY RESEARCH

© THE AUTHORS (OCTOBER, 2024), BY MAGNANIMITAS, ATTN. AND/OR ITS LICENSORS AND AFFILIATES (COLLECTIVELY, "MAGNANIMITAS"). ALL RIGHTS RESERVED.

SPECIAL ISSUE NO.: 14/02/XLV. (VOLUME 14, ISSUE 2, SPECIAL ISSUE XLV.)

ADDRESS: CESKOSLOVENSKE ARMADY 300, 500 03, HRADEC KRALOVE, THE CZECH REPUBLIC, TEL.: 498 651 292, EMAIL: INFO@MAGNANIMITAS.CZ

ISSN 1804-7890, ISSN 2464-6733 (ONLINE)

AD ALTA IS A PEER-REVIEWED JOURNAL OF INTERNATIONAL SCOPE.

2 ISSUES PER VOLUME AND SPECIAL ISSUES.

AD ALTA: JOURNAL OF INTERDISCIPLINARY RESEARCH USES THE RIV BRANCH GROUPS AND BRANCHES, BUT THE JOURNAL IS NOT A PART OF RIV. THE RIV IS ONE OF PARTS OF THE R&D INFORMATION SYSTEM. THE RIV HAS COLLECTED AN INFORMATION ABOUT RESULTS OF R&D LONG-TERM INTENTIONS AND R&D PROJECTS SUPPORTED BY DIFFERENT STATE AND OTHER PUBLIC BUDGETS, ACCORDING TO THE R&D ACT [CODE NUMBER 130/2002], THE CZECH REPUBLIC.

A	SOCIAL SCIENCES
B	PHYSICS AND MATHEMATICS
C	CHEMISTRY
D	EARTH SCIENCE
E	BIOLOGICAL SCIENCES
F	MEDICAL SCIENCES
G	AGRICULTURE
I	INFORMATICS
J	INDUSTRY
K	MILITARISM

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MAGNANIMITAS'S PRIOR WRITTEN CONSENT. ALL INFORMATION CONTAINED HEREIN IS OBTAINED BY MAGNANIMITAS FROM SOURCES BELIEVED BY IT TO BE ACCURATE AND RELIABLE. BECAUSE OF THE POSSIBILITY OF HUMAN OR MECHANICAL ERROR AS WELL AS OTHER FACTORS, HOWEVER, ALL INFORMATION CONTAINED HEREIN IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND. UNDER NO CIRCUMSTANCES SHALL MAGNANIMITAS HAVE ANY LIABILITY TO ANY PERSON OR ENTITY FOR (A) ANY LOSS OR DAMAGE IN WHOLE OR IN PART CAUSED BY, RESULTING FROM, OR RELATING TO, ANY ERROR (NEGLIGENT OR OTHERWISE) OR OTHER CIRCUMSTANCE OR CONTINGENCY WITHIN OR OUTSIDE THE CONTROL OF MAGNANIMITAS OR ANY OF ITS DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS IN CONNECTION WITH THE PROCUREMENT, COLLECTION, COMPILATION, ANALYSIS, INTERPRETATION, COMMUNICATION, PUBLICATION OR DELIVERY OF ANY SUCH INFORMATION, OR (B) ANY DIRECT, INDIRECT, SPECIAL, CONSEQUENTIAL, COMPENSATORY OR INCIDENTAL DAMAGES WHATSOEVER (INCLUDING WITHOUT LIMITATION, LOST PROFITS), EVEN IF MAGNANIMITAS IS ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES, RESULTING FROM THE USE OF OR INABILITY TO USE, ANY SUCH INFORMATION.

PAPERS PUBLISHED IN THE JOURNAL EXPRESS THE VIEWPOINTS OF INDEPENDENT AUTHORS.

TABLE OF CONTENTS (BY BRANCH GROUPS)

A SOCIAL SCIENCES

ACADEMIC MOBILITY AS AN IMPROVING LANGUAGE COMPETENCE FACTOR OF TEACHERS AND STUDENTS ZHANNA BABIAK, IRYNA PLAVUTSKA, OLEG BODNAR, LILIANA DZHYDZHORA, OLENA DUDAR, HANNA SHAYNER	6
ADAPTATION OF CURRICULA FOR CHILDREN WITH SPECIAL EDUCATIONAL NEEDS: ANALYSIS OF SUCCESSFUL PRACTICES IN THE CONTEXT OF INCLUSIVE EDUCATION ANASTASIIA BESSARAB, ANASTASIIA TURUBAROVA, IRYNA ANTONENKO, ANNA KIRILLOVA, SVITLANA LUPINOVYCH, OLHA HALIEVA	13
ADOPTING A LINGUOCULTURAL METHOD FOR EDUCATING PROSPECTIVE FOREIGN LANGUAGE EXPERTS OKSANA SNIGOVSKA, OLHA REMBACH, MARIANA BRODA, LARYSA MOSHIEVYCH, OLHA SHUM	19
ADVANCED EDUCATIONAL TECHNIQUES AND THEIR ROLE IN ENHANCING LEARNING OUTCOMES NATALIA BUHLAI, IRYNA ANDROSHCHUK, TETIANA TRON, OLHA STRELNYYK, YULIYA ZHURAVEL	24
ADVANCING MANAGERIAL EXPERTISE THROUGH EDUCATION: COMPARATIVE UKRAINIAN AND GLOBAL PRACTICES ALLA MOSKALENKO, SERHII KUBITSKYI, ILONA DYCHKIVSKA, IRYNA ULIUKAIEVA, MARHARYTA VOROVKA	30
ALTERATIONS IN THE INTESTINAL WALL'S HISTOLOGICAL STRUCTURE UNDER CONDITIONS OF EXPERIMENTAL OBSTRUCTIVE ILEUS VALENTIN NEPOMNYASHCHY, TAMARA TAMM, IVAN MAMONTOV, OLENA SHAKALOVA, KONSTANTIN KRAMARENKO, ANDREY USTINOV	37
ASSESSING THE IMPACT OF INNOVATIVE TEACHING STRATEGIES ON HIGHER EDUCATION OUTCOMES MYKHAILO PODOLIAK, LIUDMYLA MAZURENKO, VOLODYMYR BINKEVYCH, TETIANA AHIBALOVA, OKSANA KALASHNYK	43
COMPARATIVE STUDY OF PARLIAMENTARY FUNCTIONS IN PUBLIC ADMINISTRATION SYSTEMS VALENTYNA GOSHOVSKA, VOLODYMYR KREIDENKO, IHOR REITEROVYCH, MARIIA-MARIANA DVULIT, OLHA KRAVCHUK	50
CONTROL AND SUPERVISION IN GENERAL SECONDARY EDUCATION: ADMINISTRATIVE AND LEGAL ASPECTS IRYNA ZHUKOVA, RUSLANA MYRONOVA, OLENA MYRONOVA, ALISA ZVIAGINA	55
DEVELOPING STUDENTS' INTERCULTURAL SKILLS IN HIGHER EDUCATION THROUGH THE USE OF MEDIA EDUCATION SVITLANA SHEKHAVTSOVA, GALYNA RYABUKHA, OLENA PAVLIUK, SVITLANA PEDCHENKO, NATALIIA KOMLYK, RUSLANA ZHOVTANI	61
DEVELOPMENT OF DIGITAL COMPETENCES IN UNIVERSITY STUDENTS AS A NECESSARY CONDITION FOR THEIR PROFESSIONAL TRAINING IGOR SHULIAKOV, TETYANA LOHVYVENKO, DARYNA CHERNYAK, OLESIA STOIKA, OLENA OLIINYK	67
ENHANCING KEY COMPETENCES IN 5TH-7TH GRADERS THROUGH CONTEXTUAL ANALYSIS OF CONTEMPORARY LITERATURE TAMILA YATSENKO, OLESIA SLYZHUK, NATALIIA HOHOL, NATALIIA HRYCHANYK, TETIANA KLEIMENOVA	72
EVALUATING NEEDS AND ENHANCING LIFE SKILLS FOR VULNERABLE ADOLESCENTS IN UKRAINE OLENA LESHCHENKO, NATALIIA ZAVERYKO, YULIANA MATSKEVICH, TETIANA SOLOVIOVA, ULIANA AVRAMENKO	79
EXPLORING THE CREATIVE POTENTIAL OF CHORAL CONDUCTING IN UKRAINE'S MODERN ARTISTIC SCENE LYUDMYLA SHUMSKA, YULIIA PUCHKO-KOLESNYK, LYUDMYLA KOSTENKO, OLEKSANDR VILABOTSMAN, OLHA MARTYNOVSKA	86
EXPLORING THE ROLE OF UKRAINIAN FOLK ELEMENTS IN MODERN CLASSICAL MUSIC: CURRENT TRENDS AND FUTURE DIRECTIONS KATERYNA ONYSHCHENKO, NASSIB RADWAN, TARAS KMETIUK, NATALIIA TOLOSHNIAK, IHOR DEMIANETS	91
FEMININES IN THE OFFICIAL AND BUSINESS STYLE OF CONTEMPORARY UKRAINIAN LITERARY LANGUAGE: OFFICIAL AND SEMI-OFFICIAL PRACTICE GALYNA SIUTA, NADIIA BOBUKH, LARYSA KOZLOVSKA, IRYNA HOTSYNETS, LILIYA SOBOL	95
FINANCIAL MECHANISM FOR MANAGING THE SOCIAL AND HUMANITARIAN SPHERE IN UKRAINE: A REVIEW OF SCIENTIFIC SOURCES ANATOLII SHUNDA, VASYL KUPRIICHUK, SVITLANA VOVK	102
HETMAN IVAN MAZEPA AND THE UNIFICATION OF UKRAINIAN LANDS IN THE EARLY 20TH CENTURY UKRAINIAN PRESS SNIZHANA ATAMANCHUK-BABII	108
HOW DIGITALISATION OF BUSINESS PROCESSES DRIVES ECONOMIC GROWTH TETIANA SHESTAKOVSKA, OKSANA LIASHENKO, OLEKSANDR DLUHOPOLSKYI, ANASTASIIA DUKA, OLENA MYKHAILOVSKA, NATALIIA FILIPOVA	114

INTERMEDIALITY AND THE RECEPTION OF LITERATURE: HOW MODERN MEDIA SHAPES LITERARY PERCEPTION NATALIIA HRYTSAK, SVITLANA BARTISH, NATALIIA KUCHMA, MARIIA LIUBINETSKA, SVITLANA NEHODIAIEVA	121
MANAGING CRITICAL DATA FOR NATIONAL SECURITY ASSURANCE NATALIIA VARENIA, OLEKSANDR ROZVADOVSKYI, VITALII KHODANOVYCH, TETIANA DAVYDOVA, IVAN DRALIUK	131
MANAGING UNCERTAINTY: THE ROLE OF PROBABILISTIC MODELS IN ENHANCING DECISION ACCURACY AND EFFICIENCY INNA HORDIEIEVA, HALYNA TARASIU, NADIIA VASYLIEVA, IRYNA KALMYKOVA, IGOR PARYZKYI	136
MODERN CHALLENGES AND DEVELOPMENTAL OUTLOOK OF THE STATE BORDER GUARD SERVICE OF UKRAINE'S ADMINISTRATIVE AND LEGAL FUNCTIONS ANDRII TSARUK, YAROSLAV KUSHNIR, NADIIA DEMCHYK, OLHA TSARENKO, SERHII TSARENKO, SERHII ADAMCHUK	141
MODERN METHODS, TECHNOLOGIES AND TOOLS OF FOREIGN LANGUAGE LEARNING IN UKRAINIAN AND SWEDISH UNIVERSITY PRACTICES: CHALLENGES FOR IMPLEMENTATION IN CONDITIONS OF POSTPANDEMIC AND WARTIME NATALIIA MELNYK, LESIA KONOPLIANYK, OLHA KOVALENKO, YULIIA PRYSHUPA, SVITLANA MIROSHNYK	147
MODERNISATION OF PROFESSIONAL EDUCATION FOR FUTURE PRIMARY SCHOOL TEACHERS THROUGH MODERN INFORMATION TECHNOLOGIES IVAN VASYLYKIV, OKSANA ZHYHAYLO, SOLOMIIA ILLIASH, NATALIIA KALYTA, SVITLANA LUTSIV	155
SHAPING FUTURE TECHNOLOGY TEACHERS' DESIGN CULTURE THROUGH RESEARCH ENGAGEMENT MARYNA GRYNova, OLHA TYTARENKO, VALENTYNA TYTARENKO, INNA VAZHENINA, VALERII TYTARENKO, IHOR SAVENKO, NATALIIA SULAIEVA	162
STRATEGIES FOR ENHANCING BUDGETING AND FINANCIAL MANAGEMENT TO BOOST BUDGET PROCESS EFFICIENCY OLENA CHERNIAIEVA, HANNA MYKHALCHENKO, OLENA ATAIEVA, MYKHAILO MARSHALOK, MARTA KUNYTSKA-ILIASH	168
THE HUMAN RIGHT TO PEACE: THE NEED FOR CONSOLIDATION NATALIIA ONISHCHENKO, MYKHAILO NONIAK, OLEG BOHINICH, NATALIIA KLESHCHENKO	174
THE STATE AS A FOEDERATIO AND ELEMENTS OF THE INTERNATIONAL LEGAL PERSONALITY OF THE ROMAN EMPIRE DURING THE DOMINATE ERA VIKTOR MELNYK	179
THEORETICAL ASPECTS OF FAMILY RIGHTS AND RESPONSIBILITIES VOLODYMYR VATRAS, OLEG OKSANIUK, DENYS SYDORENKO, SERHII SABLUK, SVITLANA YAKYMCHUK	185
TRANSFORMING ENTREPRENEURSHIP AND MARKETING THROUGH DIGITALISATION IN GLOBAL MARKETS OLENA PTASHCHENKO, OLEKSANDR ROZUMNYI, ELMAN ALIEV, VOLODYMYR VOVK, OLENA SHERSHENIUK	192

F MEDICAL SCIENCES

ENSURING QUALITY AND SAFETY IN MEDICAL SERVICES: APPROACHES TO DEVELOPMENT AND PRACTICAL APPLICATION SERHII PETRYK, VIACHESLAV STEPANENKO, ANATOLII SHEVCHUK, KOSTIANTYN YURCHENKO	199
UTILISING DESIGN THINKING APPROACH TO ADAPT PUBLIC SERVANTS TO THE CHALLENGES OF COVID-19 YURII DZIURAKH, NAZAR PODOLCHAK, NATALIA TSYGYLYK, VERONIKA KARKOVSKA, OLENA BILYK, OLEH SOKIL	206

G AGRICULTURE

THE ROLE OF UNEVEN AGRICULTURAL BUSINESS GROWTH IN SHAPING THE SOCIOECONOMIC LANDSCAPE OF RURAL REGIONS SVITLANA BELEI, YURI LOPATYNSKYI, NAZAR LAHODYN, YULIIA NEZHID, NINA PETRUKHA	212
---	-----

I INFORMATICS

CUTTING-EDGE EDUCATIONAL TECHNOLOGIES AND THEIR INFLUENCE ON RESEARCH IN THE ERA OF DIGITALISATION ANDRII TSYNA, VALENTYNA TSYNA, SERHII NOVOPYSMENNYI, MYKOLA BLYZNIUK, ALLA RUDENCHENKO, LIUDMYLA CHYSTIAKOVA, VLADYSLAV BOIKO	220
--	-----

A SOCIAL SCIENCES

AA	PHILOSOPHY AND RELIGION
AB	HISTORY
AC	ARCHAEOLOGY, ANTHROPOLOGY, ETHNOLOGY
AD	POLITICAL SCIENCES
AE	MANAGEMENT, ADMINISTRATION AND CLERICAL WORK
AF	DOCUMENTATION, LIBRARIANSHIP, WORK WITH INFORMATION
AG	LEGAL SCIENCES
AH	ECONOMICS
AI	LINGUISTICS
AJ	LITERATURE, MASS MEDIA, AUDIO-VISUAL ACTIVITIES
AK	SPORT AND LEISURE TIME ACTIVITIES
AL	ART, ARCHITECTURE, CULTURAL HERITAGE
AM	PEDAGOGY AND EDUCATION
AN	PSYCHOLOGY
AO	SOCIOLOGY, DEMOGRAPHY
AP	MUNICIPAL, REGIONAL AND TRANSPORTATION PLANNING
AQ	SAFETY AND HEALTH PROTECTION, SAFETY IN OPERATING MACHINERY

ACADEMIC MOBILITY AS AN IMPROVING LANGUAGE COMPETENCE FACTOR OF TEACHERS AND STUDENTS

^aZHANNA BABIAK, ^bIRYNA PLAVUTSKA,
^cOLEG BODNAR, ^dLILIANA DZHYDZHORA,
^eOLENA DUDAR, ^fHANNA SHAYNER

^{a,b,c,d,e}*Ternopil Ivan Puluj National Technical University,
 Ternopil, Ukraine.*

^f*Institute of the Humanities and Social Sciences, Lviv
 Polytechnic National University, Lviv, Ukraine.
 email: ^fhanna.i.shayner@lpnu.ua*

Abstract: The relevance of the study is due to the fact that the state's recognition of the positive effects of the international experience of researchers for their development and the progress of domestic science includes a set of measures to support the mobility of scientific personnel. An important role is assigned to the development of scientific diplomacy, the formation of the institute of ambassadors of Ukrainian science, the implementation of exchange programs of researchers between different countries. Another direction of support is related to the creation in Ukraine of international objects of digital and innovative technological infrastructure — technoparks, technological platforms, engineering centers, etc. Special attention is paid to the creation of global centers for conducting promising international research, projects involving leading world scientists and talented youth from Ukraine and other countries. In the theoretical part of the proposed work, the available scientific intelligence related to the problems of academic mobility in the world and in Ukraine is analyzed. In the practical part, an attempt was made to create and analyze the training course "Foreign language for academic mobility". It has been proven that the country's current risks are caused by the state of war, the reduction of opportunities to attract foreign specialists, support scientific contacts with foreign scientists, and the implementation of international mobility require a review of the state policy in the field of scientific personnel in order to reduce the risks of the outflow of talented young people and globally competitive researchers abroad, and as well as increasing the attractiveness of work in Ukraine for foreign specialists. A solution to the specified problem is proposed, namely, the forced formation of a large-scale and integral support system for scientists. In order to increase the attractiveness of a scientific career for young people and prevent their outflow abroad, it is proposed to implement integrated training programs, with additional stimulation of scientific management, already after the completion of the master's degree. It was concluded that it is important to retain the core of leading scientists who work in Ukraine and have world-class achievements. It is possible to implement this by developing a special budget co-financing program for the remuneration fund of globally competitive Ukrainian scientists, creating all the necessary conditions.

Keywords: Academic mobility, language competence, professional competence, integration, integrated educational courses.

1 Introduction

The key resource for the development of science is scientists, highly qualified specialists who participate in scientific research and contribute to the creation of new knowledge. The qualification of this category of personnel engaged in research and development is dynamic: research activity requires constant development of professional competences and updating of the methodological and instrumental apparatus of science.

Scientists receive support and improvement of their qualifications with the help of various practices - from generally accepted and necessary reading of scientific literature, attendance at conferences and other events to internships, participation in joint projects with colleagues from other divisions, organizations, countries, within the framework of which there is an intensive exchange of knowledge and experience. Some of these practices are related to going abroad, including for training, internship, and work.

For a long period of time in Ukraine, the attitude towards the international mobility of scientific personnel remained wary due to the association with the massive outflow of intellectual resources of the early 1990s. Taking into account this historical fact, this process was perceived as a threat to the scientific potential of the country.

In the 2000s, the public discourse in this area was noticeably transformed: international collaborations at the institutional and individual levels became part of the new normality of world science, the current stage of development of which is characterized by the search for answers to global challenges, the implementation of large-scale mega-science projects, the formation of an international research and development infrastructure, strengthening the role of digital technologies. The science and technology policy of Ukraine was faced with important tasks - to

attract the world's best intellectual resources, talented youth, to create conditions for increasing the attractiveness of a scientific career in our country, and to retain personnel. A number of measures taken by the state led to positive changes in domestic science, including a change in the structure of international migration of scientists: short-term mobility, which involves the return of a scientist to the country with new knowledge and competencies after a stay abroad, is gaining great popularity.

Brain drain has given way to brain circulation. Digitization creates the conditions for new forms of international academic mobility: opportunities for remote work and part-time employment allow an increasing number of researchers and teachers of higher education to have multiple affiliations, work in foreign organizations and be part of international teams, physically staying in their native country. This type of mobility is usually called synchronous.

The purpose of the article is a diachronic and synchronic analysis of the features of academic mobility for scientists of all levels, as well as a proposal to implement a thematic training course in a foreign language as a factor in improving the language competence of teachers and students.

2 Materials

The academic mobility of scientists at various levels is an important object of attention not only in the research of science and scientific communities, but also in the science and technology policy of developed countries. Since the 1960s and for a long period, the analysis of trends in this field was carried out from the standpoint of the concept of "brain drain", which assumed that the "sending" country (the scientist's country of departure, the donor country) experiences only negative consequences of the migration process, losing the most active and educated part of the population.

A number of scientific works are devoted to this problem. All the positive effects, namely the influx of highly qualified personnel, go to the receiving party. Within the framework of the concept of "brain circulation", researchers predict that both sides (both the donor country and the acceptor country) can receive benefits, primarily due to the flows of return and pendulum migration. Losses from those who left the country can be compensated by foreign specialists involved, and the return of scientists who have gained professional experience abroad is a valuable channel for the transfer of new knowledge and technologies into national innovation systems (Ackers, 2008; Adams & Loach, 2015), (Daugeliene & Marcinkeviciene R, 2009).

The positive effects of the international mobility of scientific personnel are also described within the framework of the network approach ("brain networking"), which emphasizes that in the modern globalized and digital world, the actual location of a scientist is no longer a key factor in determining who owns the results of intellectual work. Representatives of this approach refuse to consider the emigration of scientists as an unambiguous loss for their country: contacts in foreign countries are an important way of establishing and supporting international scientific collaboration, integration of national science into the world agenda (Bozeman & Corley, 2004), (Aksnes et al., 2013).

The assessment of the international mobility of scientists as a functional phenomenon, that is, the stimulation and provision of equal access to research infrastructure (De Filippo et al., 2009; Franzoni et al., 2015; Edler et al., 2011; Godfrey, 1970). However, this phenomenon can cause serious damage to the scientific and technical potential of individual countries, especially in the case of mass emigration of scientists and teachers of higher education who do not plan to return. Research on the individual level of international mobility and its positive impact (Grubel & Scott, 1966), deserve special attention.

According to scientists, the experience of studying or working abroad contributes to the development of research projects and

professional connections, the mastering of new theoretical and empirical approaches, strengthens involvement in the process of exchanging knowledge and technologies both with other countries and within one's own country. However, mobility does not guarantee advantages over a long time horizon: the positive effect is observed mainly at the early stages of a scientific career (Lawson & Shibayama, 2015; Jonkers, 2010; Horta et al., 2019; Halevi et al., 2016; Deville et al., 2014).

Estimates are known that "mobile" (i.e., those with experience of international mobility) researchers demonstrate higher publication activity, but the empirical evidence on this is contradictory. Most studies do confirm that such scientists are more productive (Fontes et al., 2013; Gao & Liu, 2021; Geuna, 2015; Gläser et al., 2014).

Studies that analyze the foreign experience of academic mobility on the example of certain countries are of interest, namely Gokhberg et al. (2016), Guo and Lei (2020), Horta and Yonezawa (2013), Jonkers and Tijssen (2008), Kim (2010), Kosmulski (2015), Lei and Guo (2020), Martinez & Sá (2020) etc.

3 Methods

In the theoretical part of the proposed work, the following general scientific research methods were used to ensure a comprehensive and systematic approach to the analysis of academic mobility issues: the method of deduction, which allowed for the formulation of general conclusions based on specific facts and observations on the effectiveness of students' preparation for academic mobility, and the method of induction to form patterns based on the knowledge gained and the results of learning in the context of international interaction. To study the functionality of academic mobility in the context of improving the competencies of teachers and students, analytical and synthetic methods were used to analyze statistical data on the impact of its individual aspects on the development of linguistic, academic and personal components of students' communicative competence. In addition, using the method of comparative analysis, the article identifies the peculiarities of student training in different educational systems and cultural contexts, as well as their impact on the development of academic mobility. In order to conduct our own research, a sociological survey methodology was employed among 52 students in the 2nd–3rd years of Ternopil National Polytechnic University named after Ivan Pulyu. The outcomes of the study were interpreted by utilizing the computation of weighted averages and percentage ratios of grades in the Excel program. The discussion part uses an adaptive case study approach to identify best practices that can be implemented in Ukraine in the future, and based on the obtained directions, the risks associated with the war and foreign policy issues are studied by the method of observation, assessing their impact on the outflow of scientific talent.

4 Results

The communicative strategy involves solving the following tasks during the preparation of students for academic mobility:

- mastering the appropriate conceptual apparatus, which will allow students to get acquainted with the specifics of international communication in the structure of a scientific educational institution (studying the structure of the education system, getting to know the names of academic degrees, features of professional qualifications, admission requirements);
- mastering professional foreign language communicative competence in the fields of "Science", "Education";
- development of skills to identify partners in order to implement and conduct international projects in the fields of education and science;
- the use of strategies of intercultural interpersonal interaction, as well as techniques that contribute to overcoming intercultural and ethnic barriers.

Figure 1: Sufficient level of academic mobility.

Performing informational and linguistic professional activities while increasing the level of students' readiness for academic mobility consists in collecting and using the necessary information, as well as in the ability to process this information and present it as a certain result, to reveal it to the participants of communication. Therefore, specially organized methodical work on the development of professional foreign language communicative competence of students in the process of academic mobility also has a positive effect on the formation of this competence.

Research activity is also included in this process, because during its implementation, the student learns to manage the basic laws and principles of logical thinking, improves his own intellectual sphere, goes from "common to private" or from "private to common" to solve an isolated problem, and uses a set of tools to argue one's point of view within certain tasks. Correlation of own assumptions with the dominant educational and educational paradigm within the framework of modern society will allow students, based on existing theoretical knowledge, to analyze and solve complex interpersonal situations, situations of moral choice, use a complex of educational and methodological materials, as well as professional activities through the use of advanced information resources, as well as technologies. Based on the results of mastering the material, the student will acquire a sufficient level of academic mobility, which is expressed in the following:

- language component (the ability to speak a foreign language quickly, engage in foreign communication without problems, receive and process information in a foreign language, self-realization through working with material in a foreign language);
- the academic component (the ability to independently organize one's educational work, coordinate and manage collective interaction in a pair, group, critically discuss and analyze educational material using a foreign language);
- personal component (the ability to quickly adapt in a social environment, awareness of the value of another culture, the presence of developed intercultural communication skills, the ability to organize space interaction taking into account mutual respect, etc.).

In connection with the new requirements for modern specialists, the requirements for mastering the discipline "Foreign language" were brought into line with the scale of "All-European competences for mastering a foreign language: Study, teaching, evaluation". Changes were also made to the system of continuous training of university students. The essence of this document is the uniform standardization of the assessment of language skills in European countries and the mutual recognition of language competences. The assessment scale allows you to assess the amount of vocabulary, grammatical structures, the level of skill development (pace of speech, clarity of speech, vocabulary activity, reading speed, text comprehension and listening comprehension). According to a survey conducted among 52 students of the 2nd-3rd years of Ternopil National Polytechnic University named after Ivan Pulyu, the respondents identified the following main obstacles on the way to academic mobility: language component, the academic component, personal component. After evaluating these obstacles from 1 to 10 points, the percentage expression of the indicators was calculated:

$$P = \left(\frac{AS * R_{total}}{PS_{max}} \right) * 100 \% \quad (1)$$

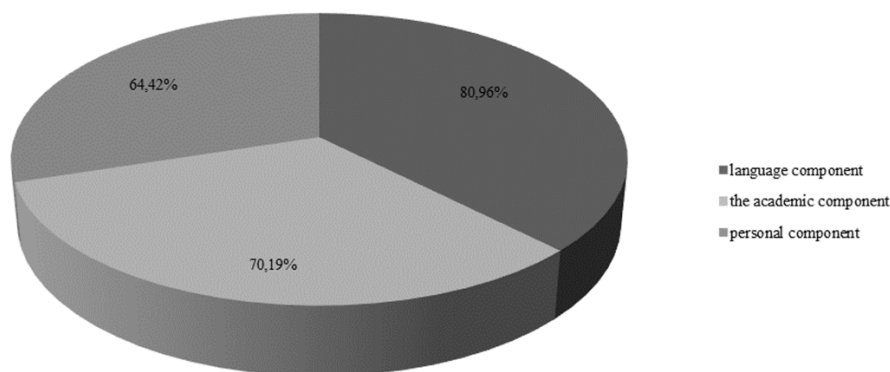
where P – the percentage of the current assessment by indicators to the total;

AS – average score for each indicator (from 1 to 10);

R_{total} – total number of respondents;

PS_{max} – the maximum possible score (in this case is 520 points).

The results of the study are given in Appendix A. The obtained calculation results are shown in Figure 1.



Source: Compiled by the author.

According to the scale developed by the Council of Europe, Common European Framework of Reference for Languages, the level of foreign (English) language proficiency of applicants for participation in the course “Foreign Language for Academic Mobility” (“Foreign Language for Academic Mobility”) must not be lower than the B1 level. This course is not mandatory and can be considered as a component in the process of continuous learning of a foreign language for future specialists. Continuous language training should be considered a set of programs aimed at the formation and further development of foreign language communicative competence, taking into account the requirements of the world labor market and the personal needs of students. The course is optional and is designed for 100 classroom academic hours, for 1 year of study. The main forms of learning are group classroom classes and independent extracurricular work of students. The course “English for academic mobility” is aimed at the further development of foreign language communicative competence formed at the previous level of education (school, first year of bachelor’s degree), and improvement of four main types of language activities: reading, writing, speaking and listening. The main goal of the course is to increase the level of foreign language proficiency, develop the ability to use a foreign language in various spheres of activity: household, professional, scientific and cultural; preparing students to use the English language as a means of international communication, during internships and studies as part of academic mobility programs, as well as for self-education. As a result of learning the “Foreign Language for Academic Mobility” course, the student should know:

- lexical minimum and grammatical phenomena that ensure communication of a general and business nature;
- rules of language etiquette and cultural traditions of communication in foreign-speaking countries;
- be able:
- use a foreign language in communication during internship;
- work in an international environment;
- work with English-language sources of information (press, letters, etc.);
- write a resume, business letter, motivational letter;
- master the basics of language communication (listening, reading, speaking, writing); skills in working with business correspondence (letter, e-mail, etc.).

Lesson topics are combined in modules. The texts are read by native speakers of the language or other foreign countries who are participants in academic exchange programs. At the stage of listening to the text, students improve their pronunciation and listening comprehension skills. The topics of the authentic texts include country studies and cultural information, the purpose of which is preparation for staying and studying in a foreign university. Improvement of grammatical skills is carried out in the process of working out new lexical units. The texts are selected in accordance with the declared topic of the module (academic exchange programs, the place of language in the world, international exams, etc.) and contain rich factual

material, various grammatical constructions and special vocabulary, which in the future will help the participants of academic exchange programs to adapt to life abroad in terms of socio-culture. New lexical units are consolidated in the process of performing the following types of tasks: comparing a word with its definition, multiple choice, filling in blanks in sentences, making up one’s own sentences using the learned vocabulary. An equally important stage is listening. The biggest difficulty for students is the perception of speech by ear. The purpose of listening is to develop the skills of listening to texts of monologic and dialogic nature, correction of pronunciation skills. In the process of listening, listening skills are developed, pronunciation is practiced, vocabulary is increased, and grammar is improved. Usually, the average duration of the text is 3.5 minutes. Before the audition, pre-text work must be done to remove difficulties. The teacher explains the meaning of unfamiliar words through synonyms or definitions in English, questions are sorted out, which students must answer after listening. Probably, at this stage, students are able to predict what the dialogue or monologue will be about (anticipation). After the initial or repeated listening of the text or dialogue, students fill in the blanks on the proposed form with tasks. Most often, in order to fill in the gaps, it is necessary to conduct an analysis of what was heard, to compare the information. The next task for checking the understanding of what has been heard is a task that classifies the proposed statements as true, false or the information was not given, and the false information should be corrected by giving an answer that corresponds to the truth. Thus, the teacher checks the degree of comprehension of the text. And, as a result, those who study are offered to listen to the text again, but already with a visual reference. Work with the text for listening ends with a discussion. The listening texts also correspond to the declared topic of the module and introduce students to the cultural values, traditions and realities of foreign countries, which will undoubtedly have a positive effect on the immersion of our students in the academic environment of the European educational space. Writing is a “reliable” way of intercultural interaction between people, an important condition for improving the oral form of communication. The purpose of this stage within the course is to develop the skills and abilities necessary for writing a motivation letter (Motivation Letter), cover letter (Cover Letter), resume (Resume or CV), personal statement (Personal Statement) of a student applicant for participation in an academic program exchange. In the classes, students get acquainted with the structure and content of the listed documents and characteristic persistent expressions (clichés), analyze sample documents, as well as documents of students who participated in the programs in previous years.

The goal of everyone learning a foreign language is to speak the language fluently. Speaking skills are also developed in each lesson. Speaking is the most difficult skill to work on. Often, students have a large vocabulary, competently construct a prepared speech (monologue), compose business letters according to the model, and when it comes to spontaneous speech (dialogue), the so-called language barrier arises - the fear of speaking in a foreign language. In order to overcome the

barrier, in the classes, students discuss the texts of the classes, the topics proposed by the teacher and the problems that the students may face while studying in a foreign university. Thus, spontaneous speech develops. The result of the course will be presentations by students in English. The topic of the presentation is determined by the student himself, but it must correspond to the direction of his training. It should be noted that, unfortunately, the allotted amount of time (100 academic hours) does not allow to significantly increase the level of English language proficiency.

4 Discussion

Under the influence of politics and increasing globalization, in the 2010s, domestic science was fully included in the processes of international academic exchange. Until 2019, 17.2 % of Ukrainian candidates and doctors of science, who present a wide range of fields of science, had a long (more than three months) experience of studying or working abroad. Among the countries of departure, Germany, the USA and France were in the lead. Data on the reverse movement - the influx of foreign researchers and higher education teachers to Ukraine — is limited, but the statistics of postgraduate studies show that during the years 2010-2020, Ukraine became increasingly attractive to students with academic ambitions. Over the decade, the number of foreign graduate students in Ukraine increased by 72.2 % (from 5.5 thousand in 2010 to 9.5 thousand in 2020).

Despite the normalization of the processes of international academic mobility and the active involvement of scientists from abroad by Ukrainian universities and scientific organizations, in many public discussions, as before, anxious moods and statements about the massive and irreversible outflow of scientific and scientific-pedagogical personnel from Ukraine to abroad can be traced. Such a discourse is connected, on the one hand, with the lack of reliable data on the intensity and structure of this process, which provokes significant variability in expert assessments, and on the other hand, with insufficient understanding of the complex nature of its effects.

In the conditions of the current foreign policy situation, consolidation of the achieved position is at risk. In these conditions, taking into account the high degree of integration of Ukrainian science into the global scientific and technological space and the preservation of interest in the development of international cooperation (both with traditional partner countries and in new directions), steps to increase the attractiveness of scientific activity in Ukraine and for domestic and foreign specialists.

State support for science made it possible to increase the attractiveness of work in the country not only for domestic scientists and teachers of higher education, but also for foreigners. In the pre-war years, researchers and teachers who had previously worked for at least two years abroad returned to the country. This process covered a wide range of countries: Germany, USA, Great Britain, France. In the specified period, outgoing and incoming flows were distinguished by their structural characteristics: primarily employees with scientific degrees, representatives of natural sciences left Ukraine for work, study or internship abroad. The incoming stream was more diverse in its socio-demographic characteristics.

Researchers and teachers of different age groups come to Ukraine, among among them, the share of young people under the age of 30 was higher than among those leaving. Their distribution by qualification groups and fields of science was more even. In general, the survey showed that by the end of the 2020s, Ukraine managed to create conditions for the support and development of the personnel potential of science, for the effective integration of domestic scientists and teachers of higher education into the system of circulation of scientific personnel and the global academic labor market. At the same time, the long-term consolidation of the achieved results is at risk today. Researchers and teachers of higher education participating in international collaborations and those who plan to develop their knowledge and competences with the help of various international mobility programs now face serious challenges due

to current foreign policy events. They not only create significant obstacles for international scientific contacts, but also form real threats of a new round of “brain drain”. Ukraine is also affected by the state of war and the unprecedented scientific and technological risks that arise in connection with this, bringing to the fore the task of preserving the personnel potential of Ukrainian science, developing and supporting new mechanisms and formats for its development, including through the involvement of foreign colleagues from countries that were previously de facto on the periphery of international scientific and technical cooperation (India, South Africa, Southeast Asia, Latin America, etc.). These tasks are especially relevant given the fact that in the countries that are technological leaders, a stable system of state support for the attraction and retention of scientific personnel has been formed for many years. For example, the universities and scientific centers of Germany and other Western European countries have high social standards for the profession of a scientist, which implies a decent level of remuneration (on average about 76,000 euros per year for scientists at universities and 60,000 euros per year in scientific organizations), clear criteria for career advancement, social support for the education of scientists and their families, including those who come from other countries. In the current situation, and taking into account the global competition for scientific and scientific and technological personnel, it is necessary to return to the consideration of problems that directly determine the attraction of a scientific career in Ukraine and require an accelerated solution, namely:

- The size of a postgraduate student’s scholarship does not even reach the living wage, while postgraduate students in competing countries receive remuneration in the amount of the average salary.
- The incomes of Ukrainian scientists are incomparable with the incomes of their colleagues in leading countries: in the USA, Germany and China, a university professor receives on average 3-6 times more than a Ukrainian.
- The high fiscal burden and lack of own funds of scientific organizations and universities limit their ability to maintain globally sought-after scientists. While many countries have long used reduced taxation for scientists engaged in research and development (France, Sweden, Belgium, Spain, the Netherlands, Hungary, etc.).
- The current practice of “short” budgetary funding of science, which actually does not differ from other sectors of the economy, hinders the formation of academic prospects for scientists; state tasks of universities and scientific organizations are calculated for an average of 1-3 years, while the cycle of fundamental research is 5-10 years on average. Scientists are required to provide an annual justification of the topics within the framework of the state task, which actually means a lack of trust and creates uncertainty in their prospects.
- For many years, the problems of excessive regulation and duration of purchases of scientific equipment and materials, as well as reporting (treasury, financial, accounting, tax, scientific, etc.) have been discussed.

Recognizing the persistence of some systemic problems, in recent years the state systematically increased the amount of support for scientists, implementing a number of new tools within the framework of national projects, presidential and government initiatives.

The current risks of the country caused by the state of war, the reduction of opportunities to attract foreign specialists, support scientific contacts with foreign scientists, and the implementation of international mobility require a review of the state policy in the field of scientific personnel in order to dampen the risks of the outflow of talented young people and globally competitive researchers abroad, as well as increasing attractiveness of work in Ukraine for foreign specialists. A large-scale and integral support system for scientists must be formed in a forced mode. The first and long overdue step is to reform the postgraduate education system. In order to increase the attractiveness of a scientific career for young people and prevent

their outflow abroad, it is proposed to implement integrated training programs, with additional stimulation of scientific management, already after the completion of the master's degree. Now it is important to retain the "core" of leading scientists who work in Ukraine and have world-class achievements. It is possible to implement this by developing a special budget co-financing program for the remuneration fund of globally competitive Ukrainian scientists, creating all the necessary conditions for their stable scientific activity within the country.

Support for graduate students and researchers working abroad should be a separate direction of the policy. Following the example of China, a national program for the return of domestic scientists to the country with the provision of the most favorable working conditions can be developed. Taking into account the objective limitations of the directions of international cooperation, it is necessary to quickly establish and develop scientific contacts with new partners, redirecting the mobility flows of domestic scientists who were active earlier.

5 Conclusion

The primary measures that stimulate the exchange of experience and improvement of research competences are systemic measures that will reduce the financial burden on universities and scientific organizations, freeing up funds for attracting and maintaining promising research and increasing the sustainability of science funding. They can be a reduction in the rates of insurance contributions for scientists to 7.6%, as well as the implementation of long-term research programs within the framework of state tasks of leading universities and scientific organizations with continuous funding for a period of at least six years and with interim control of results. These and other measures (including the reduction of administrative checks, the volume of reporting) will allow to increase the prestige of the field of science for talented young people and leading scientists, to preserve personnel potential, to reorient international scientific cooperation and the flows of incoming and outgoing mobility in order to prevent a return from the "circulation of minds" to their "flow".

Thus, despite the mostly positive effects of international academic mobility in certain conditions, it carries serious risks for the preservation and development of the personnel potential of national science. Its influence is determined by the intensity of the outgoing and incoming flows, their structural characteristics. The assessment of the potential impact of this process must inevitably be based on a reliable information base, which is currently not formed. The topic of mass emigration of scientists abroad has become traumatic for modern Ukraine. It constantly attracts the attention of journalists and gives rise to various attempts to speculate on this topic. The difficulty of objectively assessing the scope of this process and the lack of systematic monitoring of outgoing and incoming migration flows of scientists contributed to the spread of anxious attitudes in society. At the same time, measures to support scientists constantly used by the country's leadership contributed to the formation of a stable trend of turning irreversible migration into a return migration, turning it into a "classic" model of international mobility accepted in economically developed countries. According to this model, it is considered the norm for a scientist to gain work experience in different countries and different teams, acquire new competencies, and transfer them to his native country.

Literature:

1. Ackers, L.: Internationalisation, Mobility and Metrics: A New Form of Indirect Discrimination?. *Minerva*, 2008. 46(4), 411–435. <https://doi.org/10.1007/s11024-008-9110-2>
2. Adams, J., Loach, T.: Comment: A Well-connected World. *Nature*, 2015. 527, art. no. 7577, 58–59. <https://doi.org/10.1038/52758a>
3. Aksnes D. W., Rørstad K., Piro F. N., Sivertsen G.: Are Mobile Researchers More Productive and Cited than Non-mobile Researchers? A Large-scale Study of Norwegian

- Scientists. *Research Evaluation*, 2013. 22(4), 215–223. <https://doi.org/10.1093/reseval/rvt012>
4. Bozeman, B., Corley, E.: Scientists' Collaboration Strategies: Implications for Scientific and Technical Human Capital. *Research Policy*, 2004. 33(4), 599–616. <https://doi.org/10.1016/j.respol.2004.01.008>
5. Daugeliene, R., Marcinkeviciene, R.: Brain Circulation: Theoretical Considerations. *Engineering Economics*, 2009. 63(3), 49–57. https://www.researchgate.net/publication/228931144_Brain_circulation_Theoretical_considerations
6. De Filippo, D., Sanz Casado, E., Gomez, I.: Quantitative and Qualitative Approaches to the Study of Mobility and Scientific Performance: A Case Study of a Spanish University. *Research Evaluation*, 2009. 18(3), 191–200. <https://doi.org/10.3152/095820209X451032>
7. Deville, P., Wang, D., Sinatra, R., Song, C., Blondel, V. D., Barabási, A. L.: Career on the Move: Geography, Stratification, and Scientific Impact. *Scientific Reports*, 2014. 4, art. no. 4770. <https://doi.org/10.1038/srep04770>
8. Edler, J., Fier, H., Grimpe, C.: International Scientist Mobility and the Locus of Knowledge and Technology Transfer. *Research Policy*, 2011. 40(6), 791–805. <https://doi.org/10.1016/j.respol.2011.03.003>
9. Fontes, M., Videira, P., Calapez, T.: The Impact of Long-term Scientific Mobility on the Creation of Persistent Knowledge Networks. *Mobilities*, 2013. 8(3), 440–465. <https://doi.org/10.1080/17450101.2012.655976>
10. Franzoni, C., Scellato, G., Stephan, P.: *International Mobility of Research Scientists: Lessons from GlobSci*. In *Global mobility of research scientists*. Amsterdam: Academic Press, 2015. 35–65. <https://doi.org/10.1016/B978-0-12-801396-0.00002-8>
11. Gao, Y., Liu, J.: Capitalising on Academics' Transnational Experiences in the Domestic Research Environment. *Journal of Higher Education Policy and Management*, 2021. 43(4), 400–414. <https://doi.org/10.1080/1360080X.2020.1833276>
12. Geuna, A.: *Global Mobility of Research Scientists: The Economics of Who Goes Where and Why*. Amsterdam: Academic Press, 2015.
13. Gläser, J., Aljets, E., Lettke, E., Laudel, G.: *Where to Go for a Change? The Impact of Authority Structures in Universities and Public Research Institutes on Change of Research Practices*. United Kingdom: Emerald Group Publishing Limited, 2014. pp. 297–329. <https://doi.org/10.1108/S0733-558X2014000042010>
14. Godfrey, E. M.: The Brain Drain from ~~in~~ **Low** Countries. *The Journal of Development Studies*, 1970. 6(3), 235–247. <https://doi.org/10.1080/00220387008421323>
15. Gokhberg, L., Shmatko, N., Auriol, L.: *The Science and Technology Labor Force: The Value of Doctorate Holders and Development of Professional Careers*. N. Y.: Springer, 2016.
16. Grubel, H. B., Scott, A. D.: The International Flow of Human Capital. *The American Economic Review*, 1966. 56(1/2), 268–274. https://www.researchgate.net/publication/284788948_The_International_Flow_of_Human_Capital
17. Guo, S., Lei, L.: Toward Transnational Communities of Practice: An Inquiry into the Experiences of Transnational Academic Mobility. *Adult Education Quarterly*, 2020. 70(1), 26–43. <https://doi.org/10.1177/0741713619867636>
18. Halevi, G., Moed, H., Bar-Ilan, J.: Researchers' Mobility, Productivity, and Impact: Case of Top Producing Authors in Seven Disciplines. *Publishing Research Quarterly*, 2016. 32(1), 22–37. <https://doi.org/10.1007/s12109-015-9437-0>
19. Horta, H., Jung, J., Santos, J. M.: Mobility and Research Performance of Academics in Citybased Higher Education Systems. *Higher Education Policy*, 2019. 33(3), 437–458. <https://doi.org/10.1057/s41307-019-00173-x>
20. Horta, H., Yonezawa, A.: Going Places: Exploring the Impact of Intra-sectoral Mobility on Research Productivity and Communication Behaviours in Japanese Academia. *Asia Pacific Education Review*, 2013. 14(4), 537–547. <https://doi.org/10.1007/s12564-013-9279-4>
21. Jonkers, K.: *Mobility, Migration and the Chinese Scientific Research System*. London: Routledge, 2010. p. 256. <https://doi.org/10.4324/9780203854952>

22. Jonkers, K., Cruz-Castro, L.: Research upon Return: The Effect of International Mobility on Scientific Ties, Production and Impact. *Research Policy*, 2013. 42(8), 1366–1377. <https://doi.org/10.1016/j.respol.2013.05.005>
23. Jonkers, K., Tijssen, R.: Chinese Researchers Returning Home: Impacts of International Mobility on Research Collaboration and Scientific Productivity. *Scientometrics*, 2008. 77(2), 309–333. <https://doi.org/10.1007/s11192-007-1971-x>
24. Kim, T.: Transnational Academic Mobility, Knowledge, and Identity Capital. *Discourse: Studies in the Cultural Politics of Education*, 2010. 31(5), 577–591. <https://doi.org/10.1080/01596306.2010.516939>
25. Kosmulski, M.: Careers of Young Polish Chemists. *Scientometrics*, 2015. 102(2), 1455–1465. <https://doi.org/10.1007/s11192-014-1461-x>
26. Lawson, C., Shibayama, S.: International Research Visits and Careers: An Analysis of Bioscience Academics in Japan.

- Science and Public Policy*, 2015. 42(5), 690–710. <https://doi.org/10.1093/scipol/scu084>
27. Lei, L., Guo, S.: Conceptualizing Virtual Transnational Diaspora: Returning to the ‘Return’ of Chinese Transnational Academics. *Asian and Pacific Migration Journal*, 2020. 29(2), 227–253. <https://doi.org/10.1177/0117196820935995>
28. Martinez, M., Sá, C.: Highly Cited in the South: International Collaboration and Research Recognition Among Brazil’s Highly Cited Researchers. *Journal of Studies in International Education*, 2020. 24(1), 39–58. <https://doi.org/10.1177/1028315319888890>

Primary Paper Section: A

Secondary Paper Section: AM

Appendix A

Respondents	Language component	The academic component	Personal component
P1	10	7	5
P2	8	9	7
P3	5	8	6
P4	7	10	5
P5	6	9	9
P6	9	8	3
P7	10	7	4
P8	7	9	5
P9	6	9	7
P10	8	10	9
P11	9	5	10
P12	10	9	2
P13	5	4	9
P14	7	7	6
P15	9	9	8
P16	10	4	3
P17	7	5	9
P18	6	10	10
P19	9	2	5
P20	10	8	9
P21	10	7	7
P22	8	5	6
P23	7	7	7
P24	9	6	9
P25	10	9	5
P26	7	10	7
P27	8	3	8
P28	9	4	5
P29	10	5	8
P30	7	7	6
P31	9	9	10
P32	10	2	8
P33	7	7	5
P34	9	6	6
P35	10	3	8
P36	7	9	7
P37	9	7	4
P38	10	8	8
P39	7	10	5
P40	10	5	7
P41	8	7	5

P42	5	10	4
P43	6	8	6
P44	8	5	8
P45	7	7	5
P46	6	8	4
P47	9	9	9
P48	10	6	2
P49	7	7	7
P50	9	6	6
P51	10	4	3
P52	5	10	9
Average value	8,096154	7,019231	6,442308
Coefficient	0,809615	0,701923	0,644231
Percentage of total	80,96154	70,19231	64,42308

ADAPTATION OF CURRICULA FOR CHILDREN WITH SPECIAL EDUCATIONAL NEEDS: ANALYSIS OF SUCCESSFUL PRACTICES IN THE CONTEXT OF INCLUSIVE EDUCATION

^aANASTASIIA BESSARAB, ^bANASTASIIA TURUBAROVA,
^cIRYNA ANTONENKO, ^dANNA KIRILLOVA,
^eSVITLANA LUPINOVYCH, ^fOLHA HALIIEVA

^{a,b,c,d,e,f}*Municipal Institution of Higher Education "Khortytisia National Educational and Rehabilitation Academy" of Zaporizhzhia Regional Council, Zaporizhzhia, Ukraine.*
email: ^astaicy@ukr.net, ^bturubarovaan@gmail.com,
^cirinaantonenko80@gmail.com,
^dannaoleksandrivna22@gmail.com,
^esvetlanalupinovykh@gmail.com, ^fHaliievaolha@gmail.com

Abstract: Integrating curriculum for children with learning disabilities is among the significant concerns of education in implementing inclusive practices. Implementing educational methods to differentiate learning is essential. Using available technologies to help students achieve high results is also essential. This research was designed to review successful strategies that have been undertaken to implement change in tackling educational programmes for children with Special Educational Needs in the light of Inclusive Education. The research method is grounded in analysing literature sources, the comparative method, and the systematic approach to assessing inclusive practices. The study's findings revealed that personalisation strategies and information technologies improve students' attendance and achievement rates among students with learning disabilities. In this regard, the review of the international experience has highlighted examples of programme adaptation that can be used to enhance domestic inclusive education. The study's results can be used to develop educational programmes. Such programmes help integrate students with special social needs into the general education.

Keywords: Inclusive education, Adaptation of curricula, Special educational needs, Individualisation of education, Modern technologies, Psychological support, Socialisation

1 Introduction

Inclusive education deals with educating children with specific learning requirements in the mainstream education system; this change necessitates curricula, teaching strategies and methodology alterations. Nevertheless, the idea and practice of adapting educational programmes for such children is still a delicate and many-sided problem that raises the necessity for analysing successful practices and determining practical models. Over the past few decades, there has been a rise in the population of literature on inclusive education. Current trends among scholars include identifying ways to individualise learning, developing tailored learning materials, and the use of technology in the process, and the work on these topics can be traced in the articles of Abidova (2021), Bobrova et al. (2022), and Bahrudin et al. (2021). The need for providing increased psychological assistance as well as socialisation of children with SEID (Special Education for Individuals with Disabilities) is discussed in Karibaev et al. (2022) and Shylina (2019). Thus, despite improvements in implementing inclusive education, there are still weaknesses in implementing practices. These practices would help to improve educational programmes and expand the offerings to ensure their suitability for people with intellectual disabilities.

There are gaps in the research concerning the extent of current technologies' influence on the adaptation of coursework and pedagogy and the incorporation of novel patterns into the teaching process. It is necessary to investigate how different countries implement such measures and which are most successful in practice.

The development of inclusive education around the world points to the need to develop curricula that meet the individual needs of students with special needs. Nevertheless, many schools and teaching teams face problems as they face many difficulties in introducing and implementing inclusive methods: lack of methodological recommendations for implementing practical approaches to the inclusion of children with learning disabilities and other forms of education; low use of such technologies; lack of material and technical resources for students with different learning needs.

Although considerable progress has been made in improving the overall implementation of IE (Inclusive Education) in some countries, there are still many gaps in changing curriculum. Therefore, more thorough research and identification of such approaches in other countries is needed to identify effective practices that can be used to develop appropriate models for adapting curricula for children with cerebral palsy.

The article aims to analyse successful practices of adapting curricula for children with special educational needs in the context of inclusive education. The main objectives of the article are:

1. To study modern approaches to adapting educational programmes for children with special needs.
2. To analyse successful practices of inclusive education implementation in different countries and assess the impact of modern technologies on its development.
3. To consider psychological support and socialisation of children with special educational needs in an inclusive environment.

2 Analysis of latest research and publications

Modification of education services and materials for children with educational disabilities. The main principle of integrating special needs children into schooling is a modification of peculiarities of education. According to Abidova (2021), the approaches to curriculum differentiation mean that learning with SEN (Special Educational Needs) can engage in the learning processes. The learning needs of such children should be covered through created adaptive educational resources, as Bobrova et al. (2022) claimed that the flexibility of such learning should be provided to cater to various learning demands. Furthermore, Bahrudin et al. (2021) call for developing resource centres in their work regarding inclusive education. These centres offer the enabling assistance and support schools need to put programmes for children with special needs and integrate them into learning. Feng et al. (2020) also consider the lifelong approaches to promoting inclusive education to students with special needs, insisting on the necessity of inclusion support during the entire lifelong period successful in society.

In contrast, Veremchuk and Khomiak (2021) discuss technologies to enhance children's learning with disabilities. Their research proves that, apart from academic knowledge, students with booking disabilities benefit from using technology in the learning process and their social inclusion. Likewise, Doncheva (2020) has shown attention to general education and creative context for children with special needs, stressing unique approaches and teaching methods.

Regarding the advancement of educational initiatives, they focused on psychological support and social integration for children with special educational needs. Support is critical to integrating people with special needs, which results in their integration into the educational sphere. According to Karibaev et al. (2022), psychological support for learners with SE Norwegian learning disabilities in schools helps manage stress, increasing self-esteem. The help of this nature promotes academic accomplishment with an emphasis on social relatedness. Lunkina and Sizonenko (2021) are concerned with the socialisation process of youth with special needs. They improve this aspect to allow youth to integrate into society and prepare for adulthood. Therefore, Akhmetova et al. (2022) claim that safe and supportive relationships between CWS (Children with Special Educational Needs) and others foster student integration and social interaction. There is also a need to understand and educate children with special educational needs, as observed by Shylina (2019). This type of partnership is rather timely in increasing the chances of the socialisation process of the two. Regarding the organisation of learning environments for

children with learning disabilities, Bakhmat et al. (2022) maintain that learning environments should accommodate and prepare children for future functioning in society. Consequently, based on the background of Inclusive Education in America, Shumaieva and Kovaleko (2021) explain how the approaches to building an inclusive practice contributed to the construction of the preparation and socialisation of learners with special education needs in previous years.

Structure of schooling for learning disabled students. Bratyshko (2020) discusses the necessity of putting distance learning organisations into practice for children with special needs because it is a success with the call for modification of approaches to teaching. In the work of Zeng (2021), the organisation of work with individuals with special educational needs in China is considered, and existing strategies and practices are shown that contribute to the inclusion of children into the general education process. Shevchenko (2021) mainly discusses the organisation of the educational process in special schools and the need for adjustments in education reforms. Hornby and Kauffman (2021) consider barriers to learning and teaching to develop an equal learning environment for all students. Slozanska (2021) discusses preschool education readiness to identify learning through early socialisation, especially for children with learning difficulties. In this article by Bezliudnyi (2019), the inclusive education of adolescents in the United States is examined, especially concerning the practices of educational effects on children with special needs. Examining the state of inclusive education in England and the effects of government policies on children with learning disabilities, Williams-Brown and Hodkinson (2020) explain.

Critical aspects of using information and communication technology to advance inclusion in education. According to Karagianni and Drigas (2023), new technologies such as digital media can be seen as an effective solution to provide as many children with SEP as possible and with specific needs. With the help of technology, it is possible to plan the processes for specific students' needs and vice versa. Khmelniiska and Tkachenko (2020) describe the technologisation of the educational process, highlighting the significance of applying technology in the classroom when working with children with some learning disability. Choi et al. (2020) investigate new possibilities for improving inclusive education's effectiveness and outcomes by modifying educational systems through technology. Lopatynska et al. (2023) pay attention to technology and the social inclusion of children with specific needs in education and social settings. Kolbina et al. (2023) also stress the

social indicators of the development of a child with special needs and point out that this is necessary for the child's integrated personal growth. That technology is an efficient means towards achieving it.

This paper concludes that curriculum modification and counselling are vital to implementing inclusive practices for children with learning difficulties.

3 Research methods

1. Many researchers focus on literature analysis to describe the framework regarding curriculum alteration and/or Inclusive Education as well as empirical literature. The present paper is based on reviewing domestic and foreign scholars' writings on the practical inclusion model.
2. We used the case study approach to assess particular cases of curriculum adjustments for kids with exceptional education requirements worldwide. We implemented this technique to uncover best practices and adapt them to fit the needs of our schools while focusing on their practical use and inclusive benefits.
3. Analysis of the state of practices and research – presenting specific cases of curriculum changes in certain countries, including Finland, Canada, Indonesia, Italy, and Japan. As a result, several proven effective practices and solutions implemented in these countries to support the inclusion of children with special needs were identified.
4. A systemic approach was used to research the influence of various parameters (technological, psychological, social) on the implementation of curricula. This approach proved useful for implementing a comprehensive analysis of the connection between curriculum and instructional practices, as well as technological and social support options.

4 Results

Change implementation for children with SEND (Special Educational Needs and Disabilities) is the third aspect of integration in education. Modern adaptation approaches aim to achieve the goal of successful educational intervention. This would realise a child's equal right to education in all areas. Advancements in pedagogy allow for easy development of a learning atmosphere for children within the school system. Individual study plans and assessments are critical features of these teaching methods and technological applications. The main categories under this are differentiation, special equipment, technology, and a counsellor's assistance (Table 1).

Table 1. Modern approaches to the adaptation of educational programmes

Approaches	Description	Expected results
Individualisation of curricula	Creating lessons and courses concerning the students' traits and accomplishing educational processes according to the child's capabilities (Abidova, 2021).	Better performance, reasonable workload, motivation to learn, and less stress.
Use of adaptive technologies	Implementing modern technology computers, applications, and websites enables the development of unique learning materials adapted to Learning Disability students (Karagianni & Drigas, 2023).	Materials should be available in a format that does not impose on the student, students' autonomy and communication, and learning barriers eliminated.
Psychological support	Developing the hierarchy of using students' psychological aid would minimise stress and maximise children's self-perception in learning (Karibaev et al., 2022).	Enhancing the student's emotional well-being, depression, or stress levels, and better adaptation to the social and academic environment.
Inclusive environment	Environmental modifications facilitate the social inclusion of children with learning difficulties within classroom settings by arranging learning tools, classroom settings, and personal support (Bakhmat et al., 2022).	Increasing the level of social inclusiveness of students, expanding opportunities for direct social interaction of students, and reducing social isolation.
Family and community support	Engagement of the family and school is essential for children to remain supported not only in school but also in other community activities (Shylina, 2019).	Facilitating better cooperation between school, family, and community; supporting students, developing their abilities in all spheres of their lives, and achieving better educational and social results.
Differentiated assessment	Employing various measures in learning assessments related to students' strengths and deficits, such as praise and reinforcers, would encourage learning (Hornby & Kauffman, 2021).	There was a reduction in reliance on examinations as a means of evaluating learning achievements, less pressure from examinations, and enhanced students' learning confidence.

Tutoring support	Engagement of tutors who assist learners with learning difficulties in the learning process to support and facilitate their learning and manage the learning activities (Williams-Brown & Hodkinson, 2020).	Increased performance, students' autonomy and self-esteem, decreased anxiety and stress, and better adaptation to learning.
Multimodal approach	A different approach to acquiring knowledge is helpful for students with special needs in terms of learning and contributing to the learning process (Feng et al., 2020).	Enhancing students' active participation in the learning process, improving their material absorption rate, and synthesising various aspects of thinking and creativity.

Designing educational initiatives for children facing unique learning difficulties involves several recent approaches to ensure that all students obtain comparable educational opportunities. The identified educational interventions include personal guidance, tech, and advice for growth in a unified environment. These methods help every child develop fully while preparing

for adulthood and social growth. The study focuses on effective methods for allowing children with special needs to fit into regular education systems. The measures examine issues uniquely, considering individual nations' social and cultural aspects. Many countries around the globe demonstrate these practices as prominent successes (Figure 1).

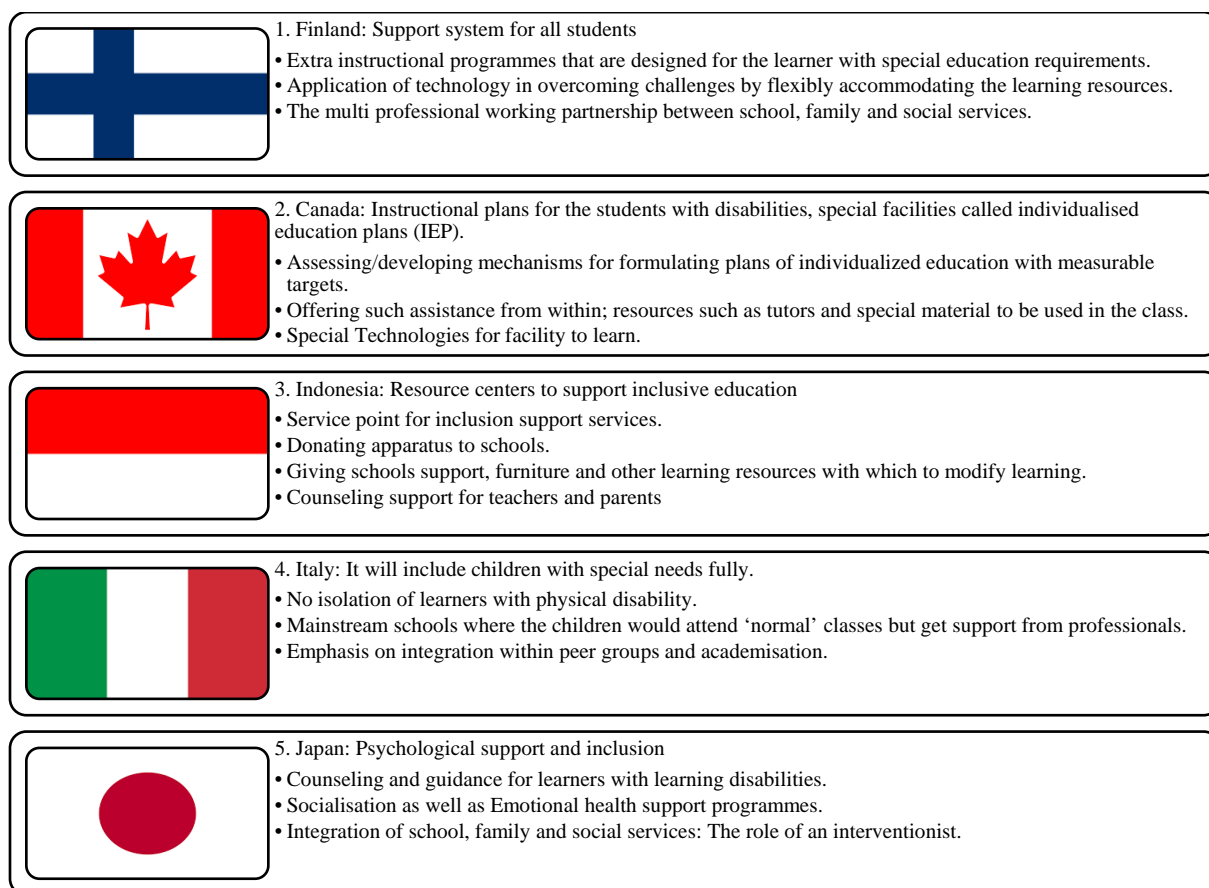


Figure 1. Examples of successful practices in several countries: features

1. Finland.

An example of a school: Helsingin normaalityö

Practice: This school provides fair chances for every pupil and children with specific educational requirements (SEN). The school stratifies support to provide help at three levels: general assistance and specialised support for some students. School psychologists and social workers collaborate closely to aid children in developing a relationship with school resources. This provides a pathway for children with disabilities to fit naturally into the regular classroom.

2. Canada.

An example of a school: Rick Hansen Secondary School, Abbotsford, British Columbia

Practice: This school provides fair chances for every pupil and children with specific educational requirements (SEN). The school stratifies support to provide help at three levels: general assistance and specialised support for some students. School psychologists and social workers collaborate closely to aid children in developing a relationship with school resources. This provides a pathway for children with disabilities to fit naturally into the regular classroom.

3. Indonesia.

An example of a school: SLB Negeri Semarang

Practice: This school has a resource centre to support schools in elevating inclusive education. Teachers and parents get help at these centres through counselling. Children with special requirements can learn in traditional schools as part of the community.

4. Italy.

An example of a school: Istituto Comprensivo di Paderno Dugnano, Milan

Practice: In Italy, all students participate in regular schools instead of having facilities for disabled students. Special helpers and workers assist students with special needs to fit into classroom settings. An individualised approach allows each student to obtain schooling and social facilitation plans.

5. Japan.

An example of a school: Takanawa Gakuen, Tokio

Practice: Japanese schools, including Takanawa Gakuen, are actively working to integrate students with disabilities. The school has developed special programmes for social integration

and emotional support to help students with special needs interact better with their peers and overcome depression. Psychologists and social workers collaborate with teachers and parents to establish a supportive learning environment.

Practices in inclusive education from around the world show the broad array of methodologies designed to fulfil the unique educational needs of children with special needs. These methodologies help to achieve even learning conditions for all

students while promoting their total participation in education. Evaluating the consequences of technology is possible with multiple criteria available.

Table 2 presents an assessment of the impact of modern technologies on the development of inclusive education.

Table 2. Statistics on the impact of technology on inclusive education

Criterion	Description	Statistics/Source
Use of technology	Several secondary education institutions use technology to support inclusive learning. (Interactive whiteboards, specialised applications, digital platforms).	Ultimately, 80% of schools in developed country contexts (UNESCO, 2022).
Access to adaptive technologies	Students needing special care now have access to unique technologies such as adaptive keyboards that support those with disabilities, text magnification programmes, and audio systems for manuscripts.	According to the National Center for Education Statistics, in 2021, 95% of students with disabilities living in the United States have access to technology.
Individualisation of learning	Adaptive technology is used to design unique learning trajectories for students with special needs.	Students with special needs experience 60% greater engagement due to technology (European Agency for Special Needs and Inclusive Education, 2020).
Communication opportunities	Students with autism and speech disorders can communicate with teachers and peers thanks to alternative communication applications.	According to the International Society for Technology in Education (ISTE, 2021), interaction among students with autism in the classroom has risen by 45% in the last year.
Socialisation and integration	Application of technology to give students with special needs access to social activities and teamwork projects that foster integration.	Due to technology, participation in social activities has risen to 30% (OECD, 2021).

Figure 2 shows a bar graph that depicts the effects of technology use on inclusive learning when examined against multiple criteria. Such a representation shows the statistics for every angle, reflecting access to technology, use of individualised learning, communication possibilities, socialisation and integration, and the availability of adaptive tech.

The range of values in Figure 2 varies from 0 to 100 and shows how technology affects inclusive education in multiple areas. This scale Measures study data and denotes 100% as the extreme result and 0% as nothing. The percentage value helps interpret

the data easily; it shows how much technology is adopted or influences particular learning elements. Research from the OECD and UNESCO, along with the European Agency for Special Needs and Inclusive Education and ISTE, is the foundation for Figure 2. This information came from their reports and research examining how technology aids students with unique learning requirements. Figure 2 is based on an analysis of international studies conducted in developed countries, such as the United States, Europe, and Asia, in 2020–2022.

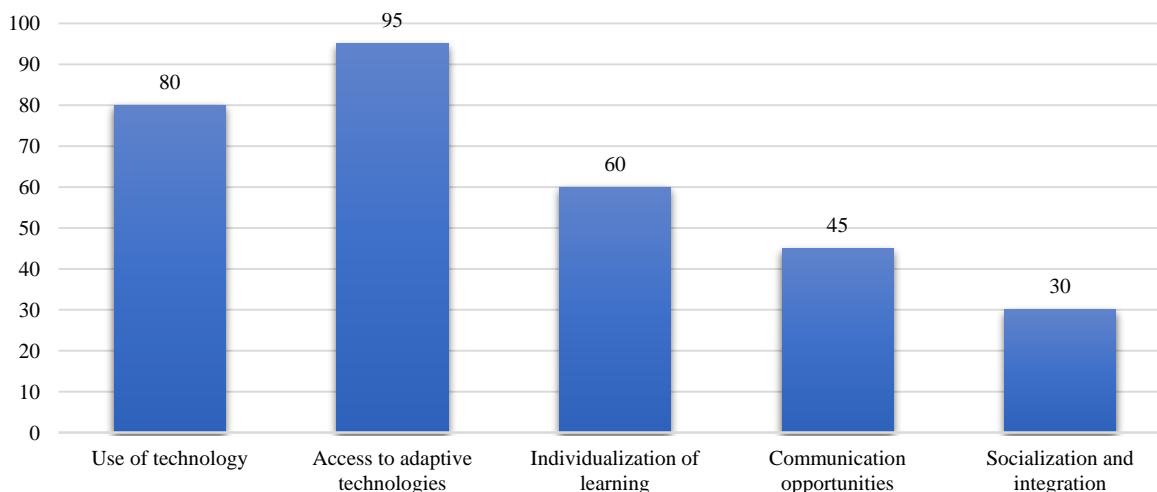


Figure 1. The impact of technology use on inclusive education by different criteria

Criteria and their essence:

Use of technology. This criterion examines how many schools use technology, including interactive whiteboards and digital tools, to support inclusive learning methods. A significant number suggest that technology is commonly used in class teaching methods.

Access to adaptive technologies. Students can rely on these tools to break down educational barriers as their scores rise.

Individualisation of learning. This measurement indicates the application of technology to design customised teaching plans for students with specific learning needs. It illustrates how well technology adjusts the learning framework to accommodate individual student needs.

Communication capabilities. This index determines how technology supports students with autism and language disorders in exchanging information with teachers and others using

various communication tools. A considerable percentage points to better exchanges among students through technology.

Socialisation and integration. This aspect demonstrates the level at which technology aids the participation of students with disabilities in school activities. As scores rise, students are increasingly engaged in social interactions at school.

Each criterion is as follows:

- Use of technology. (The level of usage of technology in promoting learning at schools).
- Access to adaptive technologies. (Solutions utilising technology to help students with special needs bypass academic difficulties).
- Individualisation of learning. (Technology supports the formation of specific learning techniques).
- Communication opportunities. (Equipment that supports kids with autism or language deficits in building their communication talents).
- Socialisation and integration. (Equipment which supports students with unique challenges in joining school and social settings).

Figure 2 illustrates how technology can affect differing elements of inclusive education. The significant growth reflects the progressive breaking down of barriers to learning. Successful inclusion is contingent upon having both psychological support and socialisation. Inclusive education consists of building environments for educational and social growth in disabled students, significantly increasing their opportunities for a smooth entry into society. We plan to summarise the main features of psychological support supplemented by socialisation.

- *Every student has access to different kinds of psychological care.* Children with special educational needs require psychological care to deal adeptly with the stress and emotional conflicts related to their education. Psychologists' contributions in different educational contexts include therapeutic care, help with transitions, and building a powerful sense of self-esteem.
- *Group psychological support.* To assist children needing exceptional support with social interactions, the selections are group therapy or sessions that interact. These classes enhance students' abilities to team up, communicate effectively, and foster personal relationships.
- *A small amount of aid is also being provided to educators.* Teachers and assistants with specialised training to help students with unique challenges are essential in providing psychological care. The researchers emphasise that overcoming barriers to education is essential; in response, they create a favourable educational environment (Rodina, 2021).
- *Engagements with other people produce traits that are in harmony with those of an extrovert.* Children in special education programmes regularly perform well in socialisation once they conform to the expectations set by the standard curricula. Some of this initiative involves combining co-curricular and extracurricular clubs and friendships. Children develop better communication abilities and bond with their peers through shared projects or sports functions.
- *Cooperation with families.* Since each child has special developmental needs, the influence of the family is strongly felt among children. When psychologists, teachers, and parents work together, they foster stable social support for a child's mental health.

We can now turn to the numbers regarding the effect of psychological counselling on learners. The Organisation for Economic Co-operation and Development (2021) suggests that 70% of individuals receive benefits from socialisation improvement and stress reduction. According to a study by UNICEF (2020), demonstrating psychological support in the learning process lowers the probability of worsening the student's emotional state by 40%.

5 Discussion

The results of the presented work also suggest the high effectiveness of the curricula adaptation for children with SEN (Special Educational Needs), considering individual learning approaches and technologies. This is in harmony with Abidova (2021); the author insists that students should be able to participate in the learning process, which is why it is more effective when individualised. However, other authors, Hornby and Kauffman (2021), have quickly explained the many difficulties encountered when promoting learning equality for learners. In line with this, the results of our study provide evidence that technology can significantly enhance this process. However, more investigations are required to identify effective research practices for this technology.

Another essential part of amiable adaptation is the psychology and socialisation of children with special educational needs. Altogether, our results correlate with the implications given by Karibaev et al. (2022) about the crucial role of psychological support in an inclusiveness approach to education. However, some authors like Bakhmat et al. (2022) recognise that one of them is the absence of preparation of teachers for working with children with special needs, as observed in our study. Therefore, we think there is a need for more extensive research studies to promote and establish educational programmes that enhance teachers' professional efficacy in delivering instructions to individuals with learning disabilities.

One of the main findings of the present research is the affirmation of the importance of technology in the realisation of inclusive education. The results correlate with Karagianni and Drigas (2023) regarding digital platforms' efficacy in modifying education programmes. However, Choi et al. (2020) point out a lack of technology integration in some education systems because of technical and financial challenges. Our research shows these issues can be resolved by creating less expensive technologies.

We did not consider the influence of cultural and social factors in our analysis of the convection of disability inclusion in different countries. However, the question of the approaches to programme differentiation depending on the care of special educational needs also needs further research, as it emerged that the 'one size fits all' approach could not always be efficient in this sphere. Therefore, the study's findings substantiate the opportunity to apply individualised curricula and the latest technologies in implementing the principles of inclusive education.

6 Conclusions and prospects for further research

Schools can only accept the needs of special education children when school curricula adapt to the needs of special education children. Matching teaching lesson plans to student characteristics increases learners' efficiency with learning challenges. Similar practices in socialisation are applied to guarantee programme provision and other materials tailored to individual students. Psychological support and socialisation contribute significantly to children's sense of security in inclusive education. Countries outside this report show that progress improves significantly when schools, families, and society play a role in children's inclusion. However, resources and technical difficulties stand in the way of broadening access to education for all.

The studies should continue to identify effective models of teachers' professional development and strategies for providing inclusivity.

Literature:

1. Abidova, N. Z.: Inclusive education of children with special educational needs. *The American Journal of Social Science and Education Innovations*, 2021, 3(3), 476–480. <https://doi.org/10.37547/tajssei/volume03issue03-74>

2. Akhmetova, G., Massaliyeva, Z., Ismanova, R., & Butabayeva, L.: Formation of positive relationships of peers to children with special educational needs in inclusive education. *Cypriot Journal of Educational Sciences*, 2022, 17(8), 2622–2633. <https://doi.org/10.18844/cjes.v17i8.7822>
3. Bahrudin, B., Indra, J., & Kustandi, C.: The implementation of special needs school programs as resource center for inclusive education in Indonesia. *International Journal of Multicultural and Multireligious Understanding*, 2021, 8(12), 540–550. <https://doi.org/10.18415/ijmmu.v8i12.3338>
4. Bakhmat, N., Vyshnyk, O., Moskaljova, A., Fediy, O., & Lisovska, K.: Organisation of an inclusive educational environment for the development of children with special educational needs. *Eduweb*, 2022, 16(3), 9–22. <https://doi.org/10.46502/issn.1856-7576/2022.16.03.1>
5. Bezliudnyi, R.: Inclusive education of teenagers with special needs in the United States of America. *Studies in Comparative Education*, 2019, 1. <https://doi.org/10.31499/2306-5532.1.2019.174722>
6. Bobrova, V. V., Aitkazina, T. D., Zhunusova, K. Z., & Smakova, D. R.: Inclusive education: Adaptive educational resources for children with special educational needs. *Chronos Journal*, 2022, 7, 48–54. <https://doi.org/10.52013/2658-7556-72-10-14>
7. Bratyshko, T.: Organisation of distance learning for students with special educational needs in an inclusive education. *Pedagogy and Psychology Formed by Workers' Personalities: Problems and tasks*, 2020, 70(1), 51–55. <https://doi.org/10.32840/1992-5786.2020.70-1.9>
8. Choi, J. H., McCart, A., & Sailor, W.: Reshaping educational systems to realise the promise of inclusive education. *Forum for International Research in Education*, 2020, 6(1), 8–23. <https://doi.org/10.32865/fire202061179>
9. Doncheva, J.: Fostering a developmental educational and creative environment for children with special educational needs in the Bulgarian inclusive education. In *VI International Forum on Teacher Education*. Zenodo, 2020.
10. European Agency for Special Needs and Inclusive Education. *Technology in education for students with special needs*. 2020. <https://www.european-agency.org>
11. Feng, X., Xu, Y., & Li, J.: Implementation of support programs for life-long educational inclusion of students with special needs. *World Journal of Educational Research*, 2020, 7(2), 103–115. <https://doi.org/10.22158/wjer.v7n2p103>
12. Hornby, G., & Kauffman, J. M.: Special and inclusive education: Perspectives, challenges and prospects. *Education Sciences*, 2021, 11(7), 362. <https://doi.org/10.3390/educsci11070362>
13. International Society for Technology in Education (ISTE). *Technology in classrooms: Improving interaction for students with autism*. 2021. <https://www.iste.org>
14. Karagianni, E., & Drigas, A.: New technologies for inclusive learning for students with special educational needs. *International Journal of Online and Biomedical Engineering (iJOE)*, 2023, 19(5), 4–21. <https://doi.org/10.3991/ijoe.v19i05.36417>
15. Karibaev, Z., Autaeva, A., Zhumabaeva, A., Kaliyev, N. K., Zhangoziyeva, M. S., & Sultangaliyeva, A.: Psychological support for children with special educational needs in an inclusive education. *Cypriot Journal of Educational Sciences*, 2022, 17(4), 1024–1031. <https://doi.org/10.18844/cjes.v17i4.7103>
16. Khmel'nitska, O., & Tkachenko, L. V.: Technologisation of the educational process in working with children with special educational needs. *Humanitarian Bulletin of Hryhorii Skovoroda Pereiaslav-Khmelnytskyi State Pedagogical University*, 2020, 44(2), 136–143. <https://doi.org/10.31470/2308-5126-2019-44-2-136-143>
17. Kolbina, L., Kasianenko, O., Sopivnyk, I., Karskanova, S., & Chepka, O.: The role of inclusive education in the personal growth of a child with special educational needs. *Revista Amazonia Investiga*, 2023, 12(64), 156–164. <https://doi.org/10.34069/ai/2023.64.04.15>
18. Lopatynska, N., Omelchenko, M., Deka, I., Protas, O., & Dobrovolska, N.: The role of inclusive education in the social integration of children with special educational needs. *Cadernos de Educação Tecnologia e Sociedade*, 2023, 16(1), 135–142. <https://doi.org/10.14571/brajets.v16.n1.135-142>
19. Lunkina, T., & Sizonenko, J.: Socialisation of young people with special educational needs. *Modern Economics*, 2021, 25(1), 98–104. [https://doi.org/10.31521/modecon.v25\(2021\)-15](https://doi.org/10.31521/modecon.v25(2021)-15)
20. National Center for Education Statistics. *Students with disabilities and access to technology in U.S. schools*. 2021. <https://nces.ed.gov>
21. OECD. *Technology and social inclusion in education*. Organisation for Economic Co-operation and Development. 2021. <https://www.oecd.org>
22. Rodina, N.: Features of inclusive educational environment formation for people with special needs. *Continuing Professional Education: Theory and Practice*, 2021, 2, 72–78. <https://doi.org/10.28925/1609-8595.2021.2.9>
23. Shevchenko, S.: Organisation of the educational process in special schools for children with special needs (2011–2017). *The origins of pedagogical excellence*, 2021, 27, 239–244. <https://doi.org/10.33989/2075-146x.2021.27.247125>
24. Shumaieva, S., & Kovaleko, S. G.: History of inclusive educational practices in the USA. *Collection of Scientific Papers of Uman State Pedagogical University*, 2021, 1(1), 157–163. <https://doi.org/10.31499/2307-4906.1.2021.228834>
25. Shylina, N.: The problem of training children with special educational needs in both family and educational institutions. *Scientific Bulletin of South Ukrainian National Pedagogical University named after K. D. Ushynsky*, 2019, 3(6), 42–49. <https://doi.org/10.24195/2617-6688-2019-3-6>
26. Slozanska, H.: Peculiarities of preparing of children with special educational needs to school. *Scientific Issues of Ternopil Volodymyr Hnatiuk National Pedagogical University. Series: Pedagogy*, 2021, 1(2), 49–59. <https://doi.org/10.25128/2415-3605.21.2.7>
27. UNESCO. *Re/Shaping policies for creativity: Addressing culture as a global public good*. UNESCO Publishing, 2022. <https://unesdoc.unesco.org>
28. Veremchuk, A., & Khomiak, O. A.: Innovative technologies of teaching children with special educational needs. *Psychological and Pedagogical Problems of Modern School*, 2021, 1(5), 71–78. [https://doi.org/10.31499/2706-6258.1\(5\).2021.235185](https://doi.org/10.31499/2706-6258.1(5).2021.235185)
29. Williams-Brown, Z., & Hodkinson, A.: Development of inclusive education in England: Impact on children with special educational needs and disabilities. In *Springer Ebooks*, 2020. (pp. 1561–1583). https://doi.org/10.1007/978-3-030-14625-2_151
30. Zeng, G.: Forms of organisation of work with people with special educational needs in China. *Professional Education: Methodology, Theory and Technologies*, 2021, 13, 96–109. <https://doi.org/10.31470/2415-3729-2021-13-96-109>

Primary Paper Section: A

Secondary Paper Section: AM, AN

ADOPTING A LINGUOCULTURAL METHOD FOR EDUCATING PROSPECTIVE FOREIGN LANGUAGE EXPERTS

^aOKSANA SNIGOVSKA, ^bOLHA REMBACH, ^cMARIANA BRODA, ^dLARYSA MOSHIEVYCH, ^eOLHA SHUM

^a*Odesa I. I. Mechnikov National University, Odesa, Ukraine.*

^b*Leonid Uzkov Khmelnytskyi University of Management and Law, Khmelnytskyi, Ukraine.*

^c*Drohobych Ivan Franko State Pedagogical University, Drohobych, Ukraine.*

^d*Zaporizhzhia National University, Zaporizhzhia, Ukraine.*

^e*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine.*

email:
^asnigovska@ukr.net, ^bolga.ukr@ukr.net, ^cmariana.broda@dspu.edu.ua, ^dlarisamosiyevich1977@gmail.com, ^eoshym@ukr.net

Abstract: The article is dedicated to exploring the prospects and features of implementing a linguocultural approach in teaching English as a foreign language within the framework of cognitive-linguocultural methodology for developing students' foreign language competence in higher education institutions. The research is based on the comprehensive application of the methods of analysis and synthesis, forecasting and data analysis, pedagogical observation, surveying, and generalisation. The article provides a critical review of scientific works dedicated to the linguocultural approach, describes the interrelationship between the English language and culture, formulates methodological recommendations for integrating the linguocultural approach into the educational process, and outlines an experiment conducted on the application of the linguocultural approach in the process of learning English at a higher educational institution in Ukraine. It has been established that the linguocultural approach to studying English fosters the development of the following competencies: cultural studies, general cultural, linguistic and cultural studies, linguocultural, sociocultural, and communicative. Forming foreign language communication includes mastering the ethical norms of communication and reflecting on the mental characteristics of a particular linguistic and cultural community. To effectively implement the linguocultural approach, it is essential to apply this principle comprehensively and consistently in all aspects of language learning: speaking, listening, writing, and reading. It has been proven that the role of the teacher in the educational process increases with the implementation of the linguocultural approach. However, the teacher must have an appropriate cultural background, deepen their knowledge of other people's cultural heritage and mental characteristics, and constantly improve their linguocultural level not only from theoretical sources but also from personal observations of native speakers, which requires significant time and financial investment.

Keywords: Linguocultural approach, Foreign language learning, English language, Culture, National concept sphere, Cognitive linguistics, Language competence, Speech competence, Linguocultural Competence, Secondary linguistic personality

1 Introduction

Nowadays, no one who teaches or learns a foreign language doubts the necessity of developing foreign language, linguistic, and speech competencies through the unity of language and culture. The cultural platform serves as a unique foundation of every society, as does its national heritage, and language acts to transmit and interpret this heritage.

In modern linguodidactics, the concept of "foreign language" has been expanded to the level of "foreign language education". Thus, the object of study becomes the language and the linguoculture. This can be seen as a radical shift in the target orientations in foreign language learning, as the expected program outcomes of higher education include training specialists who are not only proficient in a foreign language at the level of functional literacy and professional communication but also ready to establish professional intercultural and international contacts. For this reason, most foreign language curricula include the formation of intercultural communicative competence among the core competencies of future specialists.

Learning a foreign language involves mastering effective tactics and strategies for oral and written, consecutive or simultaneous translation. It also aims to shape the student's personality and develop competencies that will enable them to make effective decisions in a globalised world. Therefore, professional foreign language competence must consider the peculiarities of intercultural communication, which entails forming and maintaining one's cultural identity and accepting and understanding the values of representatives of other cultures. In this context, modern linguistic science defines the linguocultural

approach to foreign language teaching as one that promotes the formation of intercultural professional communicative competence in learners. This approach is based on the understanding that alongside learning foreign languages, it is necessary to study the culture, worldview, and mentality of the people who speak that language. Given this, foreign language teachers need to realise that it is also crucial to determine cultural knowledge that will allow for professional foreign language communication along with linguistic knowledge and the formation of communicative skills.

This article aims to explore the prospects and features of implementing a linguocultural approach in foreign language teaching within the framework of cognitive-linguocultural methodology for developing foreign language competence. The research is based on English language materials.

The main research objectives set by the authors of the article are to conduct a critical review of scientific works dedicated to the linguocultural approach, describe the interrelation between the English language and culture, formulate methodological recommendations for integrating the linguocultural approach into the educational process, and outline an experiment conducted on the application of the linguocultural approach in the process of learning English at a higher educational institution in Ukraine.

2 Literature Review

An analytical and critical review of scientific works (Balgopal et al., 2017; Bautista-Puig et al., 2021; Hossain, 2024; Vishal et al., 2024) allows us to assert that the problem of the interrelation between language and culture, the study of language, and the parallel understanding of culture are essential focuses of modern linguistics and linguodidactics. The first scientist to describe the relationship between language and culture was Humboldt (1876), whose scientific concept is that both material and spiritual culture are embodied in language. Hadjieva and Djumambetova Dilfuza (2023) proposed their methodological system for studying English stylistics based on the linguocultural approach. Carr and Kitzinger (2021) consider the role of linguistic stereotypes in learning foreign languages. Researcher Chen (2008) selects song material as one of the ways to implement the approach we are studying. Scholar Hossain (2024) aptly notes that the teacher should recognise the relevance of integrating language and culture and implement this integration daily in the classroom. Researchers Shytyk and Akimova (2020), Akimova et al. (2023) examine linguoculture in the context of psycholinguistics. Kitao (2000) formulated methodological recommendations for English teachers in the USA regarding the peculiarities of studying culture in foreign language learning. Dr. Mohammed AbdAlla AbdAlgene Mohammed (2020a, 2020b) focused his scientific attention on studying English-speaking culture and learning English in the Arab cultural environment, while scholar Saloomeh Jahanforouz (2018) sees the study of national literature as one of the main ways to implement the linguocultural approach.

Ukrainian researcher Haiduchenko (2010) studied the problem of forming linguocultural competence among university students based on paremiological texts and aphorisms. The scientist defines linguocultural competence as "a system of knowledge about culture and a set of skills to operate this knowledge in specific linguistic situations". Scholar Kolisnychenko considers linguocultural competence an integral characteristic of the learner's personality, and in her opinion, the approach we are studying "harmonises the process of cultural dialogue". Kolesnyk (2014) explored the theoretical foundations and didactic prerequisites for implementing the linguocultural approach in foreign language learning.

Researchers Ostapenko and Udovichenko (2019) view cognitive linguistics and the linguocultural approach to language study as leading paradigms of modern linguistics. The researchers claim that modern linguistics is dominated by three scientific paradigms of language study – anthropocentric, comparative-historical, and system-structural. Within each of these paradigms, the linguocultural approach can be implemented (Kramsch et al., 1996; Kramsch, 2001). Researcher Pevna (2013) considers the linguocultural approach to teaching English as a tool for forming the student's subjective position. According to the scholar, “language is not only a part of culture but also largely a culture-forming part”, as language changes often occur under the influence of culture and vice versa, cultural changes immediately determine linguistic changes (new words appear, existing words become archaic, linguistic intonation and tone change). Researcher Vdovina (2003) examines the linguocultural approach to language teaching in terms of developing a methodology for teaching future foreign language teachers to read English literary texts. Halenko (2012) defines cultural competence as one of the main components in the structure of professional competencies for students of philological specialities. Cultural competence is necessary to adequately understand modern Internet discourse texts (Akimova et al., 2022). Suweni et al. (2022) determine the very process of learning a foreign language by the cultural characteristics of students.

3 Research methods

The aim and research objectives outlined in the article necessitated the comprehensive combination of the following scientific methods:

The analysis and synthesis method was used to critically review scientific literature and elucidate the essence of the linguocultural approach to teaching English as a foreign language:

- The method of pedagogical observation allowed for the analysis of the latest trends in foreign language teaching and the subsequent adjustment of the results of implementing the linguocultural approach.
- The survey method was employed to study the pedagogical experience of higher education scientific and pedagogical staff regarding the peculiarities of implementing the studied approach to language teaching.
- The forecasting and data analysis method was used to analyse survey data from teachers and form the expected program outcomes of teaching English as a foreign language after applying the linguocultural approach.
- The generalisation method was utilised to formulate the research's scientific and theoretical conclusions and summarise the pedagogical experiment's results.

4 Results

The linguocultural approach considers the mutual influences of language and culture, which is especially important in globalisation. When learning a foreign language, one must consider the behavioural reactions inherent to a particular nation and understand the language as a means of interpreting collective experiences encoded in it. Linguocultural studies define a concept as a cultural unit endowed with figurative, semantic, and value components (Savchak, 2016).

In our opinion, the linguocultural approach to learning foreign languages should be based on the following methodologies and theories:

1. Theory of intercultural communication.
2. Cognitive-linguocultural methodology.
3. Theory of modelling foreign language education.

Studying the system of linguocultural units is worth applying the method of linguocultural fields, which is methodologically realised through studying overarching cultural themes. Implementing the linguocultural approach to foreign language learning should be carried out through the content of the discipline “Foreign Language”, represented at each level through cognitive-linguocultural complexes. For example, at the B1-B2 level, the following cognitive-linguocultural problem complexes can be offered to learners:

1. Environmental issues in the countries whose language is being studied.
2. Cultural and historical heritage.
3. State system and legal institutions.
4. Religious and national holidays.
5. Art, music, and literature of the countries whose language is being studied.
6. Prominent figures.
7. History of nation-building.
8. History of state formation.
9. Commemorative days and their historical significance.

The selection of linguocultural material for educational purposes should consider the following recommendations:

1. Linguocultural material used in the educational process should form an accurate, not distorted, understanding of another culture and reality, meaning the selected material should be endowed with meaningful values.
2. Determine how well the selected material forms an understanding of critical concepts of linguocultural studies, such as “cultural dialogue”, “cultural heritage”, “cultural diversity”, and “multicultural personality”.
3. The material selection should consider the learners' intellectual and age levels.

The next urgent issue that needs to be addressed is the development of specific methods, techniques, and forms for implementing the linguocultural approach in the educational process. To form this complex of methods, techniques, and forms, we propose the following tactics:

- Familiarising learners with folklore and literary heritage of national literatures.
- Contextual learning.
- Transforming into the role of a native speaker through situational learning technology (case study) by solving sociocultural and linguocultural tasks.
- Highlight so-called “linguoculturemes” in texts prepared for classroom or home reading and define the content of these linguoculturemes.
- Using authentic materials (vlogs, microblogs, news releases, reports, films, cartoons, comics).
- Using modern information technologies in learning, including mobile learning, participating in video conferences and virtual tours of significant cities and museums of the countries whose language is being studied.

The implementation of the linguocultural approach is closely related to the communicative-cognitive approach to studying English as a foreign language, mainly:

1. Focusing teachers' attention on teaching typical models of speech behaviour.
2. The sociocultural context of professional language learning.
3. Selecting such lexical material, reading, and listening materials that promote a better understanding of the cultural characteristics of the English-speaking society.
4. Gradually forming an English-speaking worldview.

Implementing the linguocultural approach to learning a foreign language requires gradualness, systematicity, and consistency in all speech activities: listening, speaking, reading, and writing. Table 1 presents the expected program outcomes of learning.

Table 1. Projected programme outcomes of English language teaching using the linguistic and cultural approach

Listening	Speaking	Reading	Writing
Students understand cultural information by ear and can feel the peculiarities of national (English-speaking) intonation.	Students build monologues and dialogues using vocabulary to describe cultural realities, customs and traditions, national holidays, and national food and drinks. They correctly pronounce geographical and topographical names and demonstrate knowledge of national heroes. Students know the rules of etiquette in English and have strategies for communicating with native English speakers.	Students read and fully understand texts on sociocultural topics, demonstrate an understanding of the essential cultural background, discuss issues raised in the text, answer questions, and recognise emotionally charged vocabulary.	Students can create formal and informal texts using nationally marked vocabulary, English phraseology, proverbs, and sayings created by the English-speaking culture. They can adhere to the appropriate tone of written communication and use stable expressions of the English language.

Source: author's conception

The linguocultural approach considers the mutual influences of language and culture, which is particularly important in globalisation. When studying a foreign language, it is essential to consider the behavioural reactions inherent to a particular nation and understand language as a means of interpreting collective experiences encoded in it. The linguocultural approach defines a concept as a cultural unit endowed with figurative, semantic, and value components (Hyde, 2008).

The lexical composition of the English language, which contains cultural concepts, can be classified into three groups:

1. Non-equivalent vocabulary has no single-word translation in other languages as it names specific cultural phenomena. This vocabulary is called exoticisms and ethnographisms, symbolising rather than revealing another culture. For example, words like a speaker, shilling, and cricket are always associated with England.
2. Lacunae – the absence of words for meanings expressed in other languages. Lacunae can be noticed only by comparing languages. The reasons for their emergence are due to differences in cultural functioning. For example, the English word lawyer means a legal professional, but the English culture has various types of lawyers with specific words: advocate – a senior lawyer; counsellor – a court advisor; counsel – a legal advisor; solicitor – a consultant for clients and firms, with the right to appear in lower courts; barrister – a lawyer with the right to appear in higher courts; attorney – a legal representative. Most languages do not have such a gradation of the legal profession, so the word lawyer is often

used, while the other terms essentially become lacunae when translated into other languages.

3. Background vocabulary consists of words or phrases with additional meaning due to semantic or stylistic nuances. Background vocabulary reflects knowledge about social reality.

As we can see, the linguocultural approach is related to understanding and reproducing the linguistic picture of the world. Each language “paints” its linguistic picture, and reconstructing this picture becomes the main task of modern linguistic semantics.

Learning speech units in connection with specific speech situations is crucial to successfully implementing the linguocultural approach in foreign language teaching, especially English. To create these situations, authentic teaching materials that allow immersion in the intercultural environment and multimedia technologies in the educational process are appropriate. These technologies significantly expand the possibilities of modelling speech situations and help organise real-time communication with native speakers. Integrating cultural studies knowledge into language learning by visualising national characteristics is also beneficial.

In a competency-based approach to teaching English, we must emphasise that the linguocultural approach to learning English will contribute to forming the following competencies: cultural, general cultural, linguistic and cultural, linguocultural, sociocultural, and communicative (Figure 1).

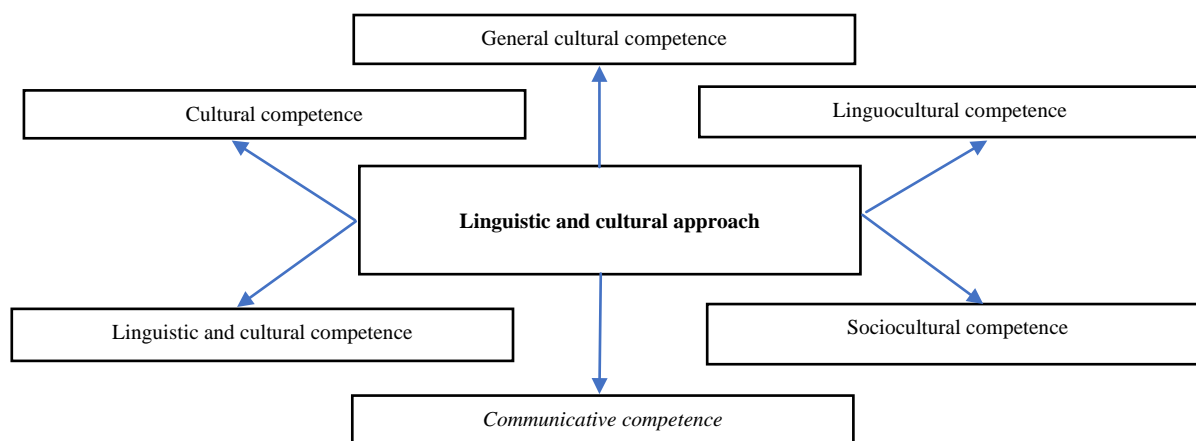


Figure 1. Competencies developed by applying the linguistic and cultural approach

Source: author's conception

General cultural competence is the ability to explore and evaluate the main cultural achievements of the native language speakers. Cultural competence involves understanding the traditions, customs, and religious rituals of the people whose language the learner is studying and being able to analyse the

commonalities and differences in these traditions compared to their native culture. Linguistic and cultural competence involves mastering the features of English language speakers' verbal and non-verbal (paralinguistic) behaviour. Communicative competence, as one of the dominant areas in training foreign

language specialists, involves the ability to use English in all spheres, genres, and personal and public speech styles. Sociocultural competence will allow future specialists to interpret cultural differences, communicate effectively in a multicultural environment with various social groups, and master the rules of speech etiquette, applying them in communication practice. Linguocultural competence aims to create and adjust a foreign language worldview, forming the learner's secondary linguistic personality. This competence includes knowledge of the rules for greetings and farewells in the English-speaking world, rules for conducting discussions, and the basic principles of intercultural communication.

During the 2023–2024 academic year, the authors surveyed 38 English language teachers regarding the effectiveness of using the linguocultural approach to developing English language competence. The survey was conducted at Odesa I. I. Mechnikov National University and Leonid Uzkov Khmelnytskyi University of Management and Law. According to the survey results, 87% of the surveyed teachers consider the linguocultural approach effective for developing English language competence. 74% of teachers regularly use texts on sociocultural topics, collections of aphorisms, phraseological dictionaries, and works of British and American literature as teaching materials. 88% of respondents use authentic sources for listening exercises. 62% of teachers need more methodological developments, textbooks, and manuals with a linguocultural thematic focus. Most respondents (67%) consider integrating linguocultural material into each practical lesson appropriate, while 33% believe using this type of teaching material several times a semester is sufficient.

During the survey, English language teachers' proposals for more effectively implementing the linguocultural approach to teaching were processed and analysed. These proposals can be summarised into the following educational recommendations: involving native speakers, such as diaspora representatives, in the educational process, conducting seminars and master classes, integrated cultural courses for teachers, or specialised courses for students.

5 Discussion

We fully agree with the position of the scholar Pevna (2013) that for the effective implementation of the linguocultural approach, it is vital to apply it consistently in combination with other approaches, implementing it in all aspects of language learning, that is, the four main types of speech activities (speaking, listening, writing, and reading), as well as organising learning based on the principles of novelty and authenticity of materials. However, implementing the linguocultural approach increases the role of the teacher in the educational process. Therefore, the teacher must have an appropriate cultural background and visit English-speaking countries to share cultural experiences not only from theoretical sources but also from personal observations, which is especially valuable for students. However, such linguocultural training for teachers requires significant time and financial investment.

The teacher may encounter specific difficulties in implementing the linguocultural approach. Students, when learning a foreign language, have to form a secondary linguistic personality by restructuring their thinking, which is inseparable from speech, and forming cultural elements from another linguoculture in their consciousness. This often occurs through comparing their language and culture with the foreign one.

We believe that the implementation of the linguocultural approach is closely related to the communicative-cognitive approach to studying English as a foreign language, particularly:

1. Focusing teachers' attention on teaching typical models of speech behaviour.
2. The sociocultural context of professional language learning.
3. Selecting lexical material, reading, and listening materials that promote a better understanding of the cultural characteristics of the English-speaking society.
4. Gradually forming an English-speaking worldview.

6 Conclusion

Thus, it can be concluded that the linguocultural approach to teaching foreign languages involves identifying speech units with specific features of verbal expression in the native language and the language being studied. Forming foreign language communication includes mastering the ethical norms of communication and reflecting on the mental characteristics of a particular linguistic and cultural community. This will allow learners to adequately formulate their thoughts in a foreign language in specific situations. Equally important is mastering conversational clichés and fixed expressions relevant to communication topics. In this case, information sources can be monolingual dictionaries, authentic materials, works of fiction or journalism, and the opportunities provided by modern computer technologies. Success in mastering a foreign language is determined by acquiring the language structure through an inseparable connection with speech situations.

The method of pedagogical observation showed that the linguocultural approach to teaching English as a foreign language contributed to increasing students' motivation levels due to their interest in the cultural characteristics of native speakers, expanding their vocabulary by mastering proverbs and the phraseological level of the language, and improving the cultural level of the student as a whole. The conducted research does not claim to be definitive and exhaustive in its results. However, it fully reflects the main trends of modern education, particularly learning foreign languages.

The prospects for further research are multidisciplinary studies at the intersection of linguodidactics, cultural studies, psycholinguistics, and country studies. It will provide a detailed description of the algorithms for implementing the linguocultural approach to learning foreign languages.

Literature:

1. Akimova, N., Akimova, A., & Akimova, A.: Specificity of internet texts understanding in youth age. *Psycholinguistics*, 2022, 32(1), 6–28. <http://doi.org/10.31470/2309-1797-2022-32-1-6-28>
2. Akimova, N., Chornous, O., Akimova, A., & Akimova, A.: Psychological peculiarities of understanding brand name in form of personal name. *Psycholinguistics*, 2023, 33(1), 6–25. <http://doi.org/10.31470/2309-1797-2023-33-1-6-25>
3. Balgopal, M. M., Wallace, A. M., & Dahlberg, S.: Writing from different cultural contexts: How college students frame an environmental SSI through written arguments. *Journal of Research in Science Teaching*, 2017, 54, 195–218. <https://onlinelibrary.wiley.com/doi/am-pdf/10.1002/tea.21342>
4. Bautista-Puig, N., Aleixo, A. M., Leal, S., Azeiteiro, U., & Costas, R.: Unveiling the research landscape of sustainable development goals and their inclusion in higher education institutions and research centers: Major trends in 2000–2017. *Frontiers in Sustainability*, 2021, 2, art. no. 620743. <https://doi.org/10.3389/frsus.2021.620743>
5. Carr, S. C., & Kitzinger, C.: Media representations of accents and their influence on linguistic stereotypes. *Journal of Language and Social Psychology*, 2021, 40 (5), 589–610.
6. Chen, W.: The use of songs in teaching foreign languages. *Foreign Language Annals*, 2008, 41(2), 235–252. <https://doi.org/10.2137/145960611797471552>
7. Hadjieva, D. T., & Djumambetova, D. K.: Teaching English stylistics through linguacultural approach to EFL student. *International Journal of Education Humanities and Social Science*, 2023, 11(9), 505–512. <https://doi.org/10.5281/zenodo.8371644>
8. Haiduchenko, L.: Formuvannia linhvokulturnoi kompetentsii studentiv v protsesi vyvchennia inozemnykh mov na materiali aforystychnykh ta paremiolohichnykh tekstiv. *Problemy semantyky, prahmatyky ta kohnityvnoi linhvistyky*, 2010, 17, 90–97. http://nbuv.gov.ua/UJRN/psptk1_2010_17_13
9. Halenko, A.: Cultural competence in the structure of professional competences of students of philological specialties.

Scientific Bulletin of Donbass, 2012, 4. <http://nvd.luguniv.edu.ua/archiv/NN20/12gamsfs.pdf>

10. Hossain, K.: Reviewing the role of culture in English language learning: Challenges and opportunities for educators. *Social Sciences & Humanities Open*, 2024, 9. <https://doi.org/10.1016/j.ssaho.2023.100781>

11. Humboldt, K. W. (1876): The heterogeneity of language and its influence on the intellectual development of mankind. *Phainomena*, 2006, 55, 45–50. <https://philpapers.org/rec/VONTHO-2>

12. Hyde, M.: Intercultural Competence in English language education. *Modern English Teacher*, 2008, 7(2), 7–11. https://www.researchgate.net/publication/285818498_Intercultural_competence_in_English_language_education

13. Jahanforouz, S.: The Role of Literature and Culture in English Language Teaching. (2018). https://www.researchgate.net/publication/325258386_The_Role_of_Literature_and_Culture_in_English_Language_Teaching

14. Kitao, K.: Teaching Culture in Foreign Language Instruction in the Unites States. (2000). <http://ilc2.doshisha.ac.jp/users/kkitao/library/article/culture.htm>

15. Kolesnyk, K.: Application of the linguistic and cultural approach in teaching the New Greek language in general educational institutions of Ukraine. *Scientific Notes of the Ternopil Volodymyr Hnatiuk National Pedagogical University. Series: Pedagogy*, 2014, 1, 93–99. http://nbuv.gov.ua/UJRN/NZTNPU_ped_2014_1_18

16. Kramsch, C.: *Language and Culture*. Oxford: Oxford University Press, 2001.

17. Kramsch, C., Cain, A., & Murphy-Lejeune, E.: Why should language teachers teach culture? *Language, Culture and Curriculum*, 1996, 9(1), 99–107. <https://doi.org/10.1080/07908319609525221>

18. Mohammed, M. AA. AA.: The Impact of Culture on English Language Learning. *International Journal on Studies in English Language and Literature (IJSELL)*, 2020a, 8(1), 21–27. <http://doi.org/10.20431/2347-3134.0801003>

19. Mohammed, M. AA. AA.: Utilizing Technology in ELT Classrooms. *Open Access Library Journal*, 2020b, 7, e6016. <https://doi.org/10.4236/oalib.1106016>

20. Ostapenko, S., & Udovichenko, H.: Linguocultural approach to language learning and cognitive linguistics as basic notions of modern language studies. *Southern Archive (Philological Sciences)*, 2019, 77, 60–65. <https://doi.org/10.32999/ksu2663-2691/2019-77-11>

21. Pevna, S. Ye.: Basic approaches to English language teaching in the context of students' subject position formation. *Education and Pedagogical Sciences*, 2013, 2, 37–42. https://pedagogicaljournal.luguniv.edu.ua/archive/2013/N2/articles/6/Pevna_ua.pdf

22. Savchak, I.: Linguo-cultural approach to foreign language teaching of international relations specialists. *The Scientific Issues of Ternopil Volodymyr Hnatiuk National Pedagogical University. Series: Pedagogy*, 2016, (4), 108–115. <http://nzp.tnpu.edu.ua/article/view/93923>

23. Shytyk, L., & Akimova, A.: Ways of transferring the internal speech of characters: Psycholinguistic projection. *Psycholinguistics*, 2020, 27(2), 361–384. <https://doi.org/10.31470/2309-1797-2020-27-2-361-384>

24. Suweni, D., Ruswanto, R., & Prasmoro, B.: The Importance of Culture Recognition in Teaching English. *Journal of Applied Linguistics Indonesia (Aplinesia)*, 2022, 06(1), 8–17.

25. Vdovina, T. O.: Methods of teaching future foreign language teachers to read English literary texts. PhD thesis. Kyiv, 2003. <http://www.disslib.org/metodyka-navchannja-majbutnikh-uchyteliv-inozemnoyi-movy-chytannja-anhliyskykh-khudozhnikh.html>

26. Vishal, K., Sanjiv, K., & Rajni, S.: Environmental socio-scientific issues as contexts in developing scientific literacy in science education: A systematic literature review. *Social Sciences & Humanities Open*, 2024, 9, art. no. 100765. <https://doi.org/10.1016/j.ssaho.2023.100765>

Primary Paper Section: A

Secondary Paper Section: AI, AM

ADVANCED EDUCATIONAL TECHNIQUES AND THEIR ROLE IN ENHANCING LEARNING OUTCOMES

^aNATALIA BUHLAI, ^bIRYNA ANDROSHCHUK, ^cTETIANA TRON, ^dOLHA STRELNYK, ^eYULIYA ZHURAVEL

^aV. O. Sukhomlynskyi Mykolaiv National University, Mykolaiv, Ukraine.

^bKhmelnytskyi National University, Khmelnytskyi, Ukraine

^cKyiv National Linguistic University, Kyiv, Ukraine

^dLviv State College of Food and Processing Industry of the National University of Food Technologies, Lviv, Ukraine

email: ^abuglay@ukr.net, ^bivandroshchuk@ukr.net, ^ct.tron@ukr.net, ^dgolden_arrow@ukr.net, ^ejul_zhur@ukr.net

Abstract: Against the background of active globalisation of the educational environment and the dynamics of the labour market, there is a need to formulate new requirements for students' knowledge, skills and abilities. In turn, the educational process requires the introduction of innovative pedagogical methods. The article aims to analyse the impact of modern, innovative pedagogical technologies on the quality of the educational process. The study reveals the specifics of students mastering various types of skills and competences with the help of innovative pedagogical tools. The prospects for developing specific innovative teaching methods are analysed, in particular, learning through argumentation, methods of knowledge-intensive research training, immersive projects, cross-, practical and embodied learning, pedagogical technology of subject portfolio, storytelling and gamification methods, and tutoring. It has been established that the formation of essential skills and abilities of the student requires an integrated approach based on the principle of combining individual pedagogical technologies, primarily in the context of individualisation of the educational process (personalisation of education, tutoring). Several factors that influence the process of forming a value-based approach to competitive human capital development, the basis of which is formed at the learning stage, are identified: communication and cross-cultural competence, critical thinking, digital literacy, and leadership skills. It is substantiated that modern pedagogical technologies, approaches and tools should be adapted to actively implement successful international practices against European globalisation principles of sustainable development, especially in the context of practical and knowledge-intensive research training. The specifics of innovative teaching methods' impact on the quality of education, including in the context of European countries, are investigated. The most promising effectiveness of digital platforms and mobile applications has been established. It is proved that integrating innovative pedagogical solutions into the educational environment increases students' motivation, stimulating the development of basic skills for successful social and professional realisation, competitiveness in the labour market, continuous self-development and self-improvement.

Keywords: Integration processes, teaching methods, digitalisation, innovative teaching tools, pedagogical technologies, motivation.

1 Introduction

Against the backdrop of active, innovative transformation of all areas of social life and the ever-growing volume of educational information, traditional educational approaches, methods, and tools cannot effectively implement their intended functionality. Today, mechanisms to increase students' motivation to continuously develop themselves and improve their competences are particularly relevant.

In European countries, the need to implement innovative pedagogical solutions to ensure a high level of competitiveness for future specialists was earlier realised. Therefore, the practical pedagogy experience in these countries is valuable for Ukraine. The relevance of introducing innovative teaching methods into the modern education system is intensifying given active European integration processes, which require optimal conditions for promoting students' personal and professional development.

In this context, improving the quality of education, which is formed under the influence of both pedagogical methods and students' independent updating of knowledge, is of great importance. Innovative learning solutions require specific structuring and research from the standpoint of universality for different educational process forms and levels.

2 Literature review

Several scientific developments and publications by researchers have reflected the problem of introducing innovative teaching methods in the educational programmes of the modern digitalised educational environment. In particular, Susanty et al. (2021) investigated the potential of innovative pedagogical tools in forming skills and abilities of primary importance. Scientists

pay special attention to digital opportunities, namely mobile applications.

Researchers Kennedy and Sundberg (2020) placed a vital education in science, technology, engineering and mathematics (STEM) at the centre of all recommendations. In addition to a vital STEM education, the skills of today, according to the authors, should also include several specific generic skills and dispositions, including intercultural skills, collaboration, critical thinking, and problem-solving. The central issue of this study is the need for creativity and innovation. In continuation, Sinambela et al. (2020) insist on developing self-competence and supervision for modern professionals to achieve professionalism in any field.

Researchers Bratianu et al. (2020), Nurtanto et al. (2020) analyse the method of problem-based learning in Industry 4.0 in terms of intensifying the quality of education. Bratianu et al. (2020) focus on business education: knowledge transfer, competence, skills and attitudes. The research focuses on the need to change the paradigm of business education by creating a new learning environment focused on business competences and the new dynamics of the knowledge ecosystem. At the same time, Nurtanto et al. (2020) see a promising opportunity to improve the quality of learning through symbolic literacy and professional skills training.

The problem of integrating various pedagogical innovations into the traditional educational environment is paid attention to by Greene et al. (2021), Cebrián et al. (2020), Fatima et al. (2024). In particular, Greene et al. (2021) explore the issue of incidental learning, that is, learning that occurs when people pursuing a goal other than education, such as entertainment, encounter information that leads to a change in thinking or behaviour. At the same time, Cebrián et al. (2020) study the educational competences required for sustainable development. According to the researchers, the modern educational environment should create interactive, learner-centred teaching conditions, requiring transformational pedagogy, participation and collaboration, problem orientation and the principle of transdisciplinarity. At the same time, the connection between formal and non-formal learning should be implemented as a key to essential sustainability competences.

Bauman and Lucy (2021) propose an innovative foreign language teaching model using an extensive data corpus. At the same time, Pate (2020), Viunenko et al. (2023), Wang et al. (2023), Valero Haro et al. (2022) explore the possibilities of discussion methods and incidental learning, learning through argumentation. In particular, Viunenko et al. (2023) identify innovative areas of application of information and computer technologies and advantages, obstacles, and mistakes in their implementation. Among the advantages, the authors note open access, cost-effectiveness, integration of students of all forms of education, and the ability to independently solve educational and research problems. Instead, Wang et al. (2023) substantiate a promising vector for improving education technology and the scientific field: the development of research projects and digital modelling, the use of game-based learning, improving assessment, and improving feedback.

Baird and Parayitam (2019), Larionov et al. (2021) study the model of informal education, positioning it as an essential area for intensifying the quality of education in the context of adaptive and socio-cultural educational functions and the necessary skills of continuous self-education. The researchers identify several skills and competences that modern employers assess as the most important: communication skills, critical thinking skills, listening skills, professionalism (hard skills), and personal motivation.

Without negating the significance of scientists' achievements in the field, it is necessary to note their specific fragmentation, which necessitates the synergistic use of the most compelling

universal innovative teaching methods and further active scientific and methodological development of their practical implementation in the educational process.

3 Aims

The article aims to analyse the impact of modern, innovative pedagogical technologies on the quality of the educational process. Within the framework of this goal, several tasks can be identified:

- to study the specifics of mastering different types of skills and competences by students with the help of innovative pedagogical tools;
- to analyse the prospects for the development of specific innovative teaching methods;
- to identify the factors that influence the process of forming a value-based approach to the concept of competitive human capital development;
- to study the specifics of the impact of innovative teaching methods on the quality of education.

4 Materials and methods

The research methodology is based on several modern scientific methods, including the following:

- a systematic method that allows the study of the phenomenon of innovative pedagogy as a systemic formation, and the methodology of developing core competences of students as its integral subsystem, which functions based on approved theoretical views and effective practices;
- a method of retrospective analysis, which is founded on the concepts of theory and practice of innovative approaches to the educational process in the context of formation and modern development; it is based on diagnostic analysis, which allows the find specific problems or shortcomings of the proposed educational technologies, and ultimately to evaluate the successes achieved. Retrospective analysis is established on achieving goals in the future, but it is based on data from the past;
- comparative analysis, which allows the study of the specifics of the impact of pedagogical strategies and methods of different countries on the level of quality of education, taking into account practical experience and existing challenges; comparative analysis in the research was used in comparing the characteristics of two or more than two teaching methods in order to identify standard and different features, identify the innovative component, and perform typology;
- other theoretical methods: analysis, classification, systematisation, generalisation. The methods of analysis and synthesis were utilised to identify the factors and stages of development of the object under study, as well as its defining elements. Induction was used to forecast indicators of future development. The method of scientific abstraction was operated to formulate theoretical generalisations, clarify the conceptual apparatus, identify the main concepts and categories, and formulate the study's conclusions.

5 Results

The introduction of innovative teaching methods is now considered from the perspective of the need to improve the quality of education and the effective development of practical communication skills and digital and other competences by students. The active integration of a wide range of active forms of work, non-standard methods, and innovative technologies contribute to a deeper understanding of the educational material by students. The definition of "innovation" in Greek means "renewal" or "change". Innovative technologies in education are positioned as a purposeful, systematic set of techniques and means of organising learning activities, covering the entire learning process from setting goals to obtaining results. Among the innovative educational methods of our time are learning through argumentation, methods of research-intensive teaching, immersive projects, cross-fertilisation, practical and embodied

learning, pedagogical technology of subject portfolios, storytelling and gamification methods, and tutoring.

In particular, the methodology of teaching through argumentation helps to master the skills of discussing diverse issues with the practical application of theoretical subject skills, which helps to improve the critical thinking of students, teaches them the methodology of differentiating arguments, persuasive communication, and helps to optimise speech and grammar skills. Listening is a necessary component of the argumentation process, contributing to developing universal valuable skills for personal and professional development. At the same time, active discussion of current issues significantly increases learning motivation (Susanty et al., 2021; Kennedy & Sundberg, 2020).

The methodology of research-intensive teaching involves acquiring knowledge, skills and abilities through developing targeted research projects or implementing research. In doing so, valuable skills are acquired in data analysis and presentation, critical thinking, communication, and collaboration. The methodology allows for an interactive approach to learning and motivates students to actively integrate into the research system (Sinambela et al., 2020; Bratianu et al., 2020).

The cross-curricular learning methodology in modern educational programmes is a comprehensive pedagogical approach that combines formal and non-formal learning elements. The methodology promotes the development of the ability to conduct a constructive discussion, stimulates students to learn to form open questions, forms an individual linguistic and communicative model of argumentation, intensifies motivation for the learning process, and greatly facilitates students' understanding of abstract concepts (Baird & Parayitam, 2019).

The methods of experiential learning and embodied learning are potentially effective. Practical learning promotes maximum interaction of students with the environment. It actively motivates them to apply the knowledge, skills, and abilities acquired in the course of study in real-life situations (Larionov, 2021).

The basis of the embodied learning methodology is the impact of physical activity on the academic and cognitive results of the educational process. At the same time, learning acquires the features of a game activity. Partner and group formats of activities improve sharing experiences and communication skills. The benefits also include the ability to communicate thoughts and feelings to others, actively developing imagination and creativity, and effective teamwork (Nurtanto et al., 2020; Greene et al., 2021).

Integrating various interactive technologies and digital methods can significantly improve learning outcomes. In particular, it is promising to use the capabilities of innovative digital educational platforms, online resources, and mobile applications. It is advisable to create a learning environment that is as close as possible to the actual conditions of activity using *immersive technologies*. The latter are identified as integrating virtual content into the physical environment, creating conditions for effective interaction. At the same time, the user recognises virtual components as an integral part. The spectrum of immersive technologies covers several applications and tools that allow for integration, immersion or interaction with simulated environments and objects (Valero Haro et al., 2022; Lucy, 2021).

The subject portfolio's pedagogical technology deserves attention. The methodology involves self-assessment of personal achievements, accumulation of knowledge, skills, and experience while studying a subject, and recording one's achievements. This methodology is most popular and influential in language learning, demonstrating the effectiveness of the learning process and a way of self-assessment of achievements.

The tutoring methodology is positioned as an individual educational practice. The tutor's competence allows for the most accurate analysis of the learner's personal choice in learning,

which helps to form a sustainable motivation for the learner in the effectiveness of the process. The methodology represents a new trend in education towards individualisation of the process (Cebrián et al., 2020; Fatima et al., 2024).

The storytelling methodology is an aspect of a didactic pedagogical resource. Elements of the methodology are introduced into the educational process to create a positive learning atmosphere and improve speech skills. Digital storytelling, in listening and reproducing a story and highlighting

its elements, ensures the development of universal skills of paramount importance.

The OECD Skills Studies series, implemented by the European Education Area (2023), aims to provide a strategic approach to policy on the skills of today's graduates. It presents international OECD indicators and policy analysis covering issues such as the quality of education and curricula, including innovative learning. Figure 1 shows the dynamics of integrating innovative teaching methods into the European educational environment.

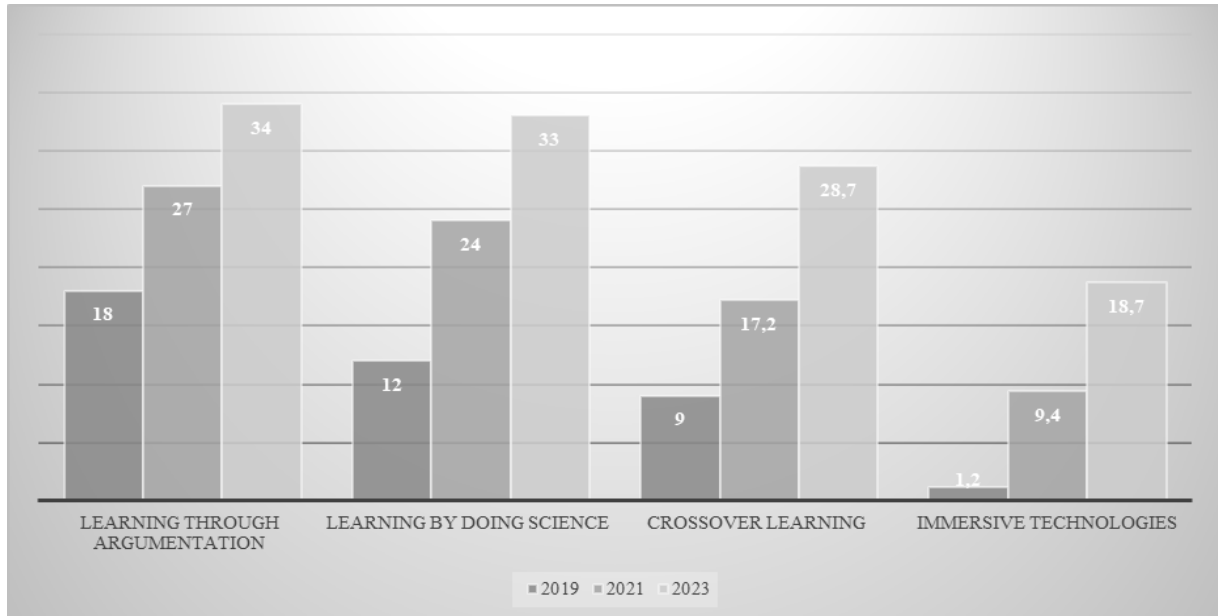


Figure 1: Integration of Innovative Teaching Methods in the European Educational Environment, % of higher education students. Source: Systematised by the author based on (European Education Area, 2023).

As shown in Figure 1, there is a clear trend towards the active implementation of modern teaching methods. The dependence of improving the quality of education on the level of implementation of innovative pedagogical technologies is apparent (Pate, 2020; Viunenko et al., 2023; Wang et al., 2023). At the same time, the format of information education is gaining

relevance. The reports of the European Community (Eurostat, 2023) in the series Participation Rate in Informal Learning by Learning Form and Educational Attainment Level provide indicators of the proportion of students in individual member states of the European community involved in the system of informal education (Figure 2).

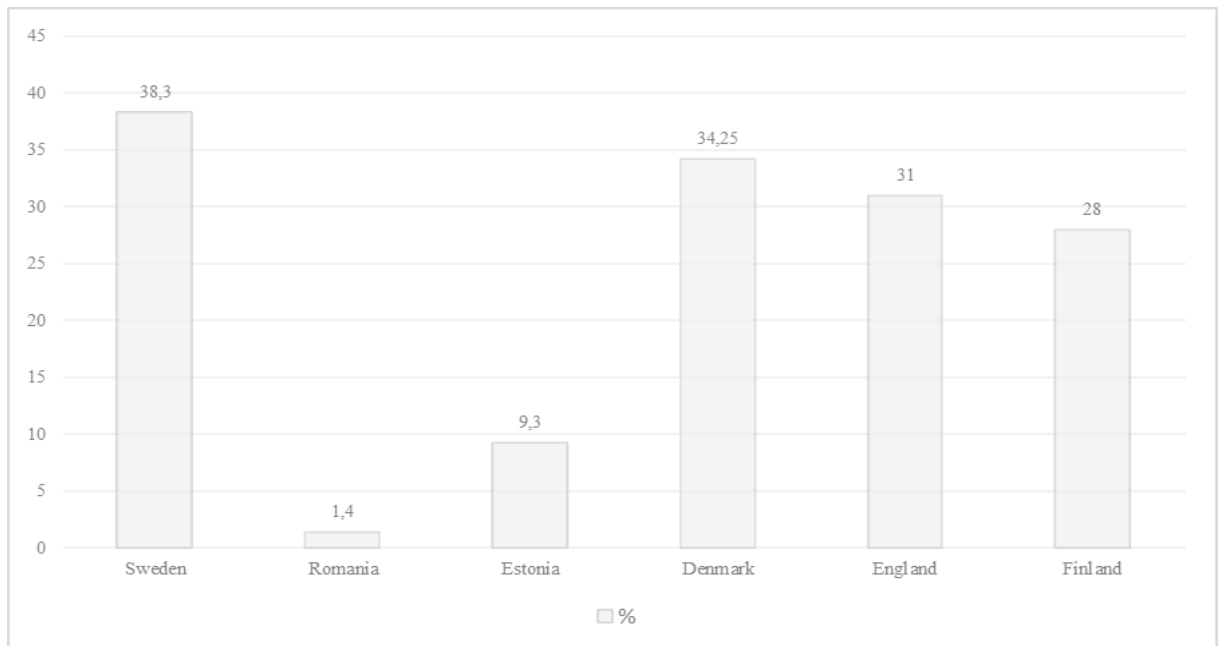


Figure 2: Involvement of European Educational Institutions in the E-learning System, % of students. Source: Based on data from (Eurostat, 2023).

Analysing Figure 2, it can be argued that the average European value of student involvement in informal learning is about 10 %, i.e., every tenth student, and for the most developed countries in the region — every third. The strategy of informal education in internationalisation allows for the optimal development of students' life skills and healthy lifestyles and compensates for the lack of professional competence. In the process of interaction with formal and non-formal education, informal learning acquires innovative qualities.

Information education can be implemented by integrating innovative teaching methods of modular, distance, and blended learning, which promotes the development of creativity and motivates the individualisation of the educational process. In particular, the following methods of informal learning can be successfully used in the process of informal learning:

- trial-and-error method, which motivates independent search for answers to problematic issues;
- mutual learning in the process of jointly solving tasks;
- development of a system for acquiring up-to-date knowledge using innovative information technologies and artificial intelligence;
- engaging in global experience by visiting exhibitions, museums, projects, including online;
- using the potential of innovative online educational platforms, mobile applications, and chats that adapt the learning process to the concept of modern youth's worldview.

Holon IQ accumulated analytical information on integrating innovative pedagogical technologies in the European educational environment in the 2023 Europe EdTech 200 report, shown in Figure 3.

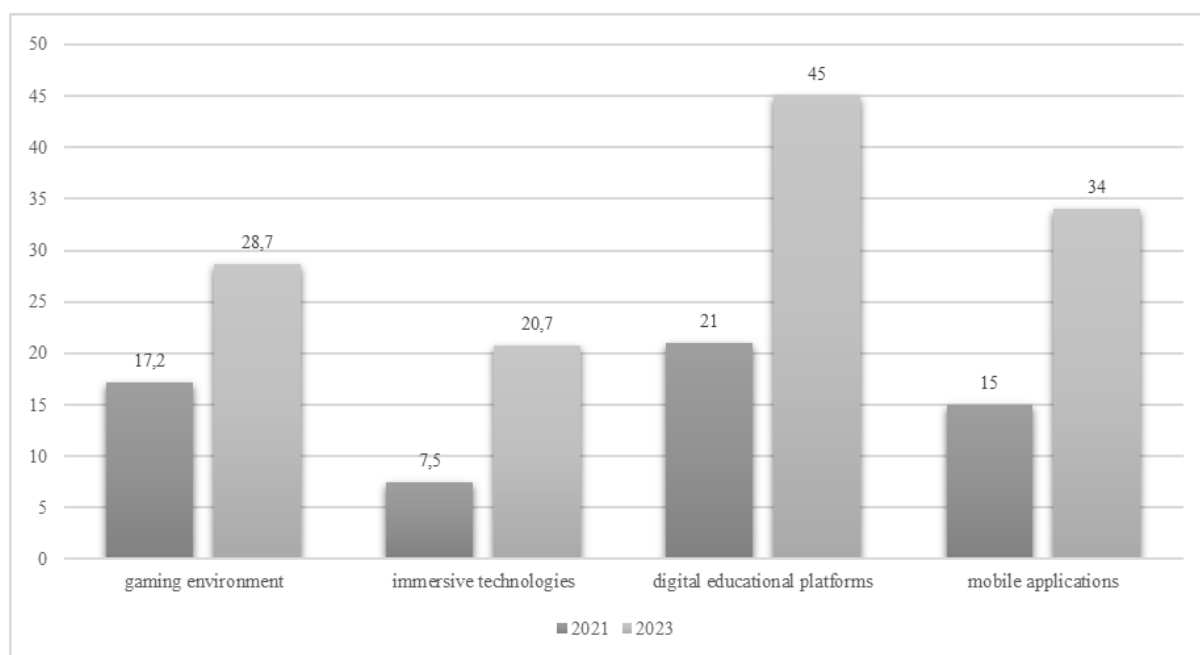


Figure 3: Innovative Learning Tools in European Higher Education Institutions, 2021-2023, % of students involved out of the total number. Source: compiled by the author based on (Holon IQ, 2023).

Given the close interconnection of formal, non-formal, and informal education systems, introducing innovative teaching methods allows for developing the student's existing and new competences. The modern trend of individualisation of learning requires participation in seminars, online events, conferences, and independent analysis of experience using the potential of social networks and information and communication technologies.

The above-mentioned innovative teaching methods in today's educational environment allow for the creation and improvement of an effective learning environment in an innovative format, significantly improving the quality of education. Modern pedagogical tools ensure a sustainable and long-term interest in learning, ensuring students develop the primary competences and practical skills necessary to ensure their competitiveness as future professionals.

Potential challenges and negative aspects must be considered. It should also be noted that the educational process's target audience and teaching staff may not be ready for large-scale changes to the traditional curriculum. Therefore, it is necessary to correctly and tolerantly integrate some aspects of innovative methods into the educational process, taking into account the needs of different groups of students based on constant monitoring.

Introducing various multimedia tools and immersive and interactive technologies in combination with traditional methods can significantly improve the effectiveness of education. The

quality of education is currently determined by the need to maximise student motivation and make them aware of the value of communication competences, digital development, cross-cultural tolerance, and critical thinking. This goal can be achieved through innovative teaching methods.

Among the progressive educational technologies available for use now are genially (a resource for creating interactive multimedia educational content), class VR (exciting approaches to using augmented reality for educational purposes), and STEMlearning (a resource with guides and step-by-step instructions for implementing STEM — science, technology, engineering, and mathematics). Such tools can effectively expand and complement the educational process.

6 Discussion

According to the results of scientific research by modern scientists, in particular Lubko & Sharov (2021), Ismara et al. (2021), the integration of innovative teaching methods is a condition for ensuring the competitiveness of future specialists in the labour market and the acquisition of universal competences by students. Most modern scholars consider all teaching methods beyond the traditional education methodology innovative.

Some scientists, in particular, Sanabria (2017) and Zhu et al. (2015), focus on transforming the existing management system in higher education. According to the researchers, interactive learning technologies make it possible to effectively organise the

management of information flows and the use of digitalisation tools, improve the level of media competence of students, and minimise the resource intensity of the educational process while intensifying its effectiveness.

Scientists Aguayo & Eames (2023), Seufert et al. (2022), Papanastasiou et al. (2019) emphasise that one of the most effective means of intensifying the quality of education is the active use of modern tools of virtual reality technologies. The researchers' works reveal the need to interact with modern, innovative educational solutions in the context of machine learning, artificial intelligence and immersive technologies. According to scientists, introducing training and educational systems based on virtual reality technologies creates a strategic opportunity for their use in the educational process at various levels.

Researchers Arifin et al. (2018), Rudina & Shvanova (2018), Kozub et al. (2024) substantiate the expediency of using game technologies in education. According to scientists, their unique advantage is that they are available for use on smartphones. Unique educational platforms are seen as particularly influential within the framework of the outlined educational concept. Such innovative tools, by intensifying the motivation of students to learn, contribute to the acquisition of practical skills in the use of theoretical knowledge, including in the process of studying natural sciences. To develop this topic, scientists argue that gamification contributes to forming strategic vision and creative thinking, risk assessment skills, and independent decision-making. When used effectively, gamification promotes teamwork and optimises communication between participants in the game process. According to researchers, students improve their self-organisation and self-discipline, and the overall level of efficiency of the educational process increases because, from the beginning of participation in the game process, the participant actively tunes in to practical work (Voropayeva et al., 2022). In comparison, traditional teaching methods focus maximum attention approximately in the middle of the lesson.

Given the position of most modern researchers, the methods presented in the current article can be positioned as innovative solutions in education, as they actively involve the capabilities of information and communication technologies and contribute to the development of students' competences.

Despite the significant scientific achievements in innovative pedagogy, the issue of its large-scale practical adaptation to the traditional educational process remains unresolved, which determines the direction of further research.

7 Conclusion

The rapid development of modern digitised society requires adaptive renewal and intensive transformation of the educational system. In this context, innovative teaching methods are an essential functional tool.

Analysing learners' mastery of various skills and competences through innovative pedagogical tools shows the prospects for developing individual innovative teaching methods. Among them are the methodology of learning through argumentation, research-based learning, immersive projects, cross-cutting, practical, and embodied learning, the pedagogical technology of subject portfolios, the method of storytelling and gamification, and tutoring.

It has been established that forming the learner's primary skills and abilities requires a comprehensive approach based on combining individual pedagogical technologies.

Several factors have been identified that influence the process of forming a value-based approach to developing competitive human capital, which is shaped during the learning stage. These include communication and cross-cultural competence, critical thinking, digital literacy, and leadership skills.

Research on the specifics of the impact of innovative teaching methods on the quality of education in European countries indicates that the integration of innovative pedagogical solutions into the educational environment can enhance learners' motivation,

stimulating the development of critical skills for successful social and professional realisation, competitiveness in the labour market, and continuous self-development and self-improvement.

Literature:

1. Susanty, L., Hartati, Z., Sholihin, R., Syahid, A., Liriwati, F. Y.: Why English teaching truth on digital trends as an effort for effective learning and evaluation: opportunities and challenges: analysis of teaching English. *Linguistics and Culture Review*, 2021. 5(S1), 303-316. <https://doi.org/10.21744/lingcu.re.v5nS1.1401>
2. Kennedy, T. J., Sundberg, C. W.: *21st Century Skills. Science Education in Theory and Practice. Springer Texts in Education*. Springer, 2020. pp. 479-496. https://doi.org/10.1007/978-3-030-43620-9_32
3. Sinambela, E. A., Mardikaningsih, R., Arifin, S., Ayu, H. D.: Development of Self-Competence and Supervision to Achieve Professionalism. *Journal of Islamic Economics Perspectives*, 2020. 1(2). <https://doi.org/10.35719/jiep.v1i2.13>
4. Bratianu, C., Hadad, S., Bejinaru, R.: Paradigm Shift in Business Education: A Competence-Based Approach. *Sustainability*, 2020. 12(4). <https://doi.org/10.3390/su12041348>
5. Nurtanto, M., Fawaid, M., Sofyan, H.: Problem-based learning (PBL) in Industry 4.0: Improving learning quality through character-based literacy learning and life career skill (LL-LCS). *Journal of Physics: Conference Series*, 2020. 1573(1). <https://doi.org/10.1088/1742-6596/1573/1/012006>
6. Greene, J. A., Copeland, D. Z., Deekens, V. M.: A model of technology incidental learning effects. *Educational Psychology Review*, 2021. 33(3), 883-913. <https://doi.org/10.1007/s10648-020-09575-5>
7. Cebrían, G., Junyent, M., Mulà, I.: Competencies in Education for Sustainable Development: Emerging Teaching and Research Developments. *Sustainability*, 2020. 12(2). <https://doi.org/10.3390/su12020579>
8. Fatima, N., Zahid, F., Ullah, I.: Role of Discussion teaching technique in improving English language speaking skills of ESL learners. *Jahan-e-Tahqeeq*, 2024. 7(1), 648-666. <https://www.jahan-e-tahqeeq.com/index.php/jahan-e-tahqeeq/article/view/1196>
9. Bauman, A., Lucy, C.: Enhancing entrepreneurial education: Developing competencies for success. *The International Journal of Management Education*, 2021. 19(1). <https://doi.org/10.1016/j.ijme.2019.03.005>
10. Pate, D. L.: The skills companies need most in 2020 and how to learn them. *LinkedIn: The learning blog*, 2020. <https://softskillsguide.com/wp-content/uploads/2021/08/2020-linked-in-survey-soft-skills.pdf>
11. Viunenko, O., Honzales-Ahadzhanov, K., Ahadzhanova, S., Rudenko, Yu.: Information and communication technologies of e-learning as a basis for innovation in higher education. *Education. Innovation. Practice*, 2023. 11(4), 13-19. <https://doi.org/10.31110/2616-650X-vol11i4-002>
12. Wang, H., Tlili, A., Huang, R., Cai, Z., Li, M., Cheng, Z., Fei, C.: Examining the applications of intelligent tutoring systems in real educational contexts: A systematic literature review from the social experiment perspective. *Education and information technologies*, 2023. 28(7), 9113-9148. <https://doi.org/10.1007/s10639-022-11555-x>
13. Valero Haro, A., Noroozi, O., Biemans, H., & Mulder, M. (2022). Argumentation Competence: Students' argumentation knowledge, behavior and attitude and their relationships with domain-specific knowledge acquisition. *Journal of Constructivist Psychology*, 35(1), 123-145. <https://doi.org/10.1080/10720537.2020.1734995>
14. Baird, A. M., Parayitam, S.: Employers' ratings of the importance of skills and competencies college graduates need to get hired: Evidence from the New England region of USA. *Education + Training*, 2019. 61(5), 622-634. <https://doi.org/10.1108/ET-12-2018-0250>
15. Larionov, V., Kostiantyn, Kh. Ya., Matvieiev, H., Stadnichuk, O., Kropyvnytska, L.: Multimedia technologies as a means of improving the quality of education. *Collection of scientific works of the National Academy of the State Border*

- Guard Service of Ukraine. Series: Pedagogical Sciences*, 2021. 26(3), 82-96. <https://doi.org/10.32453/pedzbirnyk.v26i3.881>
16. European Network of Innovative Higher Education Institutions. *European Education Area*, 2023. <https://education.ec.europa.eu/>
17. Participation rate in informal learning by learning form and educational attainment level. *Eurostat*, 2023. <https://niss.gov.ua/>
18. 2023 Europe EdTech 200. *Holon IQ*. <https://www.holoniq.com/notes/2023-europe-edtech-200>
19. Lubko, D. V., Sharov, S. V.: Directions for using intelligent systems in the educational process. *Ukrainian Studies in the European Context: A collection of scientific papers*, 2021. 3, 305-310. <http://eprints.mdu.org.ua/id/eprint/11680>
20. Ismara, K. I., Suharjono, A., Supriadi, D.: Ubiquitous Learning in Occupational Health and Safety for Vocational Education. *International Journal of Evaluation and Research in Education*, 2021. 10(1), 285-292. <https://eric.ed.gov/?id=EJ1285518>
21. Sanabria, J. C.: Enhancing 21st Century Skills with AR: Using the Gradual Immersion Method to Develop Collaborative Creativity. *Eurasia Journal of Mathematics, Science and Technology Education*, 2017. 13(2), 487-501. <https://doi.org/10.12973/eurasia.2017.00627a>
22. Zhu, E., Lilienthal A., Shluzas, L., Masiello, I., Zary, N.: Design of Mobile Augmented Reality in Health Care Education: A Theory-Driven Framework. *JMIR Medical Education*, 2015. 1(2). <https://doi.org/10.2196/mededu.4443>
23. Aguayo, C., Eames, C.: Using mixed reality (XR) immersive learning to enhance environmental education. *The Journal of Environmental Education*, 2023. 54(1), 58-71. <https://doi.org/10.1080/00958964.2022.2152410>
24. Seufert, C., Oberdörfer, S., Roth, A., Grafe, S., Lugin, J. L., & Latoschik, M. E.: Classroom management competency enhancement for student teachers using a fully immersive virtual classroom. *Computers & Education*, 2022. 179. <https://doi.org/10.1016/j.compedu.2021.104410>
25. Papanastasiou, G., Drigas, A., Skianis, C.: Virtual and augmented reality effects on K-12, higher and tertiary education students' twenty-first century skills. *Virtual Reality*, 2019. 23, 425-436. <https://doi.org/10.1007/s10055-018-0363-2>
26. Arifin, Y., Sastria, T. G., Barlian, E.: User experience metric for augmented reality application: a review. *Procedia Computer Science*, 2018. 135, 648-656. <https://doi.org/10.1016/j.procs.2018.08.221>
27. Rudina, M., Shvanova, O.: Storytelling technology in the system of forming the professional competence of future translators. *Humanities Education in Technical Higher Education Institutions*, 2018. 38, 26-30.
28. Kozub, H. O., Shynkarenko, Ya. M., Kozub, V. Yu. Gamification in education: integration of Classcraft into the educational process. *Pedagogical Academy: scientific notes*, 2024. 7. <https://doi.org/10.57125/pedacademy.2024.06.29.02>
29. Voropayeva, T., Jarvis, M., Boiko, S., Tolchieva, H., Statsenko, N.: European experience in implementing innovative educational technologies in the training of management specialists: current problems and prospects for improvement. *International Journal of Computer Science and Network Security*, 2022. 22(7), 294-300. <https://doi.org/10.22937/IJCSNS.2022.22.7.35>

Primary Paper Section: A

Secondary Paper Section: AM

ADVANCING MANAGERIAL EXPERTISE THROUGH EDUCATION: COMPARATIVE UKRAINIAN AND GLOBAL PRACTICES

^aALLA MOSKALENKO, ^bSERHII KUBITSKYI,
^cILONA DYCHKIVSKA, ^dIRYNA ULIUKAIEVA,
^eMARHARYTA VOROVKA

^a*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine.*

^b*National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine.*

^c*Rivne State University of Humanities, Rivne, Ukraine.*

^d*Berdiansk State Pedagogical University, Zaporizhzhia, Ukraine.*

^e*Bogdan Khmelnytsky Melitopol State Pedagogical University, Zaporizhzhia, Ukraine.*

email: ^aalla_moskalenko@ukr.net, ^bkubitskyi@ukr.net,

^cilonardgu@gmail.com, ^dirinagereevna@gmail.com,

^eolga_vorovka@ukr.net

Abstract: The article examines the peculiarities of professional training of managerial personnel in the field of education, using Ukrainian and foreign experience from 2020 to 2024. It considers the critical stages of the development of the Ukrainian pedagogical school and its transformation by modern challenges in the context of military conflict. International management training models, including legal, cultural, and ethical aspects that influence educational policy in the EU, the USA, and Asia, are described. The process of integrating the Ukrainian education system into the European educational space by implementing the Bologna Process and international exchange programmes is highlighted. Particular attention is paid to the impact of the war on the transformation of management training programmes in Ukraine. The problems of adapting curricula to crisis conditions and introducing psychological training with security measures are revealed. The critical components of the strategy for training managers in the context of hostilities on the territory of Ukraine are outlined, with a particular focus on the management of educational institutions in conditions of instability. The prospects for developing personnel training based on foreign experience in the post-war period are analysed. The application of international practices to restore educational infrastructure and improve professional competence is proposed. The article examines the role of digitalisation and innovative technologies in training modern managers who can act effectively in the face of change and crises. The importance of international cooperation in the educational sphere for improving the quality of management programmes in Ukraine is shown.

Keywords: Professional training, Management personnel, Educational institutions, Ukrainian educational school, Foreign experience, Crisis management, Globalisation of education

1 Introduction

The training of educational managers is an integral part of the development of the educational system of any country, as effective management of educational institutions determines the quality of the educational process. Modern training of managers of educational institutions involves developing managerial skills and integrating the latest scientific achievements into their activities. Particular attention is paid to creating conditions for forming a scientific community among the heads of educational institutions. Opportunities for professional growth include participation in scientific conferences, publications and exchange of experience at the international level. Management skills are formed through the development of critical thinking, research skills and an innovative approach to the organization of one's own work space. Human competencies are formed as a result of the expansion of educational services. High competition on the world market and the presence of qualified graduates play a significant role.

A comparison of European, American, and Ukrainian educational management programs reveals significant differences in approaches to the organization of education, management of educational processes, and development of managerial competencies. European programs often emphasize the most important: decentralized management, autonomy of educational institutions and innovative approaches to leadership. They have found their place in the Bologna process and EQF standards. American training programs for education managers are aimed at the development of individual leadership skills and the integration of management technologies into educational organizations, the so-called "American model of success". The Ukrainian system of training managers remained centralized until recent years. European standards are actively implemented

in the training of educational leaders thanks to the European integration course. Imitation of the best European and American models is necessary for further globalization of Ukrainian education (UN, 2015; Alcántara et al., 2023; Wodon, 2023). Nevertheless, the integration of the Ukrainian system into the global educational space will improve the quality of training and ensure compliance with global requirements for the management of educational institutions. In today's world, where technologies are developing at an incredible speed, digital tools are becoming an integral part of the training of managers in the field of education. The advantage is manifested as follows in the use of modern tools: digital platforms, software products for the administration of educational processes, separate servers. Distance learning systems are a measure of the effectiveness of educational institutions. In addition, these technologies facilitate the performance of administrative tasks, optimizing management processes.

In the conditions of the war in Ukraine, when due to hostilities, many educational institutions were forced to switch to remote mode of operation, the role of digital solutions in the educational sphere became even more significant. The forced transition accelerated the digitization process, where the following platforms were needed to support the continuity of the educational process: Moodle, Zoom, and Microsoft Teams. The use of digital tools allows managers to maintain the functioning of institutions in difficult wartime. There are also a number of advantages. The main one is the ability to quickly respond to new challenges, ensuring stable work even under conditions of political and economic instability. The integration of "mobile" technologies in the training of managers opens up prospects for the creation of new management models that improve the efficiency of educational institutions and contribute to their development.

Digital tools are becoming an integral part of the training of education managers. The use of software solutions for the management of educational processes simplifies administrative procedures, and this is a strategic goal of many higher educational institutions. Technology plays a key role in the full-scale war in Ukraine. Educational institutions are forced to switch to distance learning due to hostilities. The war accelerated the process of digitization of education. The use of Moodle, Zoom and Microsoft Teams platforms has become critical for ensuring the continuity of the educational process. Digital technologies are the key to balanced management, allowing managers to quickly adapt to changes and support the functioning of educational institutions in conditions of complete socio-economic uncertainty. The integration of digital tools into the management training system opens up new opportunities for developing modern management models and ensuring the effective operation of educational institutions.

2 Literature review

In recent years, the problem of training managers in education remains one of the most relevant topics for researchers. The success of the educational process and the general level of education in the country directly depends on how well organized "modern management" is in educational institutions. As Blasutto (2024) points out, the training of educational managers is a key element for the formation of a sustainable and competitive education system. In turn, Choi et al. (2023) focus on the fact that in the conditions of globalization and rapid digitization of educational processes, heads of educational institutions must be ready for new challenges of digital transformation and be able to effectively manage changes.

Kušec and Čikeš (2023) made a significant contribution to the comparison of European and American approaches to educational leadership. In their opinion, European programs for training educational leaders focus more on issues of

decentralization and autonomy of institutions, while in the American system more attention is paid to the individual development of leadership qualities and the ability to adapt to complex political and economic conditions. Xiang and Zeng (2023) emphasize that in the conditions of globalization, combining the best practices of European and American management training programs is a decisive factor. It is aimed at improving the quality of education systems in countries seeking reforms. The digital platforms Moodle and Zoom have become vital for the functioning of educational institutions (Langdon et al., 2023).

Research is increasingly focusing on digital tools for executive training. The work of Havryliuk and Boryn (2023) analyzes how the war affects the educational system in Ukraine. The main idea observed in the article is the strengthening of the development of digital platforms for distance learning as a key means of ensuring the continuity of the educational process even in the most difficult times. Langdon et al. (2023) add that digital tools have become an integral part of executive training. They must not only respond to challenges, but also quickly make decisions in crisis conditions.

The topic of training management personnel in education is currently the subject of many discussions among Ukrainian and foreign researchers. Tumienne et al. (2022) emphasize the importance of developing managerial competencies of educational leaders in order for them to cope with the challenges of today: digitalization and global crises. Accordingly, Pınarcıkoğlu (2023) investigates the issue of the quality of education – specialized training programs for educational managers that help improve the quality of management in educational institutions and positively affect educational outcomes.

An equally important aspect is the study of European educational programs for managers. According to a study by Hélot and Bonacina-Pugh (2023), training programs in the EU emphasize the decentralization of management and the use of innovative technologies. They note that the development of “leadership skills” and the ability to quickly adapt to changes is a priority for European heads of educational institutions. Similarly to Hélot, Gula L. (2023) and Gula O. (2023) emphasizes that the integration of best practices from different countries contributes to the formation of a more effective global education system, which is hard to disagree with.

Digital tools – are priority tools to support wartime learning and improve learning management. As Benstead et al. (2023) point out, the strategy to support learning in wartime is important now. They indicate that the use of distance technologies allows maintaining the “continuity” of the educational process and opens up new opportunities for improving management efficiency. This is also confirmed in the work of Bryl and Sabadin (2023). Researchers claim that innovative technologies contribute to the development of change and crisis management skills in managers.

Research aims. The purpose of this article is to investigate how the education management system in Ukraine is being transformed in the context of modern challenges caused by the full-scale war of 2022. Special attention is paid to the following question: how do digital technologies and international experience affect the improvement of the effectiveness of the training of educational managers? The article also analyzes how the adaptation of educational processes to new realities contributes to the development of the competencies of educational leaders. The study covers the differences between European, American and Ukrainian approaches to the training of educational leaders with a focus on the prospects for the globalisation of educational systems. The article analyses the adaptation of Ukrainian educational programmes to crisis conditions, including distance learning and innovative management methods (NACS, 2024). To achieve this goal, the article uses comprehensive approaches that combine the analysis

of managerial, educational and technological factors that directly impact the training system.

3 Research methods

The research methodology was based on the assessment of domestic and foreign systems of training management personnel in the field of education. For this purpose, a quantitative analysis of higher education institutions in Ukraine and their educational programmes and institutional features was carried out. Particular attention is paid to training managers in managing educational institutions in crises and reforming the education system. The study analysed 332 higher education institutions, including state, municipal and private universities, academies and institutes, which allowed us to identify the main trends and problems in the training of educational managers.

The main areas of the study were crisis management during the war, integration of digital technologies into educational processes, and development of leadership and communication skills among educational institution heads. The comparative analysis method was used to study the differences between Ukrainian and foreign practices of managerial training.

The sample consisted of executive education programmes in Ukraine, the United States, and the European Union, as these regions have a significant influence on global education policy and are closely involved in Ukraine's educational reforms. Critical management training programmes in Germany, the UK and France were studied to understand European standards in education. American approaches to the training of managers through the MBA programme with an educational focus were analysed, allowing comparison of different management practice models. This approach made it possible to draw conclusions about the compliance of Ukrainian approaches with international standards and identify possible areas for improvement.

The research methodology involved the use of qualitative methods of analysis. The study included an in-depth analysis of Ukrainian legislation and international regulatory documents regulating the education sector. The laws of Ukraine “On higher education” and “On education” were revised – they formulate the main requirements for the training of heads of educational institutions. Attention was also paid to the European Qualifications Framework – EQF and the standards of the Bologna process. Both are key in harmonizing Ukrainian educational programs with European ones. A comparative analysis of normative legal documents helped to reveal the fundamental principles of training heads of educational institutions in different countries (Hokkanen et al., 2019). The final stage of the research was the formation of conclusions. They concerned the main issue: to what extent the Ukrainian management training system meets international requirements and standards.

4 Results

Management training is critical in ensuring the effective management of organisations and educational institutions. It involves acquiring professional knowledge and developing competences for strategic decision-making, resource and team management. From a scientific point of view, professional training is based on a competence-based approach that focuses on developing managerial, communication and leadership skills. According to the European Qualifications Framework (EQF) classification, managers must have the knowledge and ability to apply it in complex and unpredictable situations. Lifelong learning is essential, as managers need to adapt to changing environments and constantly improve their knowledge. In the educational environment, this is manifested in the ability to manage the pedagogical process and resources and support innovative approaches to learning (Japir Bataineh et al., 2023).

In every country, education plays a crucial role in developing human capital, which is the basis for economic growth and social well-being. Educational institution managers shape the

country's future because the education system's effectiveness depends on its competences. According to Tkachenko (2021), in developed economies such as Finland, Japan or Germany, the quality of management of educational institutions is an essential component of success in the global market. According to CMU Resolution No. 286-p of 23 February 2022, in Ukraine, according to the Education 2030 strategy, management training is one of the priorities for reforming the education sector (KMU,

2022). An effective management system helps to create innovative educational models, introduce modern technologies and increase the competitiveness of graduates in the global labour market. The role of managers in this process is vital, as they ensure the integration of education into global processes. The characteristics of the programmes for training managers of educational institutions abroad are presented in Table 1.

Table 1. Comparison of training programmes for heads of educational institutions in foreign countries

Country	Programme name	Universities	Programme duration
USA	Master of Education in Educational Leadership	Harvard University	Two years
USA	Principal Preparation Programme	University of Illinois	Two years
Germany (EU)	Schulleiterfortbildung	Humboldt University of Berlin	One year
United Kingdom (EU)	National Professional Qualification for Headship (NPQH)	University of Manchester	12-18 months

Source: developed by the authors

Educational leadership programmes in the United States and the European Union have a common goal: developing leadership skills and management competences and effectively managing educational institutions. In the United States, the Master of Education in Educational Leadership (Harvard University) and Principal Preparation Programme (University of Illinois) strongly emphasise innovation, technology integration, and the development of management strategies. In Germany and the United Kingdom, programmes are aimed at developing educational leadership, emphasising improving administrative management in education.

The development of such programmes in Ukraine has challenges in leadership training for higher education institutions, which require more specialised training due to the large number of universities and their strategic importance for the country's educational system. Currently, programmes are mainly focused on schools, which requires developing leadership training programmes specifically for higher education institutions. Only a few programmes at the higher education level at the Taras Shevchenko National University of Kyiv and the National University of Kyiv-Mohyla Academy could train leaders to

manage large educational institutions. However, introducing management training programmes at universities requires investment and modernisation of education.

Higher education is one of the most challenging and responsible areas of management training. There are a large number of higher education institutions in the country that play a leading role in training personnel for various sectors of the economy. As of December 2022, there were 332 higher education institutions in Ukraine, of which 191 were state-owned, and 133 were subordinated to the Ministry of Education and Science of Ukraine. Municipal HEIs account for 25 units, while the number of private institutions is 116. Five hundred fifty separate structural units are also involved in training. The total number of higher education students in Ukraine is 1,112,965, of which 869,365 are enrolled in institutions subordinated to the MES. This includes 727,848 bachelors, 316,623 masters and 32,859 postgraduate students (PhDs). These figures demonstrate the significant scale of the higher education system in Ukraine, which provides training for highly qualified specialists, including managers. The leading indicators of higher education institutions are shown in Table 2.

Table 2. Characteristics of higher education in Ukraine

Indicators	Meaning
Number of higher education institutions (universities, academies, institutes), units	332
– state	191
– of which are subordinated to the Ministry of Education and Science, units	133
– communal	25
– private	116
Separate structural subdivisions (institutes, academies, colleges) and colleges within the structure of higher education institutions, units	550
Destroyed higher education institutions, units	8
Total number of applicants (HEIs, HEEs), persons	1 112 965
of them in the institutions of the Ministry of Education and Science, units	869365
– junior specialist (educational qualification level)	31852
– junior bachelor	2880
– bachelor	727848
– specialist	778
– master	316623
– PhD	32859
– doctor of arts	125
Total number of researchers, research and teaching staff of legal entities, persons	161 385
of them in the institutions of the Ministry of Education and Science, persons	114045

Source: compiled based on (OsvitaUa, 2023)

Since gaining independence in 1991, Ukraine has been actively working to create its system of training management personnel in education. In the initial stages of reforming the educational system, an important task was to adapt Soviet management

models to the new conditions, including forming an independent pedagogical school and improving approaches to managerial training. One of the critical events in this process was the adoption of the Law of Ukraine "On Education" in 1996, which

laid the foundation for developing the higher education system and training pedagogical and managerial personnel. In the 2000s, there was a need to move to European standards in managing educational institutions, which was reflected in implementing the Bologna Process in Ukraine.

According to the strategies of the National Agency of Ukraine on Civil Service (2024), modern training education managers focus on introducing modular programmes, integrating information technology into management processes and using a competence-based approach. In 2017, a new Law on Education was adopted, which defined the key areas of reform in the sector to create conditions for the professional development of managers through a system of certification and continuing education. As of 2024, much attention is being paid to training leaders of educational institutions who can manage in times of war and implement a management style close to the digitalisation and globalisation of the educational process.

International management training has specific features determined by legal, cultural and ethical components. At the global level, management education programmes are guided by the standards of international organisations such as UNESCO – Resolution A/RES/70/1. and OECD – Resolution EDU/EDPC/RD(2019)7, which develop recommendations on the necessary competences for managing educational institutions (OECD, 2022). According to these organisations, in the EU, the USA and Canada, the legal requirements for managers of educational institutions include mandatory certification and a higher education degree, usually a master's degree in education management or public administration.

International management training programmes consider cultural and ethical aspects, which involve assessing national traditions and cultural values in managing educational institutions. According to Tkachenko (2021), much attention is paid to collectivism and subordination in Japan and South Korea. In the US and Western Europe, the emphasis is on the autonomy of

school and university leaders and individual responsibility. An essential part of international training is the development of intercultural competence, as managers often work in multinational teams or collaborate with educational organisations from different countries, which requires a deep understanding of cultural differences and the ability to establish communication between representatives of different cultures.

The integration of Ukraine's management training system into the global educational community is gradual and has several key stages. According to the CMU, one of the first steps was Ukraine's accession to the Bologna Process in 2005, which opened up opportunities for harmonising Ukrainian educational programmes with European standards. The integration involved adapting management training programmes to the requirements of the European Qualifications Framework. It includes modular learning, ECTS credits and the introduction of European-style diplomas.

In the 2010s, Ukrainian universities and institutes began to participate in the international exchange programme Erasmus+ actively. This allowed future managers to gain experience studying and training at foreign educational institutions. The integration also affected the legal framework: new legislative acts, such as the Law on Higher Education of 2014 and its update in 2020, have contributed to implementing international quality standards for training management professionals. Since 2022, the Law of Ukraine No. 2157-IX dated 24.03.2022 on reforming the educational system and adapting it to new challenges in the wartime environment has been in force. Cooperation with the European Union and other international organisations has provided access to best practices in managing educational institutions and created opportunities for further integration of Ukrainian personnel into the global education system. A comparison of the experience of training managers in Ukrainian and foreign educational institutions is presented in Table 3.

Table 3. Comparison of Ukrainian and foreign experience in training of educational institution managers

Criterion	Ukrainian experience	Foreign experience
Training at the institutional level	Educational programmes at universities (Master's degree in educational management)	MBA programmes with a focus on educational leadership (USA, UK)
Certification of managers	Optional certification for management positions	Certification is mandatory in most EU and US countries
Professional development courses	Mandatory courses every five years	Annual courses with a focus on the latest trends in management
Training based on educational institutions	Mostly, theoretical studies at universities	Internships in schools and educational organisations as a mandatory part of the programme
Use of modern technologies	Limited use of information technology	Active use of EdTech, management platforms
Practical training	No or minimal internship	Strong emphasis on practical learning and leadership in education
Participation in international programmes	A limited number of exchange programmes	Extensive participation in exchange programmes and international cooperation
Management models	Traditionally centralised management model	Decentralised models with autonomy of schools and universities
Financing of training programmes	Funded by the state	Both public and private funding is available, as well as scholarships
Cooperation with international organisations	Partially integrated into international projects	Close cooperation with UNESCO, OECD and other international organisations

Source: developed by the authors based on (Batsenko, 2023; Bryl & Sabadin, 2023; Blasutto, 2024; Čikeš & Kušec, 2023; Choi et al., 2023; Corbett, 2023)

The full-scale war that has been going on in Ukraine since 2022 has caused irreparable damage to the education sector and affected the functioning of management training institutions. A significant number of educational institutions have been destroyed or damaged. According to the Ministry of Education and Science of Ukraine, the hostilities affected eight higher education institutions. More than 1 million higher education students faced the need to adapt to new learning environments, including distance and blended learning. These circumstances require significant changes in approaches to the management of educational processes. Management training programmes have transformed: modules on crisis management, emergency

adaptation strategies, and digital skills development have been introduced to ensure the continuity of the learning process. The war is destroying educational institutions' material base and changing management approaches, forcing educators to respond to the challenges of the times and develop new competences for managers capable of acting effectively in a crisis.

In the context of the active phase of the war in Ukraine, the strategy for training management personnel should consider the conditions in which educational institutions operate. First, it is necessary to adapt educational programmes to new challenges. This includes introducing special courses in crisis management

that teach managers how to act in conditions of limited resources and instability. Psychological training of managers is an underestimated factor, as they should be prepared to provide support to teaching staff and students who have suffered psychological trauma as a result of military operations. Training in psychological assistance and burnout prevention has become a mandatory part of the training of modern managers. The security of educational institutions has become a priority for heads of

educational institutions. In the face of a military threat, managers must be prepared to evacuate quickly, create a safe, educational environment and cooperate effectively with security agencies. The three areas define the critical aspects of training personnel with the knowledge and skills to manage educational institutions in wartime. The specifics of managerial training with the relevant components in the three areas are shown in Figure 1.

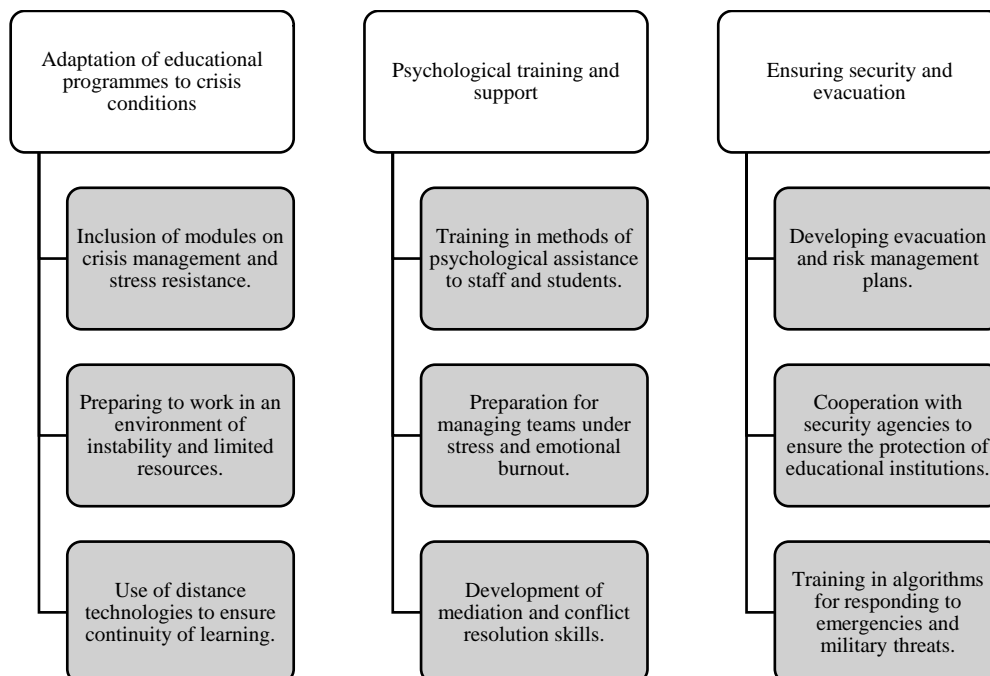


Figure 1. Peculiarities of managerial training in the context of a full-scale war

Source: developed by the authors

The post-war period opens up new prospects for developing the management training system in Ukraine, as the restoration of educational institutions will require qualified and well-trained managers. Using the foreign experience of Israel and Western Europe after the Second World War will be essential in restoring the management system. Foreign programmes that include elements of crisis management, digitalisation and adaptive management can be integrated into the Ukrainian education system. Ukraine's experience managing educational institutions during the war can be valuable for other countries because of its uniqueness. Further integration with the European education system will facilitate the introduction of the latest methods that will improve the quality of management training. In the post-war period, special attention will be paid to infrastructure development and raising the level of professional competence of managers, which will help restore educational institutions faster and ensure their stable operation.

5 Discussion

The results obtained on the training of management personnel in the field of education confirm the importance of integrating digital technologies into curricula. The study by Deale (2023) indicates the specifics of using digital technologies to improve modern professionals' management quality. Our findings align with Aydın (2023), who argues that leadership competences are a critical factor in the successful management of educational institutions. Similarly to Tumiene et al. (2022), our study has shown how European programmes focus on decentralising management and promoting educational institutions' autonomy. A common point of view is shared by Ortega-Rodríguez (2023), who demonstrates that American educational programmes focus on individual leadership skills.

In contrast, Ukrainian models remain more centralised. The findings correlate with the study by Johnny Artha et al. (2023),

which emphasises the need to integrate digital technologies into training managers in distance learning. Babenko's (2023) findings on reforming the Ukrainian education system confirm our findings on the importance of adapting educational programmes to the impact of war and digitalisation (Babenko, 2023). Our findings echo the research of Corbett (2023), who emphasizes the need for harmonization of training standards for educational managers in the context of globalization. Important parallels can also be drawn with the work of Vodon (2023), who emphasizes the importance of including anti-crisis management in educational programs to ensure the stability of educational institutions in the face of global changes. Machado Coden and Da Paixão (2023) notes in his research that digital learning platforms are becoming a key tool for training managers to work in crisis conditions. Similar to Iyengar et al. (2023), we believe that international cooperation in the field of education significantly contributes to the improvement of the level of training of educational leaders and helps to develop their professional competencies. Despite the common views of researchers, further study of issues of digitalization and management strategies in crisis situations remains a promising direction for future research.

6 Conclusion

The training of managerial personnel in the field of education is an extremely important factor for ensuring the effective functioning of educational institutions in the conditions of modern challenges. Despite the difficult political and economic conditions, the education system in Ukraine is gradually being reformed, approaching international standards. The study shows that the implementation of digital technologies in the process of training educational managers is a key means of maintaining the continuity of the educational process and ensuring effective management of institutions in crisis conditions. An important step is the introduction of new educational programs aimed at

management in crisis conditions. Such a complex of approaches becomes critically necessary for the successful development of educational institutions. In addition, it is important to strengthen the autonomy of educational institutions and develop leadership skills among their managers.

The obtained results confirm the chosen educational course of Ukraine – active cooperation with European and American educational institutions, which contributes to the globalization of the management training system. Thanks to the harmonization of educational standards and the exchange of experience with international partners, it was possible to significantly improve training programs and raise the level of training of educational managers. Special attention should be paid to further development of digital infrastructure. It is she who plays an important role in the management of educational processes in the conditions of modern challenges: war and post-war reconstruction. Using international experience will allow Ukraine to ensure the training of competent managers capable of effectively managing educational processes and promoting the sustainable development of the educational system at the national and international levels.

Literature:

- Alcántara, A. C., Sánchez-Martí, A., & Rovira, J. P.: Languages of origin and education in Europe: A systematic review. *European Journal of Education*, 2023, 58(1), 151–165. <https://doi.org/10.1111/ejed.12537>
- Aydın, N.: Eğitim Kurumlarında Görevli Eğitim Yöneticilerinin Mesleki Gelişimlerinin İncelenmesi. *Journal of Social Research and Behavioural Sciences*, 2023, 9(18), 174–185. <https://doi.org/10.52096/jsrbs.9.18.12>
- Babenko, I.: Legal competence of the educational manager and its formation in the conditions of the magistrate. *The sources of pedagogical skills*, 2023, (31), 5–9. <https://doi.org/10.33989/2075-146x.2023.31.283165>
- Batsenko, S.: Distance education of financial literacy of heads of general secondary education institutions: methodological aspect. *Continuing Professional Education: Theory and Practice*, 2023, 75(2), 77–89. <https://doi.org/10.28925/1609-8595.2023.2.8>
- Benstead, K., Brandl, A., Brouwers, T., Civera, J., Collen, S., Csaba, D. L., ... O'Higgins, N.: An inter-speciality cancer training programme curriculum for Europe. *European Journal of Surgical Oncology*, 2023, 49(9), 106989. <https://doi.org/10.1016/j.ejso.2023.106989>
- Blasutto, F.: Cohabitation vs. Marriage: Mating Strategies by Education in The USA. *Journal of the European Economic Association*, 2024, 22(4), 1723–1761. <https://doi.org/10.1093/jeaa/jvad065>
- Bryl, M., & Sabadin, O.: Features of Training a Modern Fashion Business Manager. *Socio-Cultural Management Journal*, 2023, 6(2), 86–109. <https://doi.org/10.31866/2709-846X.2.2023.291310>
- Choi, Y.-J., Choi, S.-G., & Kim, S.-K.: A Survey to Improve the Education and Training System of Fire Safety Managers. *Fire Science and Engineering*, 2023, 37(1), 138–147. <https://doi.org/10.7731/kifse.baac814a>
- Čikeš, N., & Kušec, V.: Prepoznata važnost specijalističkog ispita UEMS EU. *Medicina Fluminensis*, 2023, 59(4), 401–408. https://doi.org/10.21860/medflum2023_309425
- Corbett, S.: Ladder of competencies for education middle managers in England. *International Journal of Training and Development*, 2023, 27(1), 117–134. <https://doi.org/10.1111/ijtd.12287>
- Deale, C. S.: Hospitality and Tourism Managers' Perceptions of Sustainable Practices in Hospitality and Tourism during the Pandemic: Implications for Education. *Journal of Hospitality and Tourism Education*, 2023, 35(4), 302–316. <https://doi.org/10.1080/10963758.2022.2056470>
- Gula, L.: Modern Education Managers Training Through the Latest Technologies. *Modern Economics*, 2023, 41, 40–44. [https://doi.org/10.31521/modecon.V41\(2023\)-06](https://doi.org/10.31521/modecon.V41(2023)-06)
- Gula, O.: Effective education management as a prerequisite for the successful activities of the head of a general secondary education institution. *Visnyk of Lviv University. Series Pedagogics*, 2023, (38), 72–80. <https://doi.org/10.30970/vpe.2023.38.11855>
- Havryliuk, S., & Boryn, G.: Formation of the Professional Readiness of Future Heads of Preschool Education Institutions for Administrative Activities. *Collection of Scientific Papers of Uman State Pedagogical University*, 2023, (3), 133–139. <https://doi.org/10.31499/2307-4906.3.2023.289905>
- Hélot, C., & Bonacina-Pugh, F.: Language education policies for young learners in Europe. *European Journal of Language Policy*, 2023, 15(1), 5–24. <https://doi.org/10.3828/ejlp.2023.2>
- Hokkanen, L., Lettner, S., Barbosa, F., Constantinou, M., Harper, L., Kasten, E., ... Hessen, E.: Training models and status of clinical neuropsychologists in Europe: Results of a survey on 30 countries. *Clinical Neuropsychologist*, 2019, 33(1), 32–56. <https://doi.org/10.1080/13854046.2018.1484169>
- Iyengar, R., Song, S., Sridhar, D., Purcell, W., Nielsen, A., Silova, I., ... Tung, W.: Re-thinking Education for Sustainable Development: Key Learning Insights from the SDSN USA Transformative Education Summit 2023. *Journal of Contemplative & Holistic Education*, 2023, 1(1). <https://doi.org/10.25035/jche.01.01.09>
- Japir Bataneh, M. A., Ghasemi, M., & Ghadiri Nejad, M.: The Role of Green Training in the Ministry of Education's Corporate Environmental Performance: A Mediation Analysis of Organisational Citizenship Behaviour towards the Environment and Moderation Role of Perceived Organisational Support. *Sustainability (Switzerland)*, 2023, 15(10). <https://doi.org/10.3390/su15108398>
- Johny Artha, I. K. A., Yulianingsih, W., Widodo, & Cahyani, A. D.: Conceptual Training Models in Improving Competence of Community Learning Centre Managers. *International Journal of Instruction*, 2023, 16(3), 221–244. <https://doi.org/10.29333/iji.2023.16313a>
- KMU: On the praise of the Strategy for the development of greater lighting in Ukraine for 2022–2032. 2022. <https://zakon.rada.gov.ua/laws/show/286-2022-%D1%80#Text>
- Kušec, V., & Čikeš, N.: The Added Value of UEMS EU Specialist Assessment. *Medicina*, 2023, 59(4), 401–408. https://doi.org/10.21860/medflum2023_309425
- Langdon, J., Van Arkel, J., & Greene, K.: Exploring Virtual Coach Education in USA Lacrosse. *International Sport Coaching Journal*, 2023, 10(3), 399–409. <https://doi.org/10.1123/iscj.2022-0034>
- Machado Coden, M., & Da Paixão, J. A.: Communication Skills, Neuroscience and the Professional Interactions of Primary Education School Managers. *Revista de Educação, Ciência e Tecnologia*, 2023, 12(2). <https://doi.org/10.35819/tear.v12.n2.a6691>
- NACS: Educational and Professional Programme Public Management and Administration. 2024. <https://pdp.nacs.gov.ua/courses/osvitno-profesiina-prohrama-publichne-upravlinnia-ta-administruvannia>
- OECD: Directorate for Education And Skills Education Policy Committee. 2022. [https://one.oecd.org/document/EDU/EDPC/RD\(2022\)19/en/pdf](https://one.oecd.org/document/EDU/EDPC/RD(2022)19/en/pdf)
- Ortega-Rodríguez, P. J.: Students' factors that predict mathematical performance in primary education in the USA. *Profesorado*, 2023, 27(3), 175–196. <https://doi.org/10.30827/PROFESORADO.V27I3.27869>
- OsvitaUa: Basic educational statistics (2022/23 academic year). 2023. <https://osvita.ua/news/data/90287/>
- Pınarcıkođlu, Z. D.: Eğitim Yönetiminde Kariyerin Önemi ve Kariyer Basamaklarının Özelliklerinin İncelenmesi. *Journal of Social Research and Behavioural Sciences*, 2023, 9(19), 345–360. <https://doi.org/10.52096/jsrbs.9.19.26>
- Tkachenko, V. P.: Training of Heads of Educational Institutions on the Basis of Competency Approach: Experience of the United Kingdom. 2021. https://ihed.org.ua/wp-content/uploads/2021/05/Tkachenko_V_12-05-2021_disertac.pdf
- Tumiene, B., Peters, H., Melegh, B., Peterlin, B., Utkus, A., Fatkulina, N., ... Baynam, G.: Rare disease education in Europe and beyond: time to act. *Orphanet Journal of Rare Diseases*, 2022, 17(1). <https://doi.org/10.1186/s13023-022-02527-y>

31. UN: Resolution adopted by the General Assembly on 25 September 2015. https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf
32. Wodon, Q.: Catholic education in Europe, educational pluralism, and public funding. *International Studies in Catholic Education*, 2023, 15(1), 20–33. <https://doi.org/10.1080/19422539.2023.2190245>
33. Xiang, W., & Zeng, S.: Current Situation and Development Trend of Pre-school Education in Europe. *Journal of Education and Educational Research*, 2023, 3(3), 19–24. <https://doi.org/10.54097/jeer.v3i3.9543>

Primary Paper Section: A

Secondary Paper Section: AM, AE

ALTERATIONS IN THE INTESTINAL WALL'S HISTOLOGICAL STRUCTURE UNDER CONDITIONS OF EXPERIMENTAL OBSTRUCTIVE ILEUS

^aVALENTIN NEPOMNYASHCHY, ^bTAMARA TAMM,
^cIVAN MAMONTOV, ^dOLENA SHAKALOVA,
^eKONSTANTIN KRAMARENKO, ^fANDREY USTINOV

^{a,b,c,d,e,f}Kharkiv National Medical University, Kharkiv, Ukraine.
email: ^adoktor.nep@gmail.com, ^btamm_ti@ukr.net,
^civan.n.mamontov@gmail.com, ^dshakalovahelena@gmail.com,
^ekakram1966@gmail.com, ^fdrustinovkharkiv@gmail.com

Abstract: In 50-86% of cases, patients with obstructive ileus develop various types of purulent complications, which are the primary cause of fatalities. It is believed that these complications are caused by the microflora present in the lumen of the intestinal tube. The existing methods of preventing purulent complications in ileus, aimed at affecting the microorganisms residing in the intestinal lumen, have not reduced the number of purulent-septic complications. There arose a need to clarify the location of a potential source of purulent complications in acute intestinal obstruction (AIO). To this end, an experiment was conducted to study the dynamic changes in the histological structure of the intestinal wall during obstructive ileus over 48 hours. The experiment was carried out on 12 white rats. The animals were divided into two groups. The first group (control) consisted of four animals which underwent laparotomy under general anaesthesia without any intervention on the intestines. The second group consisted of eight animals, in which, after laparotomy, the lumen of the small intestine was ligated at the midpoint of its length to create a complete obstruction, and the laparotomy wound was tightly sutured. After the animals were withdrawn from the experiment, a histological examination of the intestinal wall was performed at 12, 24, 36, and 48 hours. The experiment results showed that no changes in the control group animals were detected in the abdominal organs during the indicated time frames. Examination of the histological structure of the intestinal wall showed that the average thickness of the mucous membrane was 0.45 ± 0.05 mm, the muscle layer 0.05 ± 0.10 mm and the ratio of villi height to crypt length was 2.5:1. Columnar enterocytes with a height of 31 ± 0.5 microns, with a distinct striated border on the apical surface, were identified. In the group of animals with experimental ileus, after 12 hours, the intestinal lumen was found to have increased to 6-8 mm above the site of obstruction, and serous effusion was observed in the abdominal cavity. These signs progressed, and after 48 hours, the intestine above the obstruction site was 2.5 times larger than usual, bluish-purple in colour, and the amount of effusion in the abdominal cavity had increased and became cloudy. Histological examination of the control group revealed no structural abnormalities in the intestinal wall throughout the experiment. In the group of animals with experimental obstructive ileus, signs of purulent inflammation in the intestinal wall were already observed 12 hours after the onset of AIO. It was established that purulent inflammation of the intestinal wall begins on the mucosal side. The trigger for this phenomenon is removing the protective layer from the villi of the intestinal enterocytes. Over time, the inflammatory process progresses, spreading to the muscle layer and ultimately to the serosal layer. The observed inflammatory changes in obstructive ileus develop above the obstruction site and along the entire length of the afferent intestinal segment. Thus, based on the histological study, it was determined that the source of purulent complications in obstructive ileus may be the wall of the intact segment of the intestine located above the obstruction site.

Keywords: Obstructive ileus, Intestine, Experiment, Complications, Histological structure, Microorganisms.

1 Introduction

Postoperative mortality in patients with acute intestinal obstruction (AIO) exceeds 17% and currently shows no tendency to decrease (Van Maanen et al., 2019; Radzikhovskiy et al., 2012; Biliaieva et al., 2014; Usenko & Voitiv, 2019; Tamm et al., 2012, 2015; Rami Reddy & Cappell, 2017). One of the most common causes of adverse outcomes is purulent-septic complications, which develop in 50-86% of cases (Kondratenko, 2013; Radzikhovskiy et al., 2012; Biliaieva et al., 2014; Usenko & Voitiv, 2019; Tamm et al., 2012; Long et al., 2023), with postoperative peritonitis accounting for 35-56%, anastomotic failure for 6.2-17.5% (Usenko & Voitiv, 2019; Tamm et al., 2012, 2015; Amanova & Kuanyshhev, 2019; Bordeianou, 2022; Griffiths & Glancy, 2020), and suppuration of postoperative wounds for 2.7-37.8%. Several publications suggest that the source of purulent-septic complications in patients with ileus is the microflora present in the intestinal lumen (Kondratenko, 2013; Bordeianou, 2022; Chen et al., 2012; Griffiths & Glancy, 2020; Hartmann et al., 2019; Edizsoy et al., 2020).

Based on this, several methods of preventing purulent-septic complications have been proposed in practical medicine: nasointestinal intubation with the evacuation of the intestinal contents, intraoperative intestinal lavage, and trans-tube administration of antibacterial drugs (Usenko & Voitiv, 2019; Amanova & Kuanyshhev, 2019; Edizsoy et al., 2020; Hartmann et al., 2019). It has been suggested that broad-spectrum

antibacterial drugs should be administered parenterally, not therapeutically, but prophylactically. All these methods were proposed empirically, and some are pretty traumatic. For example, with nasointestinal intubation, desquamation of the intestinal mucosa occurs, and the procedure itself does not reliably reduce the number of purulent complications (Biliaieva et al., 2014; Amanova & Kuanyshhev, 2019; Rami Reddy & Cappell, 2017; Long et al., 2023; Griffiths & Glancy, 2020; Edizsoy et al., 2020). The introduction of antibacterial drugs via a tube lacks evidence, and there is contradictory data regarding the choice of antibacterial drug type and dosage (Tamm et al., 2012, 2015).

Thus, the high mortality rates caused by the frequent development of purulent-septic complications in the postoperative period in patients with AIO necessitate clarification of the source of purulent complications in this patient category.

2 Literature review

Postoperative intestinal obstruction is a common occurrence and a significant clinical problem. Researchers are conducting studies to understand the mechanisms underlying obstructive ileus. It is widely studied in patients and experimental models on laboratory animals. A wide range of treatments has been tested to prevent or alter the course of this disorder (Edizsoy et al., 2020; Hartmann et al., 2019; Georgopoulos et al., 2020; Tamm et al., 2019; Wattchow et al., 2021).

Classically, ileus refers to a transit disruption, and most published studies have been conducted on postoperative patients (Ariès&Huet, 2020). Small bowel obstruction is one of the most common conditions in emergency surgical departments (Śmiechowicz, 2022; Markwart et al., 2020). Without addressing problematic intestinal segments, patients can develop multiple organ failure. Additionally, small bowel obstruction can cause significant structural and quantitative changes in the gut microbiota and disrupt the intestinal mucosal barrier (Mo et al., 2021; Bessard et al., 2024).

Modern experimental studies have shown that small bowel obstruction entails time-dependent damage to the mucosal epithelium. Simultaneously, molecular changes in the intestinal mucosal barrier occur as early as 3 hours after the onset of small bowel obstruction, with subsequent increased permeability. Initial intestinal hypermotility is followed by a reduction in peristalsis (Hartmann et al., 2019; Mavrigiannaki & Georgopoulos, 2024).

Excessive bacterial growth in the small intestine is associated with symptoms of functional gastrointestinal disorders, although the mechanisms remain poorly defined, and treatment involves nonspecific antibiotics. Changes in the microbiome composition indicate potential consequences for the functional capacity of the small intestine, particularly in the digestion of dietary carbohydrates and fibre. The study by Saffouri et al. (2019) found that a short-term shift to a low-fibre diet leads to altered intestinal permeability and gastrointestinal symptoms related to changes in microbial diversity.

It has been established that changes in gut microbiota may play an essential role in the pathogenesis of ileus. In a mouse model of partial significant bowel obstruction, changes in the microbiota composition were found, specifically a decrease in *Bacillota* and an increase in *Pseudomonadota* and *Bacteroidota* (Hegde et al., 2018). Moreover, complete small bowel obstruction leads to a reduction in *Bacillota*, an increase in *Pseudomonadota*, *Verrucomicrobia*, and *Bacteroidota*, and a disruption of the intestinal mucosal barrier (Mo et al., 2021). As obstructive ileus progresses, the occlusion of the lumen leads to the accumulation of fluid and gas due to excessive bacterial

growth proximal to the site of obstruction. The intestinal wall gradually stretches, thickens, and eventually becomes paralysed due to the blockage, which can typically lead to complications such as enteritis, sepsis, and even complete intestinal obstruction. Small bowel obstruction can change the predominant bacterial groups in the intestine. Depleted functional profiles of the gut microbiota have been found in experimental studies by Wang et al. (2023). Therefore, characterising the microbial composition of the small intestine is essential, as this may allow for a more targeted antibiotic approach in patients with purulent-septic postoperative complications.

It has been shown that the intestinal barrier is altered after intestinal resection due to signalling through toll-like receptor 4 (TLR4) at the gut level. Excessive bacterial growth is associated with increased bacterial translocation, indicating changes in intestinal permeability. It has been found that barrier dysfunction, which leads to increased permeability, occurs through two main pathways: paracellular and transcellular. Paracellular permeability is regulated by intercellular complexes, namely desmosomes, adhesions, and tight junctions (TJs). In transcellular permeability, molecules are transported through intestinal epithelial cells via endocytosis, passive diffusion, or binding to specific membrane carriers (Courtney et al., 2021).

Experimentally induced acute obstructive ileus causes significant bacterial translocation in rats. In conditions of intestinal obstruction, the colonisation of the proximal part of the small intestine by intestinal flora occurs (Belyansky et al., 2002). Lipopolysaccharide, the main component of the outer membrane of gram-negative bacteria, is a potent endotoxin responsible for organ dysfunction during sepsis. It is present in the bloodstream in gram-negative infections and gram-positive and fungal infections, likely due to sepsis-related disruption of the intestinal barrier (Caroff & Novikov, 2020; Śmiechowiec, 2022). It has been established that disruption of the intestinal barrier function and subsequent translocation of microorganisms and their metabolic products play a critical role in developing septic complications in many systemic and intra-abdominal pathologies, such as after obstructive intestinal obstruction.

Various extracellular and intracellular pathways are involved in endotoxin perception, and it is believed that non-canonical caspase-mediated pyroptosis activation plays a significant role in sepsis pathophysiology. Endotoxin induces specific pathological changes in several organs, contributing to poor outcomes (Nguyen et al., 2021; Śmiechowiec, 2022; Radocchia et al., 2021).

The current issue is finding ways to prevent and overcome purulent-septic complications in the postoperative period in patients with ileus. In their study, Hartmann et al. (2021) found that preoperative mechanical bowel preparation prevents permeability and leukocyte infiltration of the intestinal wall in the early phase of postoperative intestinal obstruction in mice. Meanwhile, Hegde et al. (2018) demonstrated that antibiotic destruction of the microbiota had little effect on changes in inflammation, motility, or bacterial translocation associated with obstruction.

Thus, postoperative intestinal obstruction causes pathophysiological changes in mucosal permeability and intestinal inflammatory immune response. Moreover, obstruction disrupts the small intestine's biocenosis and pronounced dysbacteriosis of the large intestine.

Research aim: To examine the dynamics of the histostucture of the intestinal wall in experimental obstructive ileus to clarify the localisation of the source of purulent-septic complications.

To achieve the goal of the study, the following research tasks were determined:

- To simulate obstructive ileus in white rats under experimental conditions;

- To study the histostucture of the intestinal wall using the model of obstructive ileus;
- To identify the specific morphological changes in the wall of the small intestine during experimental obstructive ileus;
- To determine the causes of purulent-septic complications in obstructive ileus.

3 Materials and methods

The experiment was carried out on 12 white rats. The animals were divided into two groups. The first group (control) consisted of 4 animals, which underwent laparotomy under general anaesthesia, following aseptic rules, without any intervention on the intestines. After this, the wound was tightly sutured. The second group consisted of 8 animals, where, after laparotomy, a ligature was used to tie off the intestinal lumen at the midpoint, and the laparotomy wound was tightly sutured (S.A. Shalimov, 1984). In each group, the animals were withdrawn from the experiment after 12, 24, 36, and 48 hours by administering a lethal dose of anaesthetic. All manipulations in the experiment were carried out by international requirements for experimental research (Geneva, 2004) and the Law of Ukraine "On the Protection of Animals from Cruelty" dated 21.02.2006, No. 3477.

After the animals were withdrawn from the experiment, during the autopsy, the condition of the intestinal loops was evaluated: their serous cover, diameter, the presence of effusion in the abdominal cavity, quantity, and nature. In the second group of animals, two fragments of the small intestine weighing 1 gram each were taken, one of which was located 1 cm above the obstruction site and the other 1 cm below the border of the duodenum. In the obtained biopsy samples, the dynamics of the intestinal histostucture were studied at 12, 24, 36, and 48 hours. In the control group, histostucture analysis of 2 biopsy samples of the intestinal wall was also performed at these time points after laparotomy. The identified changes in the control group and the group with obstructive ileus were then compared.

4 Results

After the animals in the control group were withdrawn from the experiment, no abnormalities were found during the inspection of the abdominal organs at the specified time points.

In animals with induced acute ileus, after 12 hours, an expansion of the intestinal segment up to 6-8 mm above the obstruction site was observed in the abdominal cavity, with the serous membrane appearing shiny. Below the ligature, the small intestine was collapsed. A small amount of serous fluid was present in the abdominal cavity.

After 24 hours, the intestine above the ligature remained the same size but had a cyanotic tint, while below the ligature, the intestinal lumen was collapsed, with a shiny serous membrane. After 36 hours, in the group of animals with obstructive ileus, the nature of the effusion in the abdominal cavity became cloudy with an unpleasant odour. The intestine above the ligature had acquired a bluish-purple colour. The segment of the intestine below the ligature had slightly expanded but retained its standard colour. After 48 hours of ileus in the animals, dark spots appeared on the intestine above the obstruction against the background of a dull serous membrane. The fluid in the abdominal cavity became cloudy with a colibacillary odour and a mixture of fibrin.

Histological examination of the intestinal biopsies at the specified time points showed that the thickness of the small intestine's mucosal wall in the control group was 0.5 ± 0.02 mm. In contrast, the thickness of the unchanged muscular layer was 0.95 ± 0.01 mm. The ratio of villi height to crypt length in the mucous membrane was 2.5:1. Cylindrical cells predominated in the crypts, among which goblet cells were also found. Paneth cells (5.0 ± 1.0 per crypt) were located in the deep sections of the crypts. Among the cylindrical cells of the crypts, cells with mitotic figures were found, comprising 4.5 ± 0.5 per crypt.

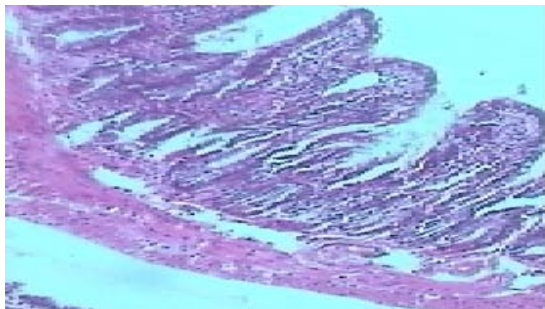


Figure 1. Histostructure of the intestinal wall villi under normal conditions: the apical surface is covered with cylindrical epithelium, and a distinct striated border is visible. Staining H&E x 100

In the epithelial covering of the villi, there are intraepithelial lymphocytes of 161.0 ± 17.4 per 1000 epithelial cells. In the lamina propria of the mucosa, loose fibrous connective tissue predominates, containing 16.0 ± 4.5 small lymphocytes per villus (Figure 2).

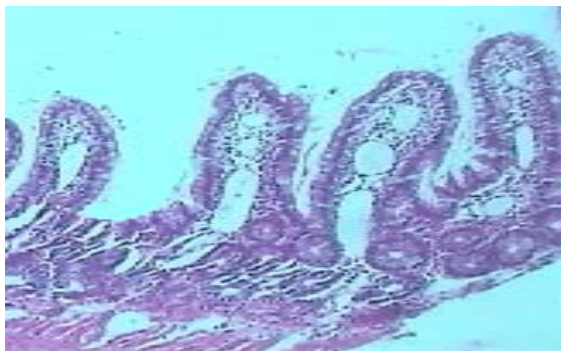


Figure 2. Histostructure of the intestinal wall under normal conditions: the lamina propria of the mucosa is represented by loose connective tissue containing small lymphocytes and plasma cells. Staining H&E x 100

The analysis of morphological changes in the wall of the small intestine during obstructive ileus, based on the observation periods in animals, showed the following dynamics. Twelve hours after the formation of acute intestinal obstruction (AIO), a morphological examination of the wall of the afferent section of the intestine showed an increase in the thickness of the villi to 0.135 ± 0.014 mm, and the ratio of villi height to crypt length decreased by half, amounting to 1.9:1. The height of the brush-border enterocytes decreased to 28.7 ± 0.5 μ m. It should be noted that during this period, the thickness of the muscle layer did not change and remained 0.95 ± 0.02 mm.

At the same time, the brush border of the enterocytes was difficult to trace in most of the villi, and focal bacterial accumulations were found on the epithelial surface. Goblet cells were found only in the basal sections of the villi, and their ratio to brush-border enterocytes in the epithelial lining was 1:3. The number of mitoses detected per crypt was 5.6 ± 0.2 , and the number of Paneth cells increased to 5.7 ± 0.1 .

The mucosal structure's cellular composition changed towards an increase in the number of intraepithelial lymphocytes, which amounted to 185.0 ± 29.0 per 1000 epithelial cells at this time point. The oedema of the villi's lamina propria was so pronounced that the oedematous fluid, in some areas, separated them from the covering epithelium. Among the lymphocytes, numerous neutrophilic leukocytes, sometimes clustered, appeared and were also detected in the epithelial covering of the villi (Figure 3).

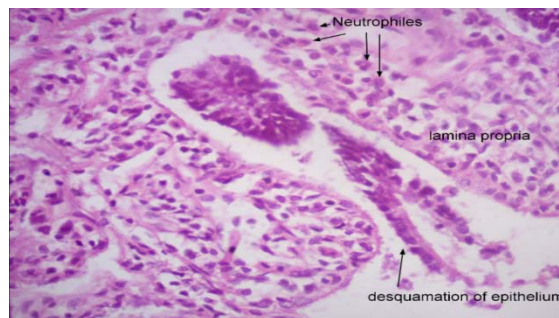


Figure 3. Histostructure of the small intestine wall after 12 hours: epithelial desquamation, pronounced oedema of the villi stroma, lymphocytic-leukocytic infiltration of the villi stroma, as well as congestion of the microvessels. Staining with haematoxylin and eosin, x180

After 24 hours, the thickness of the intestinal mucosal wall decreased to 0.35 ± 0.06 mm, which was associated with the progressive increase in the diameter of the intestinal segment above the obstruction site. Furthermore, the thickness of the villi sharply increased, with the epithelial covering removed from their surface (Figure 4). At the same time, abundant bacterial colonies were found on the surface of the villi.

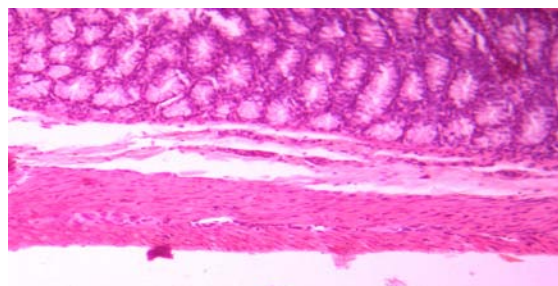


Figure 4. Histostructure of the intestinal mucosa after 24 hours: partial detachment of the covering epithelium, lymphocytic-leukocytic infiltration of the villi stroma, and leukostasis in the vessels. Staining H&E x180

After 36 hours of mechanical ileus, the degenerative process in the mucosa was most significantly pronounced. This manifested as an almost complete absence of the villi covering epithelium and the presence of a large number of bacteria (Figure 5), with the imbibition of the villi stroma by polymorphonuclear leukocytes and the penetration of microflora into the submucosal layer (Figure 6).

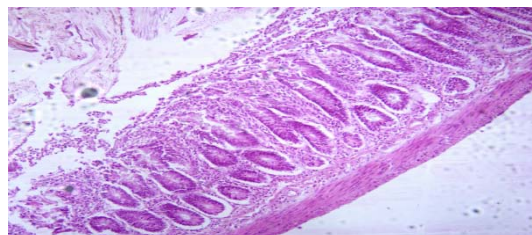


Figure 5. Histostructure of the villi after 36 hours: pronounced oedema of the stroma and almost complete destruction of the epithelial covering, combined with extensive microbial colonisation. Staining H&E x180

The thickness of the intestinal mucosal wall at this time decreased to 0.22 ± 0.13 mm. At the same time, markedly dilated microvessels with leukocyte margination, erythrocyte sludging phenomena, and leukocytic-fibrin thrombi were observed in the submucosal layer and serous membrane.

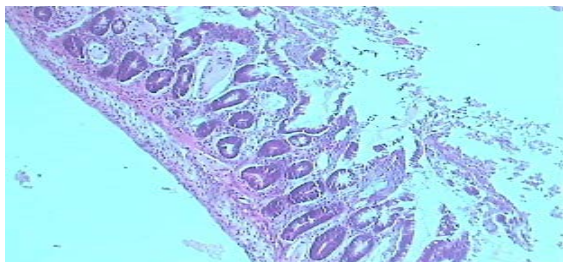


Figure 6. Histostructure of the small intestine mucosa after 36 hours: total desquamation of the villi epithelium, along with many bacterial colonies and neutrophilic leukocytes with translocation into the submucosal layer. Staining H&E x100

After 48 hours of mechanical ileus, it was practically impossible to determine the thickness of the villi in the studied animals due to total desquamation of the covering epithelium, pronounced imbibition of the stroma by polymorphonuclear leukocytes, a large number of microbial colonies on the mucosal surface, and "penetration" of some of them into the submucosal layer.

Ulcerative defects were identified, involving significant destruction of a large part of the muscular layer of the intestine, surrounded by a dense leukocytic perifocal infiltrate (Figure 7).

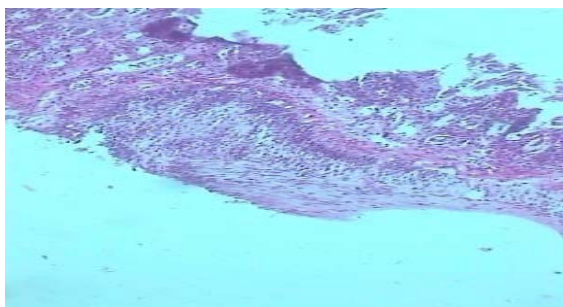


Figure 7. Histostructure of the intestinal wall after 48 hours: ulcerative defect of the intestinal wall. Staining with haematoxylin and eosin, x100

The serous membrane of the intestine was markedly oedematous with focal-diffuse leukocytic infiltrates. Leukocytic-fibrin thrombi were found in its vessels. On the surface of the serous membrane, massive deposits consisting of fibrinous-leukocytic debris mixed with a large number of bacterial colonies were localised. Their presence indicates a breach in the integrity of the intestinal wall. It is worth noting that some vessels of the serous membrane also contained bacterial colonies in their lumen.

In two animals of this group, after 48 hours, purulent-inflammatory destruction of the intestinal wall was most pronounced, with destruction of all its layers (Figure 8) and multiple ulcerative-necrotic defects.

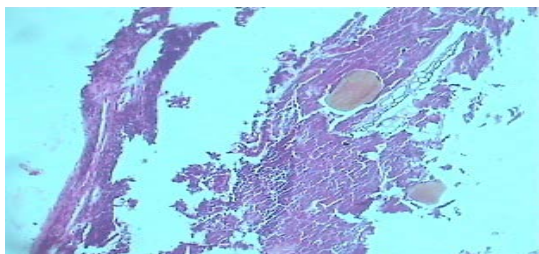


Figure 8. Histostructure of the intestinal wall after 48 hours: total necrosis of a section of the intestinal wall. Staining with haematoxylin and eosin, x100

5 Research discussion

A global study on the epidemiology of intestinal obstruction from 1990 to 2019 showed that intestinal obstruction is a common acute surgical disease, with an increase in incidence

from 56.9% to 86.7% respectively (Long et al., 2023). The authors claim that elderly people are at higher risk of morbidity and mortality, and overall, intestinal obstruction "places a significant burden on modern healthcare systems." The rate of hospitalisation for ileus in the USA is 350,000 per year, with 65% due to adhesions, 10% due to hernias, 5% due to tumours, and 20% from other causes (Rami Reddy & Cappell, 2017).

Analysis of the literature data shows that the leading cause of mortality in patients with obstructive ileus is the development of various purulent complications. Many authors believe the source of purulent complications is the microflora in the intestinal lumen. In this regard, methods of preventing purulent complications by affecting the microflora in the intestinal lumen have been proposed (Kondratenko, 2013; Usenko & Voitiv, 2019). Introducing these proposed methods of prevention of purulent-septic complications (PSC) in acute intestinal obstruction (AIO) into clinical practice has not reduced the number of these complications or improved treatment outcomes.

The proposed methods and treatments in the clinic should generally be based on experimental evidence. Numerous studies have shown that the intestinal mucosa is the first to suffer during mechanical ileus (Tamm et al., 2012; Griffiths & Glancy, 2020; Edizsoy et al., 2020). In an experiment aimed at reducing mucosal damage during obstructive ileus, Edizsoy et al. (2020) offered animals food with probiotics. A feature of the experiment was that after 24-48 hours, the animals were re-operated, and the ileus was resolved by removing the ligature. Probiotic food was then introduced. The experiment noted that bacterial translocation was observed in the groups of animals without probiotics and, to a lesser extent, in those animals that received probiotics. The authors believe that further research is necessary.

Studies on experimental obstructive small bowel ileus have shown that changes in the barrier properties of the intestinal mucosa occur as early as 3 hours after the onset of obstruction, progressing over time. This is confirmed by increased permeability to protein molecules and decreased intestinal peristalsis (Edizsoy et al., 2020; Hartmann et al., 2019).

A targeted study of the microflora dynamics and the histostructure of the intestinal wall in obstructive ileus above the obstruction site was reflected in the works of Tamm et al. (2012, 2015). The authors did not examine the histostructure of the entire afferent segment of the intestine. In this regard, confirming or clarifying the dynamics of the histostructure of the intestinal wall, in which the passage of chyme is disrupted under the influence of microflora without treatment, is of particular interest.

A progressive experimental obstructive ileus model was used to study the stages of morphological changes in the intestinal wall. One link in the pathogenesis of acute intestinal obstruction (AIO) in obstructive ileus is the decolonisation of saprophytic microflora located in the lumen of the intestinal tube (Van Maanen et al., 2019).

In studying the histostructure of the intestinal wall in a model of obstructive ileus, it was found that as early as 12 hours after the development of intestinal obstruction, signs of progressive inflammation appear in the wall above the obstruction site, primarily manifesting in the mucosa (Tamm et al., 2012). This process occurs in the segment located directly above the obstruction site and at a distance from it, below the duodenum. Initially, the protective layer, which acts as a barrier for microorganisms, is removed from the surface of the villi. After that, abundant bacterial colonies appear on their surface, penetrating the villi stroma. This process is accompanied by forming a lymphocytic infiltrate containing segmented neutrophils. At the same time, oedema occurs in the submucosal layer of the intestine, where dilation of microvessels and the appearance of leukostasis at the margins are observed. The presence of bacteria and leukocytic-lymphocytic infiltration of the villi stroma at this stage indicates the onset of purulent

inflammation located directly within the thickness of the intestinal wall. During histological examination, signs of purulent inflammation were found throughout the entire segment of the intestine located above the obstruction site.

After 24 hours, the intestinal wall's inflammation becomes purulent, and after 36 hours, phlegmonous-purulent inflammation spreads through the entire thickness of the wall, reaching the muscular layer. The purulent-degenerative processes in the intestinal wall, which progress over time, lead to phlegmonous inflammation and microabscesses, with the involvement of the muscular layer while the serous membrane remains unaffected.

After 48 hours, areas of destruction of all layers of the intestinal wall appear, forming fibrinous-purulent peritonitis on the serous membrane.

Repeated experimental results showed that in obstructive ileus, the inflammation that develops in the intestinal wall spreads along the entire length of the intestine located above the obstruction site. As the obstruction progresses, phlegmonous enteritis develops in the afferent section of the intestine.

The authors who studied the histostructure of the intestinal wall in experimental obstructive ileus also found similar changes (Tamm et al., 2012, 2015). However, they studied biopsies directly above the obstruction site from the intestinal wall. Our research showed that the purulent inflammatory process occurs throughout the proximal section of the intestine, up to the obstruction site.

The process of purulent inflammation directly in the intestinal wall begins after removing the brush border, which performs a protective function. Within 36 hours, purulent inflammation spreads from the mucosa to the submucosal and muscular layers. The serous membrane was not involved in the inflammatory process during this time. However, by 48 hours of experimental ileus, histological examination revealed signs of purulent inflammation on the serous membrane. Thus, in progressive obstructive ileus, the source of purulent-septic complications is the microflora located within the inflamed intestinal wall rather than in the lumen of the intestinal tube. Why is this important? Because in patients with obstructive ileus, the target for antibacterial drugs should be the wall, not the intestinal lumen.

It can be assumed that after eliminating the cause of obstructive ileus, the source of purulent complications will be the phlegmonously altered intestinal wall, not the microflora in the intestinal lumen.

6 Conclusion

1. In the experiment with obstructive ileus, the protective mucous membrane layer is initially removed along the entire length of the intestinal section located above the obstruction site. As a result, the saprophytic microflora in the lumen of the intestinal tube penetrates its wall, transforming into pathogenic microflora and causing purulent inflammation.
2. Phlegmonous enteritis, which develops in the intestinal wall above the obstruction site in obstructive ileus, spreads through the entire wall thickness within 48 hours, involving all layers, including the serous membrane. After the cause of mechanical ileus is eliminated, the remaining section of the phlegmonously altered intestinal wall may serve as a source of purulent-septic complications.

Literature:

1. Amanova, D. E., & Kuanyshev, S. R.: The phenomenon of bacterial translocation in acute mesenteric ischaemia: a modern view of the problem. *Journal of Kazakhstan Karaganda*, 2019, 1(90), 23–35.
2. Belyansky, L. S., Sayenko, V. F., Furmanov, J. A., & Churilova, T. J.: Bacterial translocation as a cause for septic complications in obstructive colonic ileus. *Acta chirurgica*

Belgica, 2002, 102(2), 75–77. <https://doi.org/10.1080/00015458.2002.11679270>

3. Bessard, A., Cardaillac, C., Oullier, T., Rolli-Derkinderen, M., Neunlist, M., & Venara, A.: Alterations of Prostanoid Expression and Intestinal Epithelial Barrier Functions in Ileus. *Gastrointestinal Surgery*, 2024, 296, 65–173. <https://doi.org/10.1016/j.jss.2023.12.018>
4. Biliaieva, O. O., Radzikhovskiy, A. P., Ivanchenko R. V., & Miroshnychenko A. P.: Microjejunostomy for intestinal obstruction, its feasibility as a method of enteral nutrition in the early postoperative period. *Clinical Surgery*, 2014, 11, 11–15.
5. Bordeianou, L., & Yeh, D. D.: Etiologies, clinical manifestations, and diagnosis of mechanical small bowel obstruction in adults. *UpToDate. Literature review current through*, 2022. 69 p.
6. Caroff, M., & Novikov, A.: Lipopolysaccharides: Structure, Function and Bacterial Identification. OCL., 2020, 27, 31. <https://doi.org/10.1051/ocl/2020025>
7. Chen, X. L., Ji, F., Lin, Q., Chen, Y. P., Lin, J. J., Ye, F., Yu, J. R., & Wu, Y. J.: A prospective randomised trial of transnasal ileus tube vs nasogastric tube for adhesive small bowel obstruction. *World journal of gastroenterology*, 2012, 18(16), 1968–1974. <https://doi.org/10.3748/wjg.v18.i16.1968>
8. Courtney, C. M., Onufer, E. J., McDonald, K. G., Steinberger, A. E., Sescleifer, A. M., Seiler, K. M., Tecos, M. E., Newberry, R. D., & Warner, B. W.: Small Bowel Resection Increases Paracellular Gut Barrier Permeability via Alterations of Tight Junction Complexes Mediated by Intestinal TLR4. *The Journal of surgical research*, 2021, 258, 73–81. <https://doi.org/10.1016/j.jss.2020.08.049>
9. Edizsoy, A., Yilmaz, E., Çevikel, M. H., Yenisey, Ç., Sakarya, S., & Meteoglu, İ.: Gut mucosa in the rats exposed temporary mechanical obstruction fed with probiotic. *Turkish journal of trauma & emergency surgery: TJTES*, 2020, 26(6), 833–842. <https://doi.org/10.14744/tjtes.2020.30269>
10. Georgopoulos, I., Mavrigiannaki, E., Stasinopoulou, S., Renieris, G., Nikolakis, G., Chaniotakis, I., Tiniakos, D., & Papaconstantinou, I.: Experimental Models of Partial Intestinal Obstruction in Young Mice: Establishment, and Evaluation. *The Journal of surgical research*, 2020, 252, 206–215. <https://doi.org/10.1016/j.jss.2020.03.007>
11. Griffiths, S., & Glancy, D. G.: Intestinal obstruction. *Surgery (United Kingdom)*, 2020, 38(1), 43–50. <https://doi.org/10.1016/j.mpsur.2019.10.014>
12. Hartmann, L., Arndt, M., Hahn, E. M., Mueller, M. H., Kreis, M. E., & Hering, N. A.: Effect of bowel preparation on intestinal permeability and inflammatory response during postoperative ileus in mice. *Surgery*, 2021, 170(5), 1442–1447. <https://doi.org/10.1016/j.surg.2021.05.014>
13. Hartmann, L., Zhao, X., Macheroux, T., Kasperek, M. S., Kreis, M. E., & Mueller, M. H.: Time-Dependent Alterations of Gut Wall Integrity in Small Bowel Obstruction in Mice. *The Journal of surgical research*, 2019, 233, 249–255. <https://doi.org/10.1016/j.jss.2018.07.038>
14. Hegde, S., Lin, Y. M., Golovko, G., Khanipov, K., Cong, Y., Savidge, T., Fofanov, Y., & Shi, X. Z.: Microbiota dysbiosis and its pathophysiological significance in bowel obstruction. *Scientific reports*, 2018, 8(1), 13044. <https://doi.org/10.1038/s41598-018-31033-0>
15. Kondratenko, P. G.: *Guide to clinical surgery. Differential diagnostics and treatment of surgical diseases*. Donetsk, 2013. 752 p.
16. Long, D., Mao, C., Liu, Y., Zhou, T., Xu, Y., & Zhu, Y.: Global, regional, and national burden of intestinal obstruction from 1990 to 2019: an analysis from the Global Burden of Disease Study 2019. *International journal of colorectal disease*, 2023, 38(1), 245. <https://doi.org/10.1007/s00384-023-04522-6>
17. Markwart, R., Saito, H., Harder, T., Tomczyk, S., Cassini, A., Fleischmann-Struzek, C., Reichert, F., Eckmanns, T., & Allegranzi, B.: Epidemiology and burden of sepsis acquired in hospitals and intensive care units: a systematic review and meta-analysis. *Intensive care medicine*, 2020, 46(8), 1536–1551. <https://doi.org/10.1007/s00134-020-06106-2>
18. Mavrigiannaki, E., & Georgopoulos, I.: *Experimental Animal Models for Studying Intestinal Obstruction*. IntechOpen, 2024. <https://doi.org/10.5772/intechopen.115008>

19. Mo, J., Gao, L., Zhang, N., Xie, J., Li, D., Shan, T., & Fan, L.: Structural and quantitative alterations of gut microbiota in experimental small bowel obstruction. *PLoS one*, 2021, 16(8), e0255651. <https://doi.org/10.1371/journal.pone.0255651>
20. Nguyen, M., Pallot, G., Jalil, A., Tavernier, A., Dusuel, A., Le Guern, N., Lagrost, L., Pais de Barros, J. P., Choubley, H., Bergas, V., Guinot, P. G., Masson, D., Bouhemad, B., & Gautier, T.: Intra-Abdominal Lipopolysaccharide Clearance and Inactivation in Peritonitis: Key Roles for Lipoproteins and the Phospholipid Transfer Protein. *Frontiers in immunology*, 2021, 12, 622935. <https://doi.org/10.3389/fimmu.2021.622935>
21. Radocchia, G., Neroni, B., Marazzato, M., Capuzzo, E., Zuccari, S., Pantanella, F., Zenzeri, L., Evangelisti, M., Vassallo, F., Parisi, P., Di Nardo, G., & Schippa, S.: Chronic Intestinal Pseudo-Obstruction: Is There a Connection with Gut Microbiota? *Microorganisms*, 2021, 9(12), 2549. <https://doi.org/10.3390/microorganisms9122549>
22. Radzikhovskiy, A. P. et al.: *Intestinal Obstruction*. Kyiv: Phoenix, 2012, 503 p.
23. Rami Reddy, S. R., & Cappell, M. S.: A Systematic Review of the Clinical Presentation, Diagnosis, and Treatment of Small Bowel Obstruction. *Current gastroenterology reports*, 2017, 19(6), 28. <https://doi.org/10.1007/s11894-017-0566-9>
24. Saffouri, G. B., Shields-Cutler, R. R., Chen, J., Yang, Y., Lekatz, H. R., Hale, V. L., Cho, J. M., Battaglioli, E. J., Bhattarai, Y., Thompson, K. J., Kalari, K. K., Behera, G., Berry, J. C., Peters, S. A., Patel, R., Schuetz, A. N., Faith, J. J., Camilleri, M., Sonnenburg, J. L., Farrugia, G., ... Kashyap, P. C.: Small intestinal microbial dysbiosis underlies symptoms associated with functional gastrointestinal disorders. *Nature communications*, 2019, 10(1), 2012. <https://doi.org/10.1038/s41467-019-09964-7>
25. Śmiechowicz, J.: The Rationale and Current Status of Endotoxin Adsorption in the Treatment of Septic Shock. *Journal of clinical medicine*, 2022, 11(3), 619. <https://doi.org/10.3390/jcm11030619>
26. Tamm, T. I., Bogun, Ye. A., Nepomnyashchiy, V. V., Bardyuk, A. Ya., Ustinov, A. T., Gvozdik, Yu. A.: Stages of phlegmonous enteritis development as a source of purulent-septic complications in obturation intestinal obstruction. *Modern surgery and coloproctology*, 2012, 2(2), 98–102.
27. Tamm, T. I., Nepomnyashchiy, V. V., Shakalova, Ye. A., & Dvornik, I. A.: Prevention of purulent complications in mechanical bowel obstruction (experimental study). *Clinical Surgery*, 2015, 3, 65–79.
28. Tamm, T. I., Nepomnyashchiy, V. V., Shakalova, O. A., Barduk, A. Ya.: Intestine wall histostucture peculiarities with peritonitis and mechanical intestine obstruction (experimental study). *Biomedical and Biosocial Anthropology*, 2019, 36, 27–34. <https://doi.org/10.31393/bba36-2019-05>
29. Usenko, O. Yu., & Voitiv, Ya. Yu.: Undifferentiated connective tissue dysplasia in patients with anastomotic suture failure of the hollow digestive organs. *Clinical Surgery*, 2019, 86(6), 3–7. <https://doi.org/10.26779/2522-1396.2019.06.03>
30. Van Maanen, J., Turaihi, H., Denevan, P., & Thambi-Pillai, T.: Overview and Management of Small Bowel Obstruction versus Ileus: A Primer for All Physicians. *South Dakota medicine: the journal of the South Dakota State Medical Association*, 2019, 72(5), 226–231.
31. Wang, Y., Zhang, M., Jiang, L., Gong, Y., Liu, K., & Zhang, T.: Alterations of gut microbiota in a mouse model with partial small intestinal obstruction. *Frontiers in microbiology*, 2023, 14, 1242650. <https://doi.org/10.3389/fmicb.2023.1242650>
32. Wattchow, D., Heitmann, P., Smolilo, D., Spencer, N. J., Parker, D., Hibberd, T., Brookes, S. S. J., Dinning, P. G., & Costa, M.: Postoperative ileus-An ongoing conundrum. *Neurogastroenterology and motility*, 2021, 33(5), e14046. <https://doi.org/10.1111/nmo.14046>

Primary Paper Section: A

Secondary Paper Section: AM, FQ

ASSESSING THE IMPACT OF INNOVATIVE TEACHING STRATEGIES ON HIGHER EDUCATION OUTCOMES

^aMYKHAILO PODOLIAK, ^bLIUDMYLA MAZURENKO,
^cVOLODYMYR BINKEVYCH, ^dTETIANA AHIBALOVA,
^eOKSANA KALASHNYK

^{a, c}*Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies of Lviv, Lviv, Ukraine.*

^b*Naval Institute of the National University "Odesa Maritime Academy", Odesa, Ukraine.*

^d*Kharkiv National Automobile and Highway University, Kharkiv, Ukraine.*

^e*Kharkiv State Academy of Design and Arts, Kharkiv, Ukraine.*

email: ^amisha.podol@gmail.com, ^bruzam11_@ukr.net,

^cbinkevych_volodymyr@ukr.net, ^dtanika.fem@gmail.com,

^eoksana.kalashnik1985@gmail.com

Abstract: Innovations open new opportunities for developing creativity, critical thinking and other key competences necessary for success in modern society. In order to create a modern educational system that actively uses innovative technologies and integrates into the global educational space, it is necessary to investigate how effective the implementation of innovative approaches to teaching in higher education is and to rethink the role of the teacher, who should become not only a carrier of knowledge, but also a facilitator of the educational process. The purpose of the study is to examine how innovative technologies change the educational process in higher education institutions, to identify the most relevant digitalisation tools in education, and to substantiate a comprehensive approach to assessing the effectiveness of implementing innovations in teaching in higher education, taking into account the rethinking of the role of the teacher and their impact on the formation of students' professional competences. The study used a comprehensive toolkit that included general scientific methods: document analysis, generalisation, synthesis, system analysis, analytical diagnostics, forecasting, and statistical data analysis. The study paid considerable attention to the impact of information technologies on the professional development of educators, in particular, analysing how the use of new technologies contributes to the development of such competences of higher education students as creativity, critical thinking, the ability to learn independently and collaborate, and how this affects their motivation and academic achievements. It has been found that innovative technologies in higher education contribute to improving its quality by expanding access to knowledge, personalising learning and improving communication. The study's results allowed for substantiating a comprehensive approach to assessing the effectiveness of innovations in teaching in higher education, with the introduction of digital solutions and the latest interactive tools, which is a prerequisite for their successful implementation and improvement of the quality of education.

Keywords: Innovative technologies in higher education, digital tools, advantages and risks of implementation, efficiency of use, professional competences, educational process.

1 Introduction

Over the past decade, higher education has been actively integrating innovative technologies, reflecting global trends in the development of information and digital technologies. Along with the growing role of technology in everyday life, its presence and influence on the educational process in higher education institutions has increased significantly. The Education 4.0 paradigm is shaped by the Fourth Industrial Revolution, which provides the educational process with the necessary technological tools. However, the crisis caused by the pandemic has shown that education systems were not sufficiently prepared for the challenges of the digital era, which manifested in the lack of necessary equipment, software and digital skills among teachers and students.

In modern higher education, the priority is to find new, innovative teaching methods that impart knowledge to students and develop a wide range of competences necessary for success in a dynamic world. This requires introducing modern technologies, actively using problem-based and project-based learning, and continuously assessing competence development to train highly qualified professionals. If innovative methods are available to all participants in the educational process, the full realisation of learning potential and the development of the necessary competences can be achieved.

2 Literature review

Recent decades have been marked by active scientific research into how digital transformation affects various spheres of public life, focusing on technologies such as artificial intelligence, the Internet of Things and big data. Boulton (2020) considers digital transformation

as a deep and comprehensive process that inevitably leads to changes in all areas of activity related to the possibilities of remote collaboration, quick access to information resources, personalisation and openness of the digital space, which erases geographical boundaries. The work of many scientists, including Haleem et al. (2022), emphasises the importance of the synergy of artificial intelligence and the Internet of Things in the context of the digital transformation of society, where each of these technologies has its potential. However, their combination opens up new opportunities for innovation.

Pandemic-related restrictions have accelerated the development of global research in digital educational technologies, as there is an urgent need for new solutions to ensure quality education in distance learning. Naciri et al. (2020) emphasise that the COVID-19 pandemic has necessitated the transition to distance learning, and mobile devices have become one of the main tools to ensure the continuity of the educational process, the ability to learn anytime and anywhere. Pelletier et al. (2023) drew attention to an urgent problem: the need to constantly update and improve the latest learning technologies to the changing requirements of our time. They note that artificial intelligence and other digitalisation tools are changing the game's rules in higher education, requiring us to adapt to new realities and develop new approaches. Zawacki-Richter et al. (2019) conducted a comprehensive analysis of the current state of technology use in higher education and proposed a detailed typology, structuring various tools and platforms according to specific criteria, which allows for a better understanding of their functions and capabilities.

In the current scientific debate on education, the effectiveness of innovative technologies in higher education and science is ambiguous and depends on many factors, including the specifics of the educational institution and research area. The study by Lai & Bower (2019) particularly emphasises the importance of this aspect. A systematic approach to analysing innovative teaching technologies allows the creation of optimal models of their application in various fields of knowledge. Kim et al. (2019) and Haidabrus (2022) in their scientific works demonstrate that innovative learning technologies deserve academic recognition in the higher education system and should become the basis for practical actions aimed at modernising higher education to meet the demands of modern challenges. Particular attention is paid to distance learning systems, in particular, the use of the Moodle platform in the educational process, the effectiveness of which in the educational process was studied by Gamage et al. (2022).

The teacher is crucial in transferring knowledge and developing professional competences in students. The study by Castro (2019) emphasises how complex the relationship between people and technology in the educational process is in the context of using modern teaching methods. Besehanych et al. (2023) rightly point out that the professional development of teaching staff should accompany the introduction of innovative technologies because the teacher is an essential participant in the educational process, building his/her relationship with students based on mutual respect and understanding. The readiness of teachers to change is becoming an urgent issue, as noted by Scherer et al. (2021). The innovative approach of the teacher stimulates the cognitive activity of students, promoting deep learning and the formation of competences necessary for the future profession, the research and evaluation of which requires constant monitoring to eliminate the possible gap between the digital capabilities of the present and the skills of participants in the educational process. The systematic combination of innovative teaching methods and effective forms of assessment contributes to the comprehensive development of students and the formation of the necessary competences for successful professional activity in a dynamic world, as proved in their work by Shuliakov et al. (2024).

The issues of interactive learning, in particular its features, methods of assessment and improving the performance of all participants in the educational process, are discussed in detail in many scientific

works, such as Aljawarneh et al. (2019). Nakagawa et al. (2020) investigate such assessment's medical and physiological aspects, focusing on what communication conditions most effectively maintain student concentration during distance learning. They argue that distance learning negatively affects the level of communication among students, which in turn leads to a decrease in concentration on the learning process. Biometric information can serve as an effective tool for measuring learning outcomes. The creation of visual diagrams that show how students interact with different educational technologies was investigated by Bond et al. (2020). Although the study demonstrated positive results of using new teaching methods, not all aspects were considered sufficiently; in particular, these methods' long-term effects remain unexplored. Further research on using innovative technologies in higher education is necessary to optimise the learning process, increase its efficiency, and develop the competences necessary for students to work in the modern information society.

3 Research aims

The study aims to identify the key factors that contribute to the effective implementation of new teaching methods and their impact on the quality of training and to determine a comprehensive approach to assessing the effectiveness of teaching innovations in higher education, taking into account the rethinking of the role of the teacher and their impact on the formation of students' professional competences.

4 Research methods

The study used general scientific methods, including generalisation, synthesis, system analysis, analytical diagnostics, forecasting, and statistical, regression and correlation data analyses. The analytical diagnostics method was used to study critical indicators of society's digitalisation, such as the dynamics and assessment of Internet access and digital skills at the primary level and above in the EU countries, which allowed us to get a general idea of the progress made by the European Union in this area in recent years. The information obtained through quantitative analysis of open data from Eurostat (n.d.)

on digital skills and Internet access was visualised using the graphical method, allowing for exploring the existing progress patterns and interrelationships. Moreover, the forecasting method allowed us to substantiate predictive data on the possible future dynamics of these processes. To ensure the reliability of the existing forecast, we used the regression analysis method to build a trend line for the indicator of digital skills at primary level and above among the population of EU countries, as well as the correlation analysis method to understand how closely this indicator is related to the indicator of Internet access.

Using the analytical method allowed us to identify the strengths of modern educational, innovative technologies that contribute to developing the educational potential of all participants in the educational process and to highlight the risk aspects that hinder these processes. Thanks to the systemic and structural approach, we were able to comprehensively analyse how innovative approaches to teaching in higher education contribute to the development of student's creative abilities and increase the efficiency of teachers. Using this methodology allowed us to systematise scientific information on methods for assessing the effectiveness of innovations in higher education and substantiate a comprehensive approach to assessing the effectiveness of innovative approaches to teaching in higher education.

5 Results

Global trends in the digital transformation of society are reflected in higher education, which is actively implementing innovative teaching technologies. The pandemic has opened up new educational horizons, demonstrating the potential of innovative learning as an independent and effective educational tool. The continuity of education in higher education institutions has become possible thanks to introducing an innovative model that combines distance, digital, and virtual technologies. The cyclical nature of the development of innovative technologies in higher education demonstrates their ability to adapt to new challenges, and their resilience to change makes them a critical factor in modernising the educational process (Figure 1).

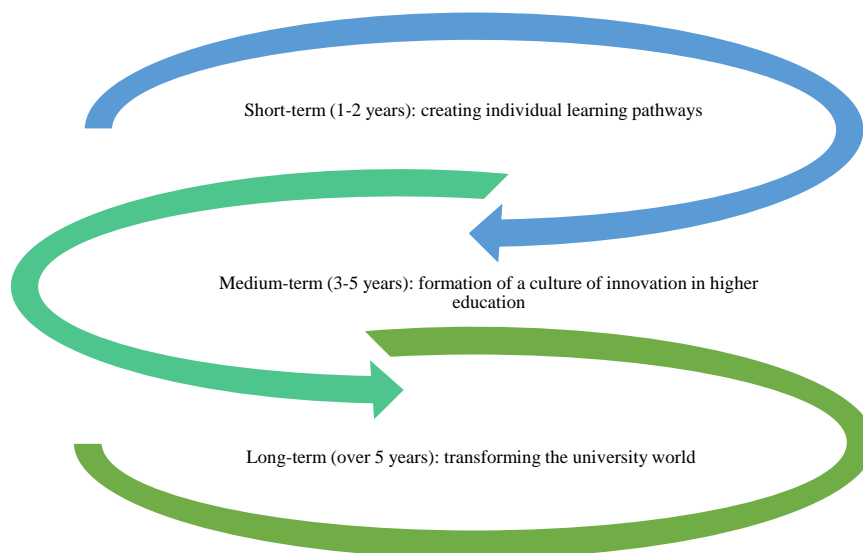


Figure 1: Life Cycle of Innovative Technologies in Higher Education. Source: Compiled by the author based on (Pelletier et al., 2023).

The successful implementation of innovative technologies depends on the ability of the educational community to adapt to change (Rani et al., 2021). There is a steady upward trend in the level of digital skills of the population, as evidenced by a decrease in the number of people with no digital skills at all and an increase in the proportion of those with primary and higher levels of digital literacy. In addition to the traditional division into low and high readiness levels, some studies reveal a more complex picture, where teachers' readiness level to implement innovative technologies can vary considerably. There is a mismatch between the level of digital literacy of teachers and

students and their understanding of how these skills can be used in teaching (Fitzgerald et al., 2023).

On 23 November 2023, the European Council adopted recommendations that set the main directions for developing digital education and training in Europe. These recommendations aim to ensure access to quality digital education for all citizens, enhance the digital competences of the population and promote innovation in education. This package of measures is designed to ensure that education is ready for digital transformation, allowing it to meet the demands of today's dynamic world (Devlin, 2024). As part of the Digital

Decade initiative, the EU aims to ensure that 80 % of the adult population has essential digital competences by 2030. Based on the results of the regression analysis without and with projected data, we obtained a result that may indicate that the forecasts provided are justified, in terms of increasing digital skills of the

primary level and above in the EU countries, and the correlation coefficient of 0.95 obtained suggests a close relationship between Internet access and digital skills of the population (Figure 2).

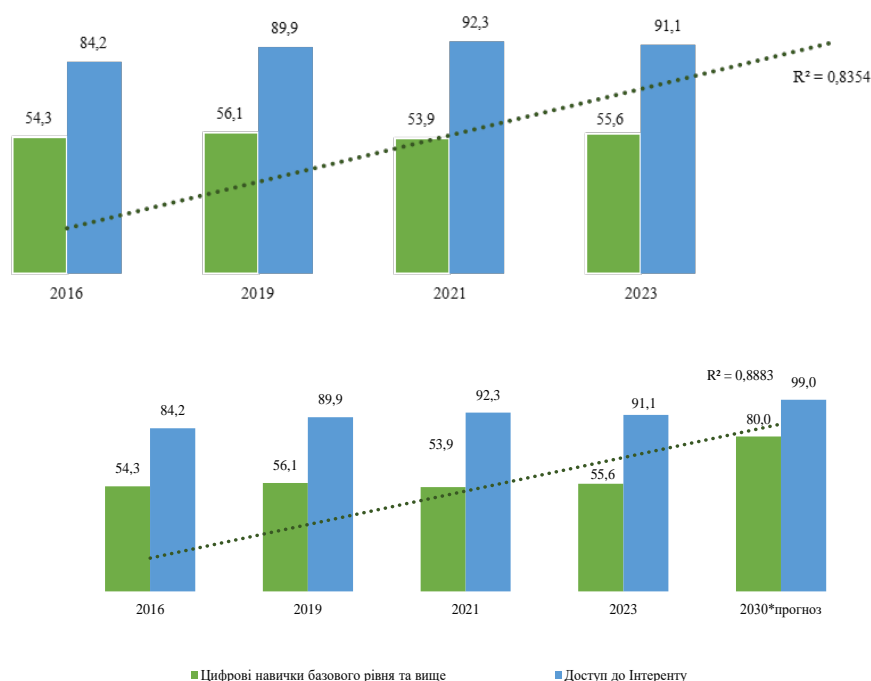


Figure 2: Dynamics and Forecasting of Internet Access and Digital Skills at Basic Level and Above in EU Countries.

Source: Compiled by the author based on data from (Eurostat, n.d.).

Among the modern pedagogical innovations are interactive methods, multimedia, telecommunications and virtual reality, which create a more effective learning environment. Teachers actively use various online platforms and applications, such as Zoom, Google Meet, Skype, Microsoft Teams, Classtime, and Cisco Webex Meetings, to make distance learning effective and close to traditional learning. In addition, online courses on the Prometheus, VUMonline, and Khan Academy platforms and video lectures on YouTube, EdEra and WiseCow have become

popular. The variety of innovative learning tools in 2024, according to the Centre for Learning & Performance Technologies' annual survey (2024), is shown in Figure 3. This year's top new product is another artificial intelligence chatbot, Microsoft's Copilot, and there are 3 more new AI chatbots on the list — Perplexity, Claude and Gemini from Google, which suggests that in 2024, artificial intelligence has gained popularity among all participants in the educational environment (Top 100 Tools for Learning 2024, n.d.).

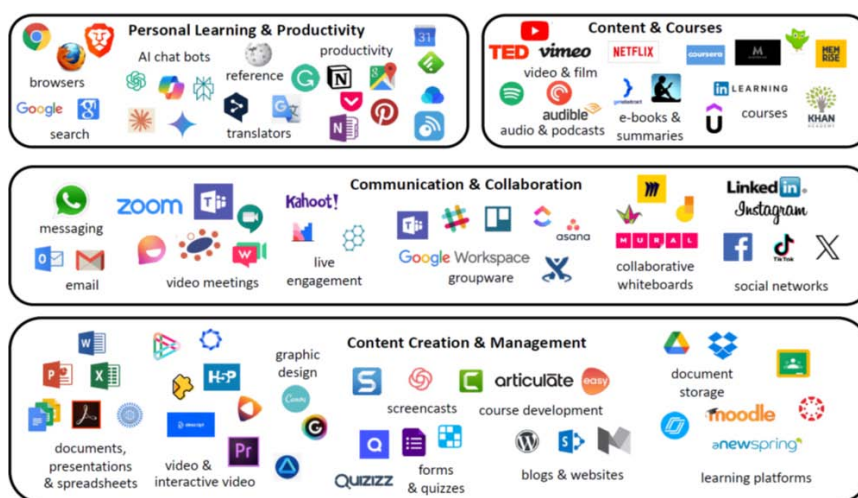


Figure 3: The Most Popular Educational Innovations by Category.

Source: (Top 100 Tools for Learning 2024, n.d.)

Distance learning conditions require innovative technologies that facilitate students' active involvement in learning and developing their professional competences. Studies show that students who study with the help of innovative technologies gain

more profound experience, interact more actively with each other, and develop greater independence in learning, among other benefits of using innovative technologies in higher education (Figure 4).

Improving the quality of education	<ul style="list-style-type: none"> Innovative technologies allow for the development of learning materials that meet modern requirements and contribute to improving the quality of education
Quick search for up-to-date scientific information	<ul style="list-style-type: none"> Innovative technologies provide fast and convenient access to up-to-date scientific information, facilitating continuous professional growth
A wide range of visual materials	<ul style="list-style-type: none"> Interactive technologies stimulate active cognitive activity of students, developing their critical thinking and creativity
Increased motivation to learn	<ul style="list-style-type: none"> The use of interactive technologies increases the motivation of students to work independently and makes learning more interesting
An impartial knowledge test	<ul style="list-style-type: none"> Innovative technologies allow automating the knowledge assessment system, which guarantees greater objectivity and eliminates the influence of subjective factors
Variety of forms and methods of knowledge testing	<ul style="list-style-type: none"> Innovative technologies expand the possibilities for assessing students' knowledge and skills, allowing the use of various interactive formats
Prospects for distance learning	<ul style="list-style-type: none"> Distance learning allows overcoming any limitations and providing equal opportunities for education
Development of self-learning skills	<ul style="list-style-type: none"> The use of modern technologies contributes to the development of information literacy of students, allowing them to search for information independently
Stimulating abstract thinking	<ul style="list-style-type: none"> Modern technology is an effective tool for abstract thinking and preparing students to solve complex problems

Figure 4: Benefits of Using Innovative Technologies in Higher Education.

Source: Compiled by the author based on (Besehanych et al., 2023).

Effective distance learning involves using technologies that focus on the learner as a subject of learning, enabling them to acquire knowledge and develop professional skills independently with the support of a teacher. By integrating innovative technologies into the learning process, such as online platforms, virtual reality, and artificial intelligence, the role of each participant in the educational process is enhanced, especially the activity of students in the search for new knowledge (Abuhassna et al., 2020). This approach to learning allows students to actively interact with the teacher online, solve complex practical problems, develop critical thinking, and create learning models on their own.

Innovative technologies in education open up new opportunities for expanding access to knowledge, flexible learning, increasing student engagement, and ensuring the mobility of teachers and students (Smith & Hill, 2018). However, along with its benefits, the technologisation of education also carries certain risks: over-reliance on technology, unequal access to learning, threats to data privacy and security, the potential loss of human values and a tendency towards consumerism (Figure 5). In order to fully utilise the potential of innovative technologies in education and minimise the associated risks, it is necessary to ensure proper training of educational stakeholders and develop effective information security strategies.

Risks of implementing innovations in higher education	Over-reliance on innovative technologies creates vulnerability to potential problems that may arise in the event of their malfunction or technical failures
	Lack of equal access to digital resources creates barriers to learning, especially for vulnerable groups of students
	Inadequate protection of personal data collected through digital technologies can lead to serious consequences for their privacy and security
	The lack of proper competence of teachers in the field of innovative technologies can hinder their implementation in the educational process
	Excessive automation can reduce students' motivation to learn and limit their ability to express themselves creatively

Figure 5: Risks of Implementing Innovations in Higher Education.

Source: Adapted from (Mamedova, 2023).

Evaluating the effectiveness of new technologies in teaching in higher education plays a crucial role in improving the entire educational process. Through a systematic approach and various methods and tools, it is possible to obtain objective information about the effectiveness of technologies and optimise the learning process to achieve better results. Assessment serves as a tool to determine students' achievement levels and identify their strengths and weaknesses (Geng et al., 2019). Since the traditional classroom learning format cannot be directly transferred to the online environment, experts are developing new, more effective assessment systems that consider the specifics of distance learning and modern requirements for students' competences. European assessment systems are highly

flexible, using various criteria adapted to each student's needs, regardless of the place of study. In order to complete an assessment, students must not only maintain academic integrity but also fulfil all technical requirements (Wojciech et al., 2021). Regardless of the type, effective learning has many common attributes: collaborative, exploratory and experiential. This means that students are not limited to the role of passive listeners, but become active participants in class discussions, conduct their research and apply their knowledge in practice. Teachers play a crucial role in engaging students in distance learning — with the help of modern technologies, they can turn virtual classrooms into lively and exciting learning spaces (Bond et al., 2019).

The specificity of innovations in higher education lies in their ability not only to solve specific problems but also to create new opportunities for the development of the educational process and the formation of competences in students and even teachers. In addition, universities should

focus on making the educational process accessible to all students, taking into account their unique needs, which requires the development and application of innovative technologies that allow them to adapt the learning material to the needs of each individual.

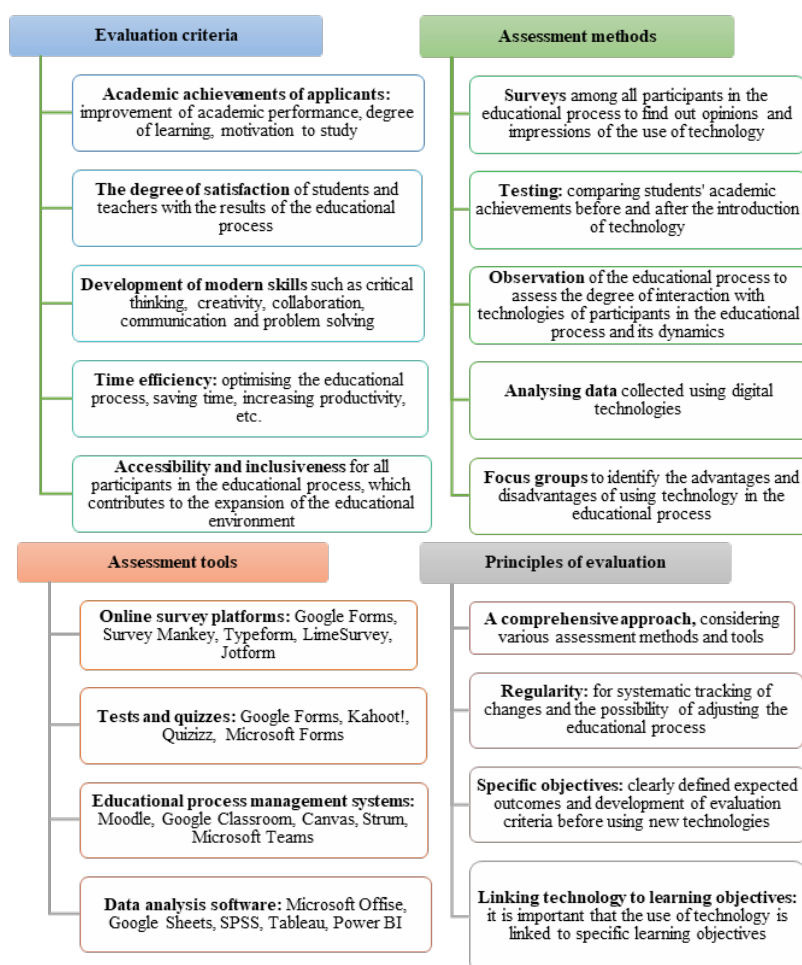


Figure 6: Comprehensive Approach to Evaluating the Effectiveness of New Approaches to Teaching in Higher Education.

Source: Constructed by the author.

Measuring the effectiveness of innovative pedagogical technologies in higher education is a critical process that allows for determining the effectiveness of new teaching methods, their impact on the quality of education, and student satisfaction. It ensures continuous improvement of the level of education and adaptation of the educational process to the requirements of the modern world in such areas as:

- Improving the quality of education achieved through assessment can identify those methods that contribute to students' better learning and the development of their critical thinking, creativity, and other essential skills.
- Optimisation of the learning process: Analysis helps us see the advantages and disadvantages of different methods, which allows us to adjust training programmes and methods as needed.
- Increasing student satisfaction, which, through evaluation, allows us to understand how satisfied students are with new teaching methods and whether they meet their needs and expectations.
- Justification of further innovations, where the assessment results are the basis for making decisions on introducing new technologies and teaching methods in the future.
- Increasing the prestige of a higher education institution when the successful implementation of innovative approaches increases its competitiveness and attractiveness to potential applicants.

Integrating digital technologies into the educational process requires universities to introduce new technical tools and take a comprehensive approach, including developing detailed approaches that can cover changes in the organisational structure, learning processes, and interaction of all those involved in learning. The main task is to preserve the personal approach to learning even with modern technologies, as it contributes to developing vital competences such as critical thinking and creativity.

6 Discussion

The rapid development of technology is radically changing all aspects of modern society. Focusing on innovation and searching for new ideas are some of the most critical trends in the modern world. Modern transformations also affect education and need to be updated to meet today's requirements. To meet the challenges of the modern world, education must be innovative, equipping young people with the skills they need to live in a dynamic and complex environment. Modern higher education is increasingly focused on developing students' competences and preparing them for life in a dynamic world. This is achieved by introducing innovations such as project-based learning, interaction pedagogy, artificial intelligence, distance education, and gamification.

Thanks to informatisation, education has undergone profound transformations: learning formats have changed, progressive methods of organising the educational process have emerged,

and distance learning has become an integral part of it, which has dramatically changed the modern educational space. Traditional teaching methods have undergone significant changes due to the introduction of digital technologies, making the educational process more dynamic and interactive (Abad-Segura et al., 2020). In particular, higher education has adapted flexibly, ensuring the continuity of the learning process even in conditions of limited face-to-face communication (Selznick et al., 2021). Distance learning technologies have become a massive phenomenon in education, especially after the introduction of quarantine restrictions due to the COVID-19 pandemic. This form of learning has become a globally recognised component of modern education, offering a variety of formats that meet the needs of those who want to improve their professional skills and those who seek higher education (Naciri et al., 2020).

Scientific research shows that the use of innovative technologies contributes to the modernisation of higher education, and in particular, it has a positive impact on students' experience, interaction, and independence (Shen & Ho, 2020). Information technologies create conditions for an individual approach to each student, adapting the learning process to their needs and pace; they make education more open, interactive and individual; open educational resources allow everyone to acquire knowledge at a convenient time and place (Ouyang et al., 2022). As educational innovations do not stand still, a promising area for further research is a detailed study of the European experience of using interactive teaching methods. This will allow for the identification of best practices and adaptation to the realities of each national educational system.

7 Conclusion

The study aimed at substantiating approaches to assessing the effectiveness of innovations in teaching in higher education, taking into account their impact on the formation of professional competences of students, allowed us to draw the following conclusions:

- The active integration of innovative teaching methods is a prerequisite for effective learning in a combination of classroom and distance learning. In response to today's challenges, education should focus on creating an innovative educational environment, allowing students to learn effectively in combined formats. Innovative teaching methods should aim to develop the vital knowledge, practical skills, and critical thinking necessary for successful professional activity.
- The systematic use of modern information technologies intensifies the learning process, making it more exciting and compelling. They change the role of the teacher, turning him or her into a learning facilitator who stimulates students' creativity and helps them develop critical thinking, becoming more effective and sought-after professionals. Students, in turn, show greater interest in new knowledge and learn to acquire information on their own, contributing to their comprehensive development and preparation for the requirements of the modern labour market.
- The introduction of digital tools in education opens up new opportunities for the comprehensive development of future specialists' professional competences, regardless of their field. This gives them the necessary knowledge and skills to work successfully in today's dynamic world. The technologisation of education creates the conditions for research to determine the effectiveness of different approaches to acquiring professional competences. Thanks to various digital tools and platforms allowing large-scale experiments, large amounts of data are collected and analysed.
- Evaluation of the effectiveness of innovative approaches to teaching in higher education is an integral part of their implementation, as it allows for continuous improvement of the quality of education and adaptation of the educational process to the requirements of the modern world. A comprehensive approach to evaluating the effectiveness of innovative processes in teaching in higher education allows

for a more complete and objective picture of the results than individual, isolated evaluation methods, takes into account the capabilities of digital tools and provides up-to-date, consistent and visualised information on the results of the evaluation.

Summing up, it can be noted that the use of the latest technologies in higher education has great potential in training specialists who will be able to realise themselves in a dynamic world successfully; however, to achieve maximum efficiency, it is necessary to overcome several challenges related to the digital divide between individual countries, the lack of a transparent, unambiguous methodology that complicates the qualitative assessment of the effectiveness of the use of innovative approaches by teachers in higher education, and the relatively high cost of specific tools of innovative

Literature:

1. Abad-Segura, E., González-Zamar, M.-D., Infante-Moro, J. C., Ruipérez García, G.: Sustainable Management of Digital Transformation in Higher Education: Global Research Trends. *Sustainability*, 2020. 12(5), Art. No. 2107. <https://doi.org/10.3390/su12052107>
2. Abuhassna, H., Al-Rahmi, W. M., Yahya, N., Zakaria, M. A. Z. M., Kosnin, A. B. M., Darwish, M.: Development of a new model on using online learning platforms to improve students' academic achievement and satisfaction. *International Journal of Educational Technology in Higher Education*, 2020. 17(1). <https://doi.org/10.1186/s41239-020-00216-z>
3. Aljawarneh, S. A.: Reviewing and exploring innovative ubiquitous learning tools in higher education. *Journal of Computing in Higher Education*, 2019. 32(1), 57-73. <https://doi.org/10.1007/s12528-019-09207-0>
4. Beshanych, I. V., Kolesnyk, A. V., Kushch, Yu. I.: Analysis of the effectiveness of innovative educational platforms in the process of professional training of biologists in higher education institutions of Ukraine. *Academic visions*, 2023. 19. <https://academy-vision.org/index.php/av/article/view/335> (in Ukrainian).
5. Bond, M., Buntins, K., Bedenlier, S., Zawacki-Richter, O., Kerres, M.: Mapping research in student engagement and educational technology in higher education: a systematic evidence map. *International Journal of Educational Technology in Higher Education*, 2020. 17(1). <https://doi.org/10.1186/s41239-019-0176-8>
6. Bond, M., Bedenlier, S.: Facilitating Student Engagement Through Educational Technology: Towards a Conceptual Framework. *Journal of Interactive Media in Education*, 2019. 2019(1). <https://doi.org/10.5334/jime.528>
7. Boulton, C.: What is digital transformation? A necessary disruption. *CIO*, 2020. <https://www.cio.com/article/3211428/what-is-digital-transformation-a-necessary-disruption.html>
8. Castro, R.: Blended learning in higher education: Trends and capabilities. *Education and Information Technologies*, 2019. 24(4), 2523-2546. <https://doi.org/10.1007/s10639-019-09886-3>
9. Devlin, P.: Online Learning Statistics: The Ultimate List in 2024. Updated on January 11, 2024. <https://www.devlinpeck.com/content/online-learning-statistics>
10. Eurostat: Emissions of greenhouse gases and air pollutants. *Eurostat*, n. d. <https://ec.europa.eu/eurostat/web/environment/information-data/emissions-greenhouse-gases-air-pollutants>
11. Fitzgerald, R., Huijser, H., Altena, S., Armellini, A.: Addressing the challenging elements of distance education. *Distance Education*, 2023. 44(2), 207-212. <https://doi.org/10.1080/01587919.2023.2209527>
12. Gamage, S. H. P. W., Ayres, J. R., Behrend, M. B.: A systematic review on trends in using Moodle for teaching and learning. *International Journal of STEM Education*, 2022. 9(1). <https://doi.org/10.1186/s40594-021-00323-x>
13. Geng, S., Law, K. M. Y., Niu, B.: Investigating self-directed learning and technology readiness in blending learning environment. *International Journal of Educational Technology in Higher Education*, 2019. 16(1). <https://doi.org/10.1186/s41239-019-0147-0>

14. Haidabrus, B.: Information technology and management in higher education and science. *Future Education*, 2022. 26-35. <https://doi.org/10.57125/fed.2022.25.12.03>
15. Haleem, P. A., Javaid, D. M., Qadri, P. M. A., Suman, D. R.: Understanding the Role of Digital Technologies in Education: A review. *Sustainable Operations and Computers*, 2022. (3), 275-285. <https://doi.org/10.1016/j.susoc.2022.05.004>
16. Kim, H. J., Hong, A. J., Song, H.-D.: The roles of academic engagement and digital readiness in students' achievements in university e-learning environments. *International Journal of Educational Technology in Higher Education*, 2019. 16(1). <https://doi.org/10.1186/s41239-019-0152-3>
17. Lai, J. W. M., Bower, M.: How is the use of technology in education evaluated? A systematic review. *Computers & Education*, 2019. 133, 27-42. <https://doi.org/10.1016/j.comp.edu.2019.01.010>
18. Mamedova, H.: Innovations in education as an important factor in the development of the educational system. *Hrani*, 2023. 26(5), 149-154. <https://doi.org/10.15421/1723115> (in Ukrainian).
19. Naciri, A., Baba, M. A., Achbani, A., Kharbach, A.: Mobile Learning in Higher Education: Unavoidable Alternative during COVID-19. *Aquademia*, 2020. 4(1), Art. No. ep20016. <https://doi.org/10.29333/aquademia/8227>
20. Nakagawa, Y., Sripian, P., Sugaya, M.: Evaluation of distance learning on concentration and relaxation by EEG and HRV. SenSys '20: The 18th ACM Conference on Embedded Networked Sensor Systems. *ACM*, 2020. 762-763. <https://doi.org/10.1145/3384419.3430602>
21. Ouyang, F., Zheng, L., Jiao, P.: Artificial intelligence in online higher education: A systematic review of empirical research from 2011 to 2020. *Education and Information Technologies*, 2022. 27, 7893-7925. <https://doi.org/10.1007/s10639-022-10925-9>
22. Pelletier, K., Robert, J., Muscanell, N., McCormack, M., Reeves, J., Reeves, J., Arbino, N., Grajek, S., Birdwell, W. T., Liu, D., Mandernach, J., Moore, A., Porcaro, A., Rutledge, R., Zimmern, J.: *2023 EDUCAUSE Horizon Report Teaching and Learning Edition*. Boulder, CO: EDUCAUSE, 2023. <https://www.learntechlib.org/p/222401/>
23. Rani, G., Kaur, P., Sharma, T., Sharma, A.: *Digital Education Challenges and Opportunities*. In *2021 6th International Conference on Signal Processing, Computing and Control (ISPCC)*. N. Y.: IEEE, 2021. <https://doi.org/10.1109/isicc53510.2021.9609425>
24. Selznick, B. S., Dahl, L. S., Youngerman, E., Mayhew, M. J.: Equitably Linking Integrative Learning and Students' Innovation Capacities. *Innovative Higher Education*, 2021. 47, 1-21. <https://doi.org/10.1007/s10755-021-09570-w>
25. Scherer, R., Howard, S. K., Tondeur, J., Siddiq, F.: Profiling teachers' readiness for online teaching and learning in higher education: Who's ready? *Computers in Human Behaviour*, 2021. 118, 106675. <https://doi.org/10.1016/j.chb.2020.106675>
26. Shen, C.-W., Ho, J.-T.: Technology-enhanced learning in higher education: A bibliometric analysis with latent semantic approach. *Computers in Human Behaviour*, 2020. 104, Art. No. 106177. <https://doi.org/10.1016/j.chb.2019.106177>
27. Shuliakov, I. M., Oliinyk, O. V., Derevianko, I. V.: Development of key competencies of students in a higher educational institution: approaches, methods and evaluation of results. *Academic visions*, 2024. 32. <https://academy-vision.org/index.php/av/article/view/1203> (in Ukrainian).
28. Smith, K., Hill, J.: Defining the nature of blended learning through its depiction in current research. *Higher Education Research & Development*, 2018. 38(2), 383-397. <https://doi.org/10.1080/07294360.2018.1517732>
29. *The Job Skills of 2023. The Fastest-Growing Job Skills for Institutions*. Coursera, 2023. <https://istu.edu.ua/wp-content/uploads/2023/02/eBook-Job-Skills-of-2023.pdf>
30. *Top 100 Tools for Learning 2024 — Results of the 18th Annual Survey published on 2 September 2024*. Top 100 Tools for Learning, 2 September 2024. <https://toptools4learning.com/>
31. Zawacki-Richter, O., Marín, V. I., Bond, M., Gouverneur, F.: Systematic review of research on artificial intelligence applications in higher education — where are the educators? *International Journal of Educational Technology in Higher Education*, 2019. 16(1). <https://doi.org/10.1186/s41239-019-0171-0>
32. Wojciech, W., Sobczyk, W., Waldemar, L., Pochopień, J.: Future educator's digital learning assets: global challenges of our time. *Future Education*, 2021. 1(2), 32-41. <https://doi.org/10.57125/FED/2022.10.11.17>

Primary Paper Section: A**Secondary Paper Section: AM**

COMPARATIVE STUDY OF PARLIAMENTARY FUNCTIONS IN PUBLIC ADMINISTRATION SYSTEMS

^aVALENTYNA GOSHOVSKA, ^bVOLODYMYR KREIDENKO, ^cIHOR REITEROVYCH, ^dMARIIA-MARIANA DVULIT, ^eOLHA KRAVCHUK

^aTaras Shevchenko National University of Kyiv; Public Organization "Academy of Parliamentarism"; Scientific School of National Parliamentarism, Kyiv, Ukraine.

^bScientific School of Domestic Parliamentarism; Verkhovna Rada Committee on Transport and Infrastructure, Verkhovna Rada of Ukraine, Kyiv, Ukraine.

^cEducational and Scientific Institute of Public Administration and Civil Service, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine.

^dScientific School of Domestic Parliamentarism; Medical Institution in Kyiv, Kyiv, Ukraine.

^eScientific School of Domestic Parliamentarism; Admiral Makarov National Shipbuilding University, Mykolaiv, Ukraine. email:

^avgoshovska@gmail.com, ^bkreydenko@rada.gov.ua, ^creiterovych@gmail.com, ^ddvulit1801@gmail.com, ^eolha.kravchuk@nuos.ed.u.ua

Abstract: Parliamentarism is positioned as a new vector in developing scientific approaches to public administration. The aim of the study is a comparative analysis of the role and functions of parliament in the public administration system. The article examines the evolution of the studied issue, including the institutionalisation of the concept of parliamentarism in Ukraine. The role and place of parliament in the state power and public administration system are identified, and its functions as the main component of popular representation are determined. Contemporary trends in the transformation of parliamentarism are analysed. The current tasks of parliament in the public administration system are specified. It is substantiated that parliamentarism represents a unique system of public administration that endows parliament with essential functions concerning representative democracy. Variations of models for effectively implementing popular representation in public administration and state-building processes are explored. The dynamics of the phenomenon of political culture are studied from the perspective of ensuring societal consolidation and unity. The article proves that parliamentarism is positioned as an interdisciplinary vector of a complex socio-political phenomenon that reflects the system of political power organisation in the state. The competencies and functional standards of parliament in the overall system of public administration implementation are highlighted. It is proven that the practical, functional realisation of parliament in public administration should include mechanisms to mitigate corruption risks. The study represents the significance of parliamentarism in the modern progress of the public administration system in implementing popular representation based on transparency, openness, and active Euro-integration development.

Keywords: Public administration, Parliamentarism, Parliament, Parity, Democracy, Representative bodies, Civil society, Women's political and managerial leadership, Political culture, EU, Democracy

1 Introduction

Recently, the concept of the place and role of parliament in the public administration system has undergone significant changes. Primarily, the phenomenon of parliamentarism has transformed from a theoretical formation into an objective, practical reality of the functioning of the public power system. In general, parliamentarism is positioned globally as one of the essential attributes of a democratic state.

Moreover, the current stage of societal development is characterised by a global democratic crisis. In this context, parliamentarism is viewed as a guarantor of effective and practically valuable democratic representation. Furthermore, the role of parliamentarism as an institution of public administration is steadily increasing, synergising aspects of representative and legislative power.

Thus, parliament plays a unique role in the system of public administration, where the synergy of state administration institutions, civil society, and local self-government finds practical expression in the formation of a system of social relations at various levels – higher, central, regional, and local – by their assigned powers and functions. This issue is particularly relevant to society's growing demands for integration into forming state-level management decisions.

2 Literature review

In studying the role, place, and functionality of parliament in the public administration system, particular academic interest is found in the works of Hoshovska and Reiterovych (2022), Dudko (2022), Karmazina (2020), and Cherkas (2021). Several researchers (Reiterovych & Parfeniuk, 2021; Danylenko et al., 2022; Ortina et al., 2023) pay particular attention to the definition and essence of parliament as a representative body of authority, examining its institutional capacity and primary practical significance in a democratic society.

Certain scholars (Semenets-Orlova et al., 2022; Kortukova et al., 2023) focus their research on the phenomenon of parliamentarism in the context of institutional support for the interaction between government bodies and civil society. Foreign scholars have made a significant contribution to the development of this area of research (Wright, 2019; Onyango, 2020; Rozenberg, 2020), whose publications focus on the impact of state transformation on public administration, the definitions of parliament, parliamentarism, and parliamentary democracy, as well as unresolved political contexts of public governance.

At the same time, Androniceanu (2021) and Heath (2020) emphasise the importance of transparency in public administration in ensuring proper democratic governance, studying the specifics of public administration development in the public sector, and investigating the interaction between public administration and liberal state policy. Nevertheless, despite scholars' achievements, research on the position of parliament within the modern public administration system amid active societal dynamics and the Euro-integration orientation of Ukraine's post-war democratic development is still fragmented.

The article aims to provide a comparative analysis of parliament's role and functions in the public administration system.

3 Research methods

The research methodology is composed of several contemporary scientific methods, including the use of:

- the systemic method, which allows the study of the phenomenon of public administration as a systemic entity, and parliamentarism as its integral subsystem, functioning based on established theoretical views and effective practices;
- the method of retrospective analysis, which is grounded in the concepts of the theory and practice of parliamentarism during its formation and contemporary development;
- comparative analysis allows the study of the institutionalisation and specific development of parliamentarism in Ukraine, taking into account the practical experience of other countries.

4 Results

It is crucial today to reflect on and integrate practical concepts for developing and improving parliamentarism, driven by the dynamics of societal needs and development strategies. The most significant concepts today include:

- the concept of institutionalism, which positions parliament as a leading state institution endowed with constituent, representative-coordinating, budgetary, and legislative functions;
- the concept of the "service state", which envisions the transformation of parliament on clientelist principles;
- the concept of public governance determines the transformation from public administration to public

governance (Reiterovych & Parfeniuk, 2021; Danylenko et al., 2022; Ortina et al., 2023).

The foundation of all these approaches is the traditional concept of the priority of popular representation, which gains particular significance in periods of active global dynamics. Widespread representation practically expresses local and state societal interests, manifested through authorised governmental bodies (Semenets-Orlova et al., 2022; Kortukova et al., 2023).

This phenomenon is positioned not only as an attribute of a democratic state but also as a subjective right of the people to representation, as established in Article 38, Part 1, Article 136, Part 1, and Article 140, Part 4 of the Constitution of Ukraine (Reiterovych, 2022). The conceptual foundations of popular representation in the form of parliamentarism are presented in Table 1.

Table 1. Conceptual framework of people's representation in public administration

Conceptual framework	Features
Institutional	- conditioned by the sovereignty of the people; - ensuring the supremacy of human and civil rights and freedoms; - the possibility of establishing representative authorities that embody the people's will and are responsible to the people
Functional	- conditioned by the content of the activities of representative bodies of power at different levels (state, local); - provision of legislative acts on democracy; - systematic professional training of personnel for work in representative bodies of power
Ideological	- the idea of social justice; - ensuring conditions for fair governance of society and the state; - complexity of study and maximum consideration of the interests of society

Source: compiled by the author based on (Hoshovska, 2022)

Parliament represents the institutional embodiment of the people's power, endowed with the authority to make legislative decisions on behalf of the people. Parliament determines the vector of the state's socio-economic development, the optimisation of societal activities, and the strengthening of various forms of cooperation (Wright, 2019; Onyango, 2020; Rozenberg, 2020).

The phenomenon of parliamentarism should be considered in its dual nature, as parliamentarism is both a particular system of state organisation and a specific political institution (Androniceanu, 2021; Heath, 2020). The functions of the first facet are determined by the leading role of parliament in establishing and developing relations of social justice, forming the most representative mechanism of public power in the context of citizens' interests, making state decisions, and ensuring the practical exercise of popular sovereignty. At the same time, as a specific political institution, parliamentarism creates conditions for the active development of local self-government, promotes the expansion of society's political participation in public administration, and initiates the broadening of the communication process between the people and the state (Reiterovych & Parfeniuk, 2021; Danylenko et al., 2022; Ortina et al., 2023).

Thus, the role of parliament in public administration is the combination of the functional and substantial characteristics of the state structure aimed at minimising the distance between the government and society (Wright, 2019; Onyango, 2020; Rozenberg, 2020). Parliament must ensure the realisation of the people's interests within the legislative framework, thereby intensifying the development of statehood in general and the participatory concept of public administration in particular. The parliament sets the vector for developing society's subsystems, shaping public policy (Semenets-Orlova et al., 2022; Kortukova et al., 2023).

It should be noted that the definitions of "parliament" and "parliamentarism" are not synonymous, although they are interrelated. This is the differentiation of power and representation within the cooperation framework in the "parliament-civil society" system (Reiterovych, 2022; Dudko, 2022; Karmazina, 2020). The effectiveness of this interaction creates the prerequisites for increasing the publicity of politics, ensuring transparency and openness of management processes, stabilising socio-political life, and actively contributing to the growth of trust in the parliament (Androniceanu, 2021; Heath, 2020). As a political institution of parliamentarism, the parliament determines the pace of expanding society's political participation in the transformation of management processes, as

it acts as a mediator between the state and the structural elements of society (Kryvoshein et al., 2022).

Today, the development of parliamentarism is characterised by several challenges, including the value-based societal attitude towards parliamentarism at all levels of public administration and the parliament's compliance with international standards and requirements. Parliamentarism preserves national traditions in various countries differently (Wright, 2019; Onyango, 2020; Rozenberg, 2020). In this context, it is necessary to consider the requirements for national and international parliamentarism. Popular representation, in this case, is seen as the foundation for the functioning and development of a democratic society, the basis of the constitutional order of a democratic state, which ensures the exercise of the people's power through authorised bodies (Reiterovych, 2022; Dudko, 2022; Karmazina, 2020).

Within the modern concept of popular representation, the essential prerequisites for its successful implementation are identified, including:

- the practical implementation of the people's sovereignty within the framework of popular representation;
- the exercise of state power through popular representation, complementary to the demands and needs of modern society;
- the reflection and implementation of societal interests by famous representatives at the national level rather than those of a specific component of society;
- variability of mechanisms for forming representative bodies while ensuring democratic free elections;
- the permissibility of a collegial component in representative bodies (Semenets-Orlova et al., 2022; Kortukova et al., 2023).

Global challenges to the development of domestic parliamentarism are focused on the strategy of "new regionalism" – a concept of political, socio-economic, and cultural integration that requires the transformation of professional training for parliamentarians and parliamentary staff (Androniceanu, 2021; Heath, 2020). The strategy involves changing the behaviour of political leaders for the successful implementation of new trends in international relations, including intensifying democratisation processes at the national level, eliminating ideological barriers to inter-parliamentary cooperation, and promoting globalisation and international, regional cooperation at a new level (Reiterovych & Parfeniuk, 2021; Danylenko et al., 2022; Ortina et al., 2023).

Overall, among the global trends and challenges of modern parliamentarism in the public administration system, it is necessary to highlight:

- the intensification of the parliament's role in government formation;

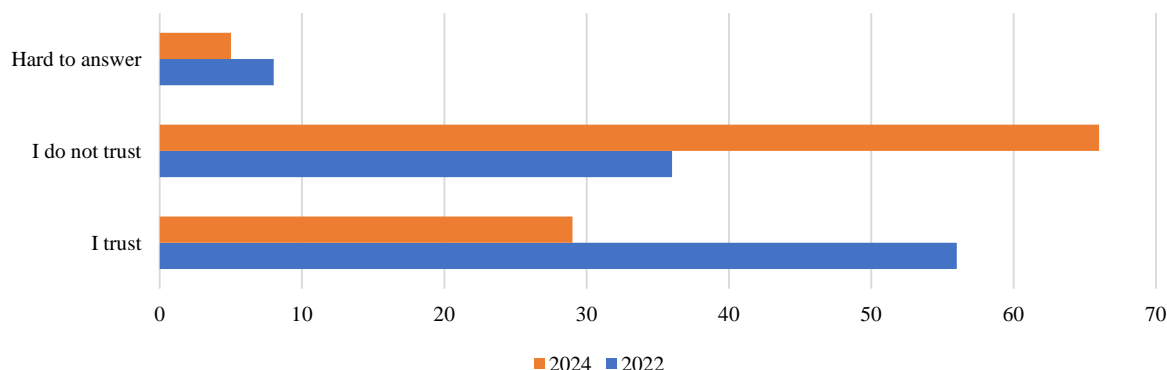


Figure 1. Results of the survey 'Citizens and Parliament: Trust, Interaction and Openness under Martial Law'
Source: compiled by the author based on (RADA survey, 2024)

As shown in Figure 1, the level of public trust in parliament has significantly decreased. To optimise the situation in the context of Ukraine, the following priority trends in the development of parliamentarism within the public administration system are highlighted:

- the creation of targeted information and communication support for the functioning of popular representation;
- intensifying the role and significance of representative democracy as a "universal value";
- professionalising aspects of parliamentary activity;
- the dynamic of a hybrid model of interest representation in the state should synergise formal and informal political practices, facilitating the implementation of the neo-corporatist strategy (Wright, 2019; Onyango, 2020; Rozenberg, 2020).

In Ukraine, financial-industrial groups, which actively use political means of influence and gradually integrate into power structures, exert significant influence on the socio-economic and political processes in the country. The neo-corporatist model envisages the formation of an active civil society capable of effectively representing and defending its interests (Reiterovych & Parfeniuk, 2021; Danylenko et al., 2022; Ortina et al., 2023). It involves practical tools for ensuring functional interests in the interaction between business and politics. This is particularly relevant for Ukraine, which needs to complete the formation of an effective institutional system based on improved, clear rules and norms of self-regulation.

Slow but steady transformation in this direction is facilitated by specific institutional changes, including the expansion of the functions of civil society organisations, decentralisation, the start of judicial reform, a shift in foreign policy priorities, and civil service reform (Androniceanu, 2021; Heath, 2020). In the future, efforts should be focused on intensifying the influence of representative bodies of state power (Semenets-Orlova et al., 2022; Kortukova et al., 2023). In this case, the priorities should be lobbying for public interests in the public sphere and integrating the principles of practical popular sovereignty.

The role of parliament in Ukraine's public administration system during the post-war period will rapidly grow in the direction of developing a democratic society characterised by a high level of political and legal culture (Reiterovych, 2022; Dudko, 2022; Karmazina, 2020). A clear differentiation between legislative and executive functions and the dominant position of parliament

- the general trend of declining trust in parliament (Figure 1);
- absenteeism;
- the need for structural transformation of modern parliaments (Reiterovych, 2022; Dudko, 2022; Karmazina, 2020).

as a state body of popular representation characterises such a society. Pan-European values concerning rights and freedoms – democracy, the rule of law, respect for human dignity, equality, and the prioritisation of human rights – highlight the directions for the further progress of parliamentarism in Ukraine's public administration system.

5 Discussion

Several contemporary authors explore the role of parliament in the functioning and development of the public administration system. In particular, Demir (2023) positions the relationship between politics and administration in the context of normative and empirical approaches. The scholar's specific research areas encompass the connections, similarities, and differences between these two spheres of governance.

Researchers Hassan et al. (2022) suggest establishing independent electoral committees, implementing and improving parliamentary service legislation by international standards, and expanding the powers of the opposition. The researchers pay special attention to the need to incorporate sustainable development goals into the parliamentary reform agenda, which is essential to support parliamentarians in effectively carrying out their duties. As Hassan et al. (2022) noted, such an approach contributes to the maximum representation of public interests within parliamentary formations.

At the same time, Rocabert et al. (2019) study the activities of international parliamentary institutions, which have become an established feature of international politics. They focus mainly on creating parliamentary bodies that align with the demands of the globally developed community. According to scholars, the implementation of international standards in the public administration systems of developing countries should be accompanied by a transformation in approaches to the functioning of parliamentarism.

Several contemporary scholars (Prior, 2022; Selinger, 2019) examine the specifics of public engagement in parliamentary work, aiming at the maximum representation of public interests, ensuring the openness and transparency of public administration processes, and the practical implementation of democratic principles in societal functioning.

Furthermore, Hoshovska and Kuibida (2018), and Hoshovska (2021, 2024) explores the specifics of the implementation of representative power in Ukraine's state-building process, focusing on advancing the modern formation of political culture

to ensure unity and consolidation of society. The scholar argues for the need to optimise strategic development priorities for Ukrainian parliamentarism in the context of globalisation and analyses political leadership in representative power amid global challenges.

Kreidenko (2022), studying the globalisation challenges of the future governance system, considers parliament not only a legislative body but also a symbol of modern democracy. The author believes that parliament's relationship with other political institutions helps to formulate a country's constitutional regime.

At the same time, Hoshovska and Kravchuk (2024) study the potential of artificial intelligence in public administration. The scholars emphasise that the development of the foundations of digital law is highly relevant today to ensure the integrity of legislative regulation. The researchers analyse models of civil law regulation through artificial intelligence tools, focusing on the issues of artificial intelligence's legal subjectivity, including aspects of responsibility and risks.

Despite significant scholarly achievements, the issue of rethinking the role of parliament in the public administration system in light of the promising development of post-war Ukraine requires further scientific exploration.

6 Conclusion

Parliamentarism represents a specific system of public administration where the parliament holds a priority role, democratic significance, and legislative functionality. Parliament has a unique role in the system of public governance, where the synergy of state administration institutions, civil society, and local self-government finds practical expression in forming a system of social relations at various levels – the highest, central, regional, and local – by the powers and functions assigned to them.

Among the global trends and challenges of modern parliamentarism in the public administration system, it is essential to note the intensification of the parliament's role in government formation; the general trend of declining trust in parliament; absenteeism; and the need for structural transformation of contemporary parliaments.

The principles of effective implementation of parliamentary functions within the public administration system include ensuring the unhindered sovereignty of the people through popular representation; representatives expressing the general societal interests of the entire population rather than specific parts of it; the collegial composition of governmental bodies; and the implementation of state power, which is as complementary to societal needs as possible through popular representation. Acceptable, in this context, is the variability of mechanisms for forming representative bodies, while the dominance of free elections remains unconditional.

Modern trends in the development of parliamentarism in Ukraine include the integration of international democratic and humanistic principles of public administration. This outlined process in the context of representative democracy requires the formation of an appropriate information and communication platform to support and implement the ideas of popular representation, as well as the intensification of the role of representative democracy as a “universal value” and on this basis, the creation of representative government bodies. Further professionalisation of parliamentary activities is necessary for Ukraine's post-war development and Euro-integration vector.

Literature:

1. Androniceanu, A.: Transparency in public administration as a challenge for a good democratic governance. *Revista Administratie si Management Public (RAMP)*, 2021, (36), 149–164. <https://www.ceeol.com/search/article-detail?id=964121>

2. Cherkas, O. H.: Conceptual foundations of interaction between the Verkhovna Rada of Ukraine and local councils. *PhD in Public Administration: 25.00.01*. Kyiv, 2021. 312 p.
3. Danylenko, L., Aliksiichuk, O., Goshovskiy, V., Korniakova, T., & Maksimentseva, N.: Legal principles of increasing the institutional capacity of the Verkhovna Rada of Ukraine. *AD ALTA: Journal Of Interdisciplinary Research*, 2022, 12/02-XXVIII, 203–209. http://www.magnanimitas.cz/ADALTA/120228/papers/A_35.pdf
4. Demir, T.: Politics and administration. In *Global Encyclopedia of Public Administration, Public Policy, and Governance*. (pp. 9713-9718). Cham: Springer International Publishing, 2023. https://doi.org/10.1007/978-3-030-66252-3_1408
5. Dudko, I. D.: On the issue of diplomacy and inter-parliamentary relations of the Verkhovna Rada of Ukraine in the context of large-scale Russian aggression. *Visnyk of the Lviv University. Series Philos.-Political Studies*, 2022, 42, 212–219. <https://doi.org/10.30970/PPS.2022.42.27>
6. Hassan, M. S., Hed, N. M., & Kamilan, I. H.: Parliamentary reforms and Sustainable Development Goals (SDG): the way forward for an inclusive and sustainable parliament. *The Journal of Legislative Studies*, 2022, 28(4), 578–605. <https://doi.org/10.1080/13572334.2021.1893983>
7. Heath, J.: *The machinery of government: Public administration and the liberal state*. Oxford University Press, USA, 2020. <https://doi.org/10.1093/oso/9780197509616.001.0001>
8. Hoshovska, V. A.: Political culture in ensuring the unity and consolidation of Ukrainian society: a monograph. NAPA, 2021. 144 p.
9. Hoshovska, V. A.: The dominant role of parliament in the development of modern parliamentarism in Ukraine. *Civil service of Ukraine: Modern challenges and prospects of post-war transformation: materials of the round table (Kyiv, 17 June 2022)*. (pp. 129–131). Kyiv: Educational and Scientific Institute of Public Administration and Civil Service of Taras Shevchenko Kyiv National University, 2022. <https://ipacs.knu.ua/pages/osn/2/news/1973/files/09d5c66d-134a-420a-87b4-9638e17a381f.pdf>
10. Hoshovska, V. A., & Reiterovych, I. V.: The political process in Ukraine: features, problems and prospects. *Bulletin of the Educational and Research Institute of Public Administration and Civil Service of Taras Shevchenko National University of Kyiv*, 2022, 1, 16–20.
11. Hoshovska, V. A., & Kuibida, V. S.: Representative power in the state-building process of Ukraine: a monograph. NAPA, 2018. 398 p.
12. Hoshovska, V. A.: Parliamentarism: a textbook. 3rd ed. Taras Shevchenko National University of Kyiv, 2024. 592 p.
13. Hoshovska, V. A., & Kravchuk, O. Iu.: Artificial intelligence in public administration: vectors of modern research. *National Interests of Ukraine: Scientific and Practical Journal*, 2024, 2(2), 362–370. <http://perspectives.pp.ua/index.php/niu/article/view/13305>
14. Karmazina, M.: Thirty years of Ukrainian multiparty system (late 1990 – early 2020). Kuras Institute of Political and Ethnic Studies of the National Academy of Sciences of Ukraine, 2020.
15. Kortukova, T., Kolosovskiy, Y., Korolchuk, O. L., Shchokin, R., & Volkov, A. S.: Peculiarities of the legal regulation of temporary protection in the European Union in the context of the aggressive war of the Russian Federation against Ukraine. *International Journal for the Semiotics of Law*, 2023, 36(2), 667–678. <https://doi.org/10.1007/s11196-022-09945-y>
16. Kreidenko, V. V.: Evolution of parliamentarism in modern Ukraine. Globalisation challenges: governance of the future: a monograph. Kyiv University Press, 2022. 976 p. <https://ir.library.knu.ua/knurepo/handle/123456789/301>
17. Kryvoshein, V., Vdovenko, N., Buriak, I., Saienko, V., & Kolesnyk, A.: Innovative educational technologies in management training: experience of EU countries. *International Journal of Computer Science and Network Security*, 2022, 22(6), 45–50. <https://doi.org/10.22937/IJCSNS.2022.22.6.8>
18. Onyango, G.: Legislative oversight and policy-reforms in “unsettled” political contexts of public administration.

International journal of public administration, 2020, 43(3), 213–228. <https://doi.org/10.1080/01900692.2019.1627556>

19. Ortina, G., Zayats, D., Akimova, L. Akimov, O., & Karpa, M.: Economic Efficiency of Public Administration in the Field of Digital Development. *Economic Affairs (New Delhi)*, 2023, 68(3), 1543–1555. <https://doi.org/10.46852/0424-2513.3.2023.21>

20. Prior, A.: *Public engagement in the work of parliament*. Geneva, Switzerland Inter-Parliamentary Union, 2022. <https://www.ipu.org/our-impact/strong-parliaments/setting-standards/global-parliamentary-report/global-parliamentary-report-2022-public-engagement-in-work-parliament>

21. RADA survey. 2024. <https://drive.google.com/file/d/1QaTUYyF7YdloLRYwQbL8TGU4XAS4rdGd/view>

22. Reiterovych, I. V., & Parfeniuk, T. V.: Conceptual approaches to studying the place and role of interest groups in public policy making. *Investments: practice and experience*, 2021, 18, 92–98. <https://doi.org/10.32702/2306-6814.2021.18.92>

23. Rocabert, J., Schimmelfennig, F., Crasnic, L., & Winzen, T.: The rise of international parliamentary institutions: Purpose and

legitimation. *The Review of International Organizations*, 2019, 14, 607–631. <https://doi.org/10.1007/s11558-018-9326-3>

24. Rozenberg, O.: On the concepts of parliament, parliamentarianism and parliamentary democracy. In *Handbook of Parliamentary Studies*. (pp. 14–31). Edward Elgar Publishing, 2020. <https://doi.org/10.4337/9781789906516.00007>

25. Selinger, W.: *Parliamentarism, From Burke to Weber*. Vol. 121. Cambridge University Press, 2019. <https://doi.org/10.1017/9781108585330>

26. Semenets-Orlova, I., Shevchuk, R., Plish, B., Moshnin, A., Chmyr, Y., & Poliuliakh, R.: Human-centered approach in new development tendencies of value-oriented public administration: Potential of education. *Economic Affairs (New Delhi)*, 2022, 67(5), 899–906. <https://doi.org/10.46852/0424-2513.5.2022.25>

27. Wright, V.: Reshaping the state: the implications for public administration. In *The State in Western Europe*. (pp. 102–137). Routledge, 2019. <https://doi.org/10.4324/9781315037479-6>

Primary Paper Section: A

Secondary Paper Section: AD, AG

CONTROL AND SUPERVISION IN GENERAL SECONDARY EDUCATION: ADMINISTRATIVE AND LEGAL ASPECTS

^aIRYNA ZHUKOVA, ^bRUSLANA MYRONOVA,
^cOLENA MYRONOVA, ^dALISA ZVIAGINA

^aNational Academy of Internal Affairs; "Scientific Perspectives", Kyiv, Ukraine.

^bCommunal Institution of Higher Education Institution "Dnipro Academy of Continuing Education" of the Dnipropetrovsk Regional Council, Dnipro, Ukraine.

^cIndividual Entrepreneur, Ukraine.

^dUniversity of Zagreb, Zagreb, Croatia.

email: ^airina_pravo@ukr.net, ^bruslana@gmail.com,

^colena.myronova.kh@gmail.com, ^daz26122000@gmail.com

Abstract: The importance of this study arises from the necessity to enhance the management and regulatory aspects of the system of supervision and oversight in general secondary education in Ukraine for effective educational services. Current issues with the digital transformation of education and meeting global benchmarks call for revising control and supervision systems. This research aims to assess the prevailing regulatory environment for overseeing and guiding general secondary education and to share advice on enhancing it. A comparative approach to international education practices is the foundation for the research. The analysis reveals that regression check processes and external reviews are potent instruments for control, but existing systems do not cater to all local variations, resulting in varied educational quality. Using new digital tracking tools might boost the performance of control and supervision in education. This research presents important insights to strengthen the legal framework to respond to contemporary issues and guarantee everyone's access to quality education.

Keywords: Control and supervision, General secondary education, Administrative and legal regulation, Institutional audit, Digital technologies, Quality of education

1 Introduction

Establishing education quality remains essential to effective growth in our time's typical secondary education system. The proper management and law enforcement system oversees education and promotes compliance with educational requirements. In practice, however, such mechanisms often encounter problems; for instance, uneven enforcement of standards across certain areas leads to insufficient funding for educational bodies and poor evaluation of educational quality. UNESCO and OECD highlight the requirement to tailor national educational systems to international norms using advanced monitoring techniques. These recommendations require new technologies and an updated regulatory structure in quality education assessments. Investigating administrative and legal control elements in the general secondary education system is essential since modern challenges Request the effectiveness of these systems to ensure appropriate quality in educational services.

The article aims to determine the peculiarities of administrative and legal regulation of control and supervision in the general secondary education system and reveal their importance for ensuring the proper quality of educational services and compliance with educational standards.

Objectives of the article:

1. To analyse the legal framework regulating control and supervision in general secondary education.
2. To determine the primary forms and methods of control and supervision over the educational activities of general secondary education institutions.
3. To study the role of state and local authorities in controlling the activities of educational institutions.
4. Evaluate the effectiveness of existing control and supervision mechanisms in the context of quality assurance.
5. To highlight the problems and suggest ways to improve the administrative and legal regulation of control and supervision in general secondary education.

2 Literature review

Requirements exist for the regulation of educational oversight and supervision. The 2017 regulation of Ukraine called 'education' establishes fundamental principles for governmental control to promote educational quality. In 2020, Ukraine passed the Law "On Complete General Secondary Education", which clarified the operations of the State Education Quality Service concerning control (Verkhovna Rada of Ukraine, 2020). The powers and tasks of the SQES were established in a Cabinet of Ministers resolution in 2018, as it audits schools. These rules form a legal basis for controlling and operating quality measures in the general secondary education environment. Current educational challenges require a review of the legal framework.

Global norms for educational quality assurance. Organisations like OECD and IEA greatly influence the establishment of universal controls in the education sector. Its reports showcase important metrics of learning quality that enable countries to build strong governance measures. Through its PISA programme, the OECD rates students' performance in distinct countries for a detailed analysis of educational frameworks. Global assessment of educational outcomes is enhanced by the contribution of the TIMSS and PIRLS research conducted by the IEA (TIMSS & PIRLS, 2020). These worldwide initiatives function as critical indicators for reforming national education policies.

Internal evaluation along with external audit of teaching standards in education. The State Service for Education Quality conducts necessary external audits in the Ukrainian education system. It focuses on upgrading the excellence of educational services by established standards. The critical element for control is the internal audits coordinated by schools via assessments and ongoing evaluation. The Resolution of the Cabinet of Ministers and the Ministry of Education guide these actions. Such controls guarantee the proper operation of educational institutions; however, the assessment process needs greater freedom, and the use of advanced technologies for monitoring is essential.

Examine the structures that regulate the educational quality. The level of effectiveness in each control element is unique based on external review and education tracking. Although EIT performs well in measuring student knowledge levels, the systems for observing educational practices and certifying teachers must advance. Data from the report demonstrate that monitoring and boosting education quality metrics has progressed progressively. Still, problems with unequal performance of standards and insufficient school resources continue. Adopting a revised legal system and consistently assessing educational aspects is essential for improving efficiency.

The operational legal and regulatory system is strong enough to control and oversee the general secondary education sector. Effective adjustments are necessary for the governance system, which should focus on budgeting for educators' methods and the use of advanced technology to assess learning.

In his 2020 report, Yatsenko highlights the activities of regulatory law in evaluating educational service quality. He points out the necessity of legal requirements that facilitate adherence to educational principles in universities. This research explores the special traits of education and stresses the significance of clear and specific legal regulations (Yatsenko, 2020). Lytvynenko (2022) studies the legal framework of education in Ukraine, focusing on European connections and global patterns. This paper examines essential issues and outlines ways to increase education effectiveness. Lytvynenko presents possibilities for improving the laws governing

educational service delivery in Ukraine. To overcome current difficulties in education, service quality changes are vital. Lamza (2024) assesses Bulgaria's secondary education system, emphasising its correlations to Ukraine's model. The scholar describes principal difficulties and recommends strategies to enhance the education framework. Ostapenko et al. (2021) thoroughly examined administrative law in Ukraine, covering its essential elements and the legal tools for regulating education. Lisova (2018) analysed the influence of governmental management on the development of secondary education in villages across Ukraine. She investigates how municipalities enhance local education excellence. Liubarets and Hrybova (2024) scrutinise the operational aspects of regulating educational activities and their inherent pitfalls in contemporary education. The researchers argue that raising educational service quality demands establishing systems to handle risks. The analysis reveals that a consolidated framework for legal regulation is necessary in education. It is essential to strengthen regulations so they uphold the level of educational standards.

3 Research methods

1. We employed this method to analyse the laws governing general secondary education's administrative and supervisory aspects. This technique helped uncover the principal regulatory files that influence educational processes and oversee their quality assurance.
2. This research used a comparison method to assess the quality control frameworks in Ukraine and elsewhere, including Finland and the UK. This enabled us to assess a system's pros and cons and mould effective methods for the Ukrainian education sector.
3. Experts applied a method to assess the functioning of existing supervision and oversight systems. The evaluation allowed for measuring schools' adherence to state guidelines and recognising management deficiencies.
4. The analysis system facilitated the organisation of information and pointed out vital aspects influencing the quality of education services, such as control systems and logistic issues.

4 Results

The review of the legal system managing control and evaluation of general secondary education on a global scale includes studies of major global entities and legislation that outline principles of adequate educational quality. The centre of attention is on international policies and methods that establish global benchmarks for the governance of secondary education.

1. UNESCO takes a leading position in creating and enforcing global education principles. In its report, 'Global Education Monitoring Report,' UNESCO presents vital indicators of education excellence along with strategies for tracking and guiding educational systems across different jurisdictions.
2. Economic Cooperation and Development Organization (OECD). The OECD designs standards and procedures to measure the quality of education in its member states. The PISA programme is vital to the OECD and ranks students' proficiency in reading and mathematics as they near 15.
3. European Union (EU). The European Union sets quality assurance procedures based on EHEA and Bologna Process mechanisms. Although the main aim of the Bologna Process is higher education, its principles on quality regulation impact general high school education in EU countries.
4. The IEA assesses educational performance globally and executes global investigations, including TIMSS and PIRLS, that examine pupil proficiency in science and reading. These analyses deliver resources for assessing educational quality and enforcing control over student performance outcomes.
5. Countries worldwide implement different methodologies for managing and overseeing systems. Finland has a well-known education system with quality checks achieved by

institutions' self-assessment and tracking of learning outcomes at the national level. In the UK, the inspection agency Ofsted regularly oversees schools. The United States relies on independent organisations to evaluate education standards by checking whether institutions comply.

6. The efforts of international agencies back control standards. Organisations such as the World Bank and UNICEF foster the development and growth of control mechanisms in education by supplying ideas and financial assistance for changes (The World Bank., 2022; United Nations International Children's Emergency Fund, 2021).

In the case of general secondary education in Ukraine, control and supervision are regulated by numerous laws and rules that detail authority roles and the responsibilities of education individuals and institutions. The key documents are:

Establishing the framework for the functioning of the education system in Ukraine is the Law of Ukraine "On Education" No. 2145-VIII of 05.09.2017 (Verkhovna Rada of Ukraine, 2017). State supervision (control) is clarified in Article 41 of this legislation over educational institutions' activities, ensuring that educational services meet quality requirements and adhere to set standards. Within the Law of Ukraine, "On Complete General Secondary Education" (2020) is a rule on how general secondary education will function and includes provisions for the State Service for Quality Education of Ukraine (SQES) to monitor if educational standards are met and different regulatory norms are upheld. In codifying the State Education Quality Service's functions and duties, the Cabinet of Ministers of Ukraine issued Resolution 214 on 14.03.2018. The SQES performs assessments of general secondary schools and assesses educational and management practices.

The Order of the Ministry of Education and Science of Ukraine "On Approval of the Procedure for Conducting Institutional Audit of General Secondary Education Institutions" (09.01.2020 No. 17) establishes the procedure for conducting institutional audit as the primary form of external evaluation of general secondary education institutions aimed at improving the quality of educational services and their compliance with state standards (Ministry of Education and Science of Ukraine, 2020). The Law of Ukraine "On State Market Supervision and Control of Non-Food Products" (No. 2735-VI of 02.12.2010) is used to ensure the quality of the material and technical base of educational institutions, including supervision over the safety of educational equipment and other teaching aids (Verkhovna Rada of Ukraine, 2010). The Resolution of the Cabinet of Ministers of Ukraine, "On Licensing of Educational Activities" (30.12.2015, No. 1187), establishes the procedure for licensing educational institutions, including general secondary education. It is an essential tool for state control over the compliance of educational institutions with legal requirements and educational standards (Cabinet of Ministers of Ukraine, 2015). The Ukrainian law "On State Control over the Observance of Labor Legislation" (No. 877-VI of 02/11/2015) oversees the rights of teachers in general secondary schools. (Verkhovna Rada of Ukraine, 2015).

The legal structure controls ordinary secondary education by overseeing state evaluation of educational quality and adherence to regulations. We still echo this demand to build and strengthen legal systems while integrating with today's issues and reshaping our educational system.

The degree of control and regulation of educational processes internationally differs widely across countries and their educational frameworks. Global standards drive the primary control and monitoring approaches internationally to maintain education quality and follow educational guidelines. States gain help from organisations, including the OECD and UNESCO, to develop effective oversight strategies. Table 1 presents the primary forms and methods of control and supervision in general secondary education institutions globally.

Table 1. The primary forms and methods of control and supervision in general secondary education institutions at the world level

Form of control	Methods of implementation	The body that carries out
International assessments (PISA, TIMSS, PIRLS)	Testing students to determine their level of knowledge in math, science, reading and other subjects	OECD (PISA, 2022), IEA (TIMSS & PIRLS, 2020)
Accreditation of schools	Assessment of schools' compliance with national and international education quality standards	National accreditation bodies, independent accreditation agencies
External inspections	Regular inspections of educational institutions to assess the quality of educational services and infrastructure	Ofsted (UK), various national inspection bodies
Monitoring the quality of education	Systematic collection of data on learning outcomes, school performance, and educational policies	National governments, international organisations (UNESCO, OECD)
National standards and certification	Implementation of training standards and certification of educational programmes	National ministries of education, standardisation organisations
Assessment of teachers' professional competence	Qualification assessment and continuous training of teaching staff	National and international education agencies
Systems of self-regulation	Internal quality systems that ensure that institutions meet standards through self-assessment and internal audits	Finland, the Netherlands, and other decentralised educational systems

Source: developed by the authors based on the following literature: UNESCO (2021), OECD (2022), and State Service for Education Quality of Ukraine (2022)

Governments worldwide rely primarily on international tests (PISA and others), teacher evaluation criteria and school evaluations to direct education. The OECD and UNESCO focus on Promoting innovative evaluation techniques to help countries assess their school systems.

Educational institutions' practices are monitored by management to ensure that they meet educational criteria and deliver high-

quality services. They rely on legal regulations from Ukraine that oversee education control and cover both external and internal methods. Authorities, including the State Education Quality Service, enforce external control, while school administrations perform control within. Table 2 displays the essential forms and methods.

Table 1. Primary forms and methods of control and supervision in Ukrainian general secondary education institutions

Form of control	Methods of implementation	The body that carries out
Institutional audit	Analysis of management and educational processes, verification of compliance with license conditions	State Service of Education Quality of Ukraine (SSQE)
State supervision (control)	Inspections, monitoring the quality of education, implementation of state standards	Local self-government bodies, inspection bodies
Internal control	Evaluation of the quality of education, surveys, internal assessments, self-analysis of school activities	Administration of the educational institution, teaching staff
Licensing control	Verification of compliance of the material and technical base, staff qualifications with the requirements of educational activities	Licensing commissions, SQES
External independent evaluation (EIE)	Testing of students to check their knowledge of basic academic disciplines	Ukrainian Center for Educational Quality Assessment
Certification of teaching staff	Evaluation of professional qualifications, professional development of teaching staff	Attestation commissions at education departments
Monitoring of educational activities	Systematic analysis of learning outcomes, development of performance indicators	SES, local education authorities

Source: developed by the authors based on the following literature: Cabinet of Ministers of Ukraine (2018), Ministry of Education and Science of Ukraine (2021), and Ukrainian Center for Educational Quality Assessment (2022)

If we consider both quality and standards in education closely related to the role of control and supervision as fundamental accreditations. Control methods comprise testing and certification as well as monitoring and inspections. Regulating control is primarily the responsibility of the State Education Quality Service of Ukraine and municipal authorities with schools involved. These subsystems intend to enhance educational services' quality and prepare students for current expectations.

State and local authorities regulate educational institutions' actions to protect educational standards and participant rights in the learning process. In Ukraine, it is stated that different state and local authorities fulfil these responsibilities with defined powers.

1. *State authorities.* At the national scope, state bodies are crucial for decision-making and supervising education outcomes. The central authorities include:

- Ministry of Education and Science of Ukraine (MES): This body is responsible for cultivating and executing national educational policy, accepting educational standards, and licensing teaching services. The MES has delegated the function of monitoring the quality of education and the adherence to legislation for educational institutions.

- The State Service of Education Quality of Ukraine (SSQE) ensures the quality of educational efforts by executing audits, monitoring evaluations of educational standards, and issuing licensing. The SQES is also responsible for assessing educational activities in public secondary schools.
- Inspection bodies: education's material and technical structure, along with health and safety criteria, are all subject to national inspectorate oversight. These inspectorates monitor the teaching atmosphere and the operational environment for educators.

2. *Local governments.* Governments at the regional level take significant responsibility for overseeing and directing educational activities. Their role includes:

- Financing of educational institutions: Local governments are responsible for allocating budget resources to provide necessary supplies for teaching and maintaining schools throughout the region.
- Administrative control: School management is decided upon by local officials who verify the commitment of administrators to legal and educational standards.
- Provision of local programmes: Local authorities may launch educational projects to boost education levels and respond to regional problems. They also evaluate the functioning of educational programmes in that region.

3. Teamwork exists among state and local authorities. Teamwork between state and local entities is crucial for successfully managing educational institutions. While the Ministry of Education and Science formulates suitable policies and standards, local officials monitor compliance and regulate at the local level. Local authorities and the State Education Quality Service jointly oversee and verify educational activities.

State bodies and local governments contribute significantly to maintaining high education quality by monitoring standard applications and ensuring the success of educational efforts. Local programmes and audits, under their guidance, ensure that education institutions meet state expectations and create favourable learning environments. Table 3 displays how well existing frameworks assess and manage the quality of education.

Table 2. Assessment of the effectiveness of existing mechanisms of control and supervision over the quality of education

Control mechanism	Efficiency	Performance evaluation criteria	Statistical results of the effectiveness of control mechanisms (%)	Sources
Institutional audit	High efficiency in identifying weaknesses in management and educational activities	Level of compliance with standards, quality of management processes	87.3%	State Service for Education Quality of Ukraine. Analytical reports on the results of school audits (State Service for Educational Quality of Ukraine, 2022).
Licensing of educational activities	Average efficiency, improvement of the material and technical base after obtaining the license	Compliance with material and technical conditions, staffing	76.9%	Ministry of Education and Science of Ukraine. Annual report on the licensing of educational institutions. (Ministry of Education and Science of Ukraine, 2021)
External independent evaluation (EIE)	High efficiency in determining the level of knowledge of graduates of general education institutions	Test results, compliance with curricula	91.2%	Official reports of the Ukrainian Center for Educational Quality Assessment (UCEQA) on the results of the External Independent Testing (Ukrainian Center for Educational Quality Assessment, 2022)
Monitoring of educational activities	Moderate effectiveness due to the instability of systematic data increases over time	Systematic data collection, analytics of student and institutional results	69.7%	Global Education Monitoring Report (UNESCO, 2022), OECD Education at a Glance.
Certification of teaching staff	Medium effectiveness due to irregular professional development and knowledge updating	Teacher qualifications, compliance with modern educational requirements	82.4%	Reports of the Institute of Educational Content Modernization on the certification of teachers.
External inspections (within the control)	High efficiency in ensuring compliance with safety and sanitary standards	Safety of the learning environment, compliance with sanitary and hygienic standards	88.6%	Ofsted Annual Report (UK), inspection reports at the school level.

Source: developed by the authors based on the following literature: State Service for Education Quality of Ukraine (2022), Ministry of Education and Science of Ukraine (2021), Ukrainian Center for Educational Quality Assessment (2022), UNESCO (2022), OECD (2022), and Ofsted (2021)

The findings show that the effectiveness of control and supervision mechanisms differs according to the methods and criteria used for evaluation (Figure 1). With the highest efficiency ratings, institutional audits and EIT facilitate consistent oversight of meeting standards. The methods used to assess teaching staff need better refinement.

Audits conducted at institutions show that efficiency improved steadily: In 2019, it began at 1.82%, and by 2022, it surged to 1.39%, showing ongoing improvement in school governance. From 2019 to 2022, licensing education advanced by 3.7% and concluded at 1.59%, suggesting it may have achieved a sustainable level. In 2019 and 2022, external assessment showed that EIE experienced minimal growth of only 0.56% and 0.55%. The existing EIE system shows significant strength as it faces minimal growth possibilities. In 2019, teacher qualifications hit a maximum of 2.20%, reflecting a solid growth in their competency. In 2019 and 2022, results of external checks displayed an average boost in efficiency of 1.8% and 1.03%, showing that educational organisations adhere to health and safety regulations. Educational activities hit their peak growth in 2019 due to new educational reforms. The lowest growth rate for the EIT suggests good efficiency at the start of this system. The increasing statistics show a constant enhancement in every management and control approach involved in improving

educational quality. A steady growth transformation confirms a dependable advancement in education and persistent modifications for progress. Problems of administrative and legal regulation of control and supervision in general secondary education:

1. Numerous assessments of educational practices frequently produce erratic and untrustworthy outcomes. Obtaining data repeatedly fails to provide a proper evaluation of educational quality.
 2. In the nation, educational standards and management gaps lead to disparities in education quality.
 3. Several colleges experience obstacles in obtaining sufficient money to meet ongoing educational standards and licensing.
 4. Weak training methods reduce the educational standards.
 5. Advanced digital tools frequently escape the attention of regulatory systems when managing and directing education.
2. In some instances, school assessments do not include all elements, which lessens the fairness of the rating.

Ways to improve administrative and legal regulation:

1. Data collection from digital platforms occurs quickly, leading to a more effective assessment of education's efficacy and compliance.
 2. It is essential to devise shared plans for evaluating quality that will provide consistent education standards worldwide.
 3. To meet current needs, companies must improve schools financially and secure adequate rewards for educators.
 4. Teachers can face current educational difficulties through continuous professional development.
 5. Creating self-directed entities to conduct inspections will increase the equity and reliability of the results gathered.
2. When agencies such as UNESCO and OECD recommend improvements, the national education system will achieve higher quality than global levels.

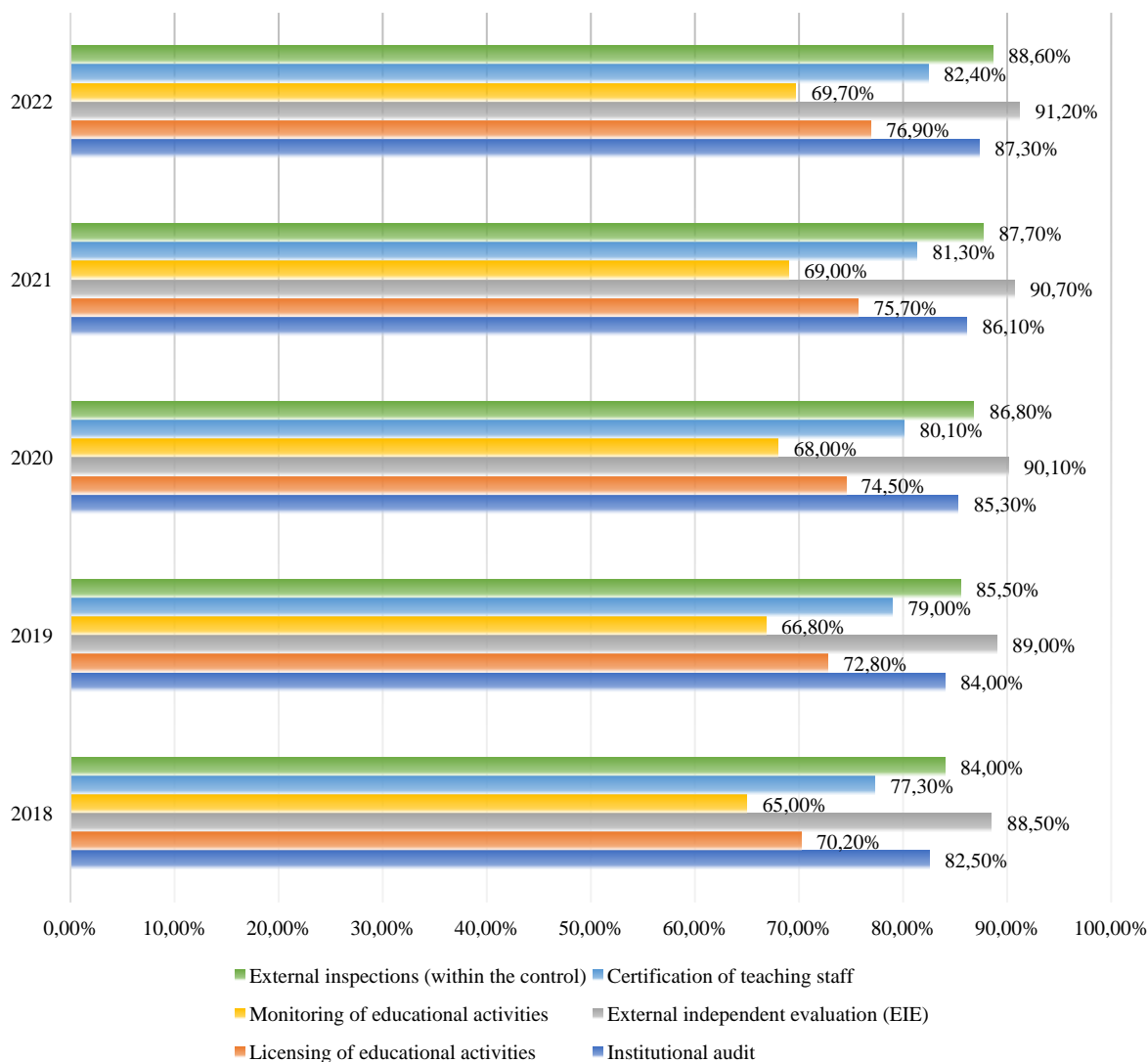


Figure 1. Statistical results of the effectiveness of control mechanisms (%), 2018–2023

Source: developed by the authors based on the following literature: State Service for Education Quality of Ukraine (2022), Ministry of Education and Science of Ukraine (2021), Ukrainian Center for Educational Quality Assessment (2022), UNESCO (2022), and OECD (2022)

Improving administrative and legal regulation in the control and supervision of general secondary education will require introducing new technologies, a unified approach to quality standards, and regular professional development of teachers. Maintaining the independence of inspections and integrating international standards will help to achieve greater objectivity and improve the overall level of educational services.

5 Discussion

This study reveals that managing and legal laws for controlling educational operations play a crucial role in guaranteeing the quality of services. By utilising the method of institutional auditing described in the research by the State Education Quality Service of Ukraine (2022), weaknesses in educational institutions can be recognised, and their conformity with state

norms can be improved. Lisova (2018) supports our results by stressing the vital role of state control in fostering progress in the educational landscape of small towns in Ukraine.

According to a few researchers like Lytvynenko (2023), today's monitoring techniques often do not meet societal demands. Our findings support this claim since Ukraine's education quality laws require more enhancement. Innovative evaluation and monitoring techniques will enable Ukraine to conform to international practices. Varying control strategies in different nations reveal uncertain consequences. Finland's self-regulation system and limited central control show strong performance, according to the Organization for Economic Co-operation and Development (2022). However, in the UK, stringent external inspections from Ofsted focus on stricter supervision practices. The results suggest a balanced method is essential while

considering national particulars and global insights. The analysis focused on available regulations and audit findings as limitations of the study. Data from different parts of Ukraine should be included in additional studies to determine how well control and oversight strategies function in educational reforms.

The results show that additional research is necessary to adjust legal oversight systems according to the realities of digital transformation and the rollout of advanced monitoring tools. This effort will result in increased compliance with current standards.

6 Conclusion

1. Current evaluation methods, including institutional audits and independent assessments, raise education standards and need more enhancements.
2. This research identifies challenges linked to applying laws that affect educational conditions across Ukraine. Decision-makers must acknowledge this issue.
3. Outcomes suggest that innovative monitoring solutions combined with digital strategies can make educational regulatory processes more efficient. The evolution of our digital platform advances education quality.
4. Although effective control systems like EIT and institutional audits exist, the current frameworks do not incorporate regional-specific educational characteristics. Greater flexibility in evaluating education standards is required.
5. This study does not provide detailed data from each region in Ukraine, which obstructs measuring the effectiveness of the oversight system at the national level. Collected regional information is essential for a thorough examination of the current situation.
6. The results can enhance Ukraine's education system by modifying control strategies to comply with global and contemporary education quality standards.
7. We should adopt new technologies to streamline operations and increase objective evaluations to improve the efficiency of quality monitoring in education.
8. Funding should be allocated to investigate the role of digital technologies in improving control methods and setting up systems tailored to regional needs in Ukraine.
9. Establishing fresh methods for assessing the quality of educational services becomes crucial to enhancing the national education system with international practices.
10. Although Ukraine's education management systems are efficient enough, they must constantly evolve and adjust to new challenges.

Literature:

1. Cabinet of Ministers of Ukraine. *Resolution on licensing of educational activities* No. 1187, December 30, 2015. <https://zakon.rada.gov.ua/laws/show/1187-2015-n>
2. Cabinet of Ministers of Ukraine. *Resolution on the approval of the regulations on the State Service for Education Quality of Ukraine* No. 214, March 14, 2018. <https://zakon.rada.gov.ua/laws/show/214-2018-n>
3. European Union. *European qualifications framework (EQF)*. 2017. <https://europa.eu/europass/en/european-qualifications-framework-eqf>
4. Institute of Educational Content Modernization. *Reports on the certification of teaching staff*. 2021. <https://imzo.gov.ua/>
5. International Association for the Evaluation of Educational Achievement. *TIMSS & PIRLS International Study Center*. 2020. <https://www.iea.nl>
6. Lamza, D. V.: General secondary education in Bulgaria: Administrative law aspect. *Scientific Bulletin of the Uzhhorod National University. Series: Law*, 2024, 81(2), 155–160.

<https://visnyk-juris-uzhnu.com/wp-content/uploads/2024/03/26-3.pdf>

7. Lisova, N. I.: *State-public management of the development of general secondary education in small towns of Ukraine*. Publisher Ponomarenko R. V., 2018.
8. Liubarets, V. V., & Hrybova, L. V.: Features of project and risk management in education. *Pedagogical Sciences: Theory and Practice*, 2024, (1), 115–121. <https://doi.org/10.26661/2786-5622-2024-1-16>
9. Lytvynenko, Ye. V.: Main trends in the legal regulation of the education sector in Ukraine under conditions of European integration and globalisation. *Amparo*, Special issue, 2022, (2), 31–37. <https://doi.org/10.26661/2786-5649-2022-spec-2-04>
10. Lytvynenko, Ye. V.: Possible directions for improving domestic legislation regarding the provision of services in the educational sphere. *Academic Visions*, 2023, (18). <https://academy-vision.org/index.php/av/article/view/309>
11. Ministry of Education and Science of Ukraine. *Order on the approval of the procedure for institutional audit of institutions of general secondary education* No. 17, January 9, 2020. <https://zakon.rada.gov.ua/laws/show/z0050-20>
12. Ministry of Education and Science of Ukraine. *Annual report on the licensing of educational institutions*. 2021. <https://mon.gov.ua/>
13. Office for Standards in Education, Children's Services and Skills (Ofsted). *Ofsted inspection framework*. 2021. <https://www.gov.uk/government/organisations/ofsted>
14. Organisation for Economic Co-operation and Development. *Programme for International Student Assessment (PISA)*. 2022. <https://www.oecd.org/pisa/>
15. Ostapenko, O. I., Kovaliv, M. V., Yesimov, S. S., et al.: *Administrative law of Ukraine (general part)*. 2nd ed., rev. Spolon, 2021. <https://dspace.lvduvs.edu.ua/bitstream/1234567890/3866/1/адмін%20право%20україни%20заг%20част.pdf>
16. State Service for Education Quality of Ukraine. *Analytical reports on the results of institutional school audits*. 2022. <https://sqe.gov.ua/>
17. The World Bank. *Education global practice*. 2022. <https://www.worldbank.org/en/topic/education>
18. Ukrainian Center for Educational Quality Assessment. *Official report on the results of external independent testing*. 2022. <https://testportal.gov.ua/>
19. United Nations Educational, Scientific and Cultural Organization (UNESCO). *Global education monitoring report*. 2021. <https://www.unesco.org>
20. United Nations International Children's Emergency Fund. *Education*, 2021. <https://www.unicef.org/education>
21. Verkhovna Rada of Ukraine. *Law of Ukraine "On state market supervision and control of non-food products"* No. 2735-VI, December 2, 2010. <https://zakon.rada.gov.ua/laws/show/2735-17>
22. Verkhovna Rada of Ukraine. *Law of Ukraine "On state control over compliance with labour legislation"* No. 877-VI, November 2, 2015. <https://zakon.rada.gov.ua/laws/show/877-15>
23. Verkhovna Rada of Ukraine. *Law of Ukraine "On education"* No. 2145-VIII, September 5, 2017. <https://zakon.rada.gov.ua/laws/show/2145-19>
24. Verkhovna Rada of Ukraine. *Law of Ukraine "On complete general secondary education"* No. 463-IX, January 16, 2020. <https://zakon.rada.gov.ua/laws/show/463-20>
25. Yatsenko, F. P.: The place of administrative law norms in the system of legal principles for supervising (controlling) the quality of educational services provided by higher education institutions with specific training conditions. *Pravo.ua*, 2020, (3), 253–259. <https://doi.org/10.32782/LAW.UA.2020.3.39>

Primary Paper Section: A

Secondary Paper Section: AM, AG

DEVELOPING STUDENTS' INTERCULTURAL SKILLS IN HIGHER EDUCATION THROUGH THE USE OF MEDIA EDUCATION

^aSVITLANA SHEKHAVTISOVA, ^bGALYNA RYABUKHA, ^cOLENA PAVLIUK, ^dSVITLANA PEDCHENKO, ^eNATALIA KOMLYK, ^fRUSLANA ZHOVTANI

^aMatej Bel University, Banská Bystrica, Slovakia.

^bUniversitat de Vic - Universitat Central de Catalunya (UVic-UCC), Vic, Spain.

^cLuhansk Taras Shevchenko National University, Lubny, Ukraine.

^dPoltava V. G. Korolenko National Pedagogical University, Poltava, Ukraine.

^eNational University "Yuri Kondratyuk Poltava Polytechnic", Poltava, Ukraine.

^fUzhhorod National University, Uzhhorod, Ukraine.

email:

^asvitlana.shekhavtsova@umb.sk, ^bgalyna.ryabukha@uvic.cat, ^cep290477@gmail.com, ^dsvpedchenko@gmail.com, ^enataly.off1618@gmail.com, ^fr.zhovtani@gmail.com

Abstract: The significant advancement of globalisation, which has affected every sphere of activity, has increased the importance of intercultural competence in training future specialists. However, current research results indicate the insufficient effectiveness of this skill among university graduates, prompting scholars to search for new pedagogical methods to foster its development. Our study aimed to determine the critical stages of forming intercultural competence and the role of media education in its development. To achieve this goal, the following methods were used: literature review, analysis of the stages in forming intercultural competence, an experiment followed by statistical processing and comparison of test results, data visualisation, and summarisation of findings. Five stages of competence formation were identified: denial, defence, acceptance, adaptation, and integration. The effectiveness of media education, particularly video lessons and video presentations, in developing intercultural skills was demonstrated. A strong positive correlation was found between the number of video presentations created by the student and positive responses in the test. Thus, media education positively impacts the formation of intercultural competence and, due to its characteristics, can be widely integrated into the educational process.

Keywords: Video lessons, Video presentations, Intercultural skills, Virtual exchange, Communication, Intercultural collaboration, Online lessons

Funding: The publication contains the results of research conducted with the grant support "Funded by the EU NextGenerationEU through the Recovery and Resilience Plan for Slovakia under the project No. 09I03-03-V01-00148".

1 Introduction

With the advancement of globalisation, intercultural competence has gained significant importance due to the increasing prevalence of international cooperation, which requires knowledge of the culture and customs of one's partners. However, globalisation has influenced economic cooperation and shifted the development trajectory of all sectors, including education. Higher education institutions have faced changing demands regarding the nature of competences required in the labour market. This has led to a shift in the competence-based learning approach, bringing intercultural competence to the forefront. These changes have resulted in adjustments to thematic planning and schedules, which needed to adapt to societal demands quickly. At the same time, acquiring intercultural competence has proven to be a complex process, as evidenced by the insufficient level of knowledge among graduates and employers' dissatisfaction with new specialists who were not ready to apply the knowledge gained at university in practice.

Such changes in societal demands regarding the educational process have stimulated researchers to seek new approaches to teaching intercultural competence skills, as higher education institutions still lag in this area. In an era of rapid digitalisation and the growing use of its capabilities among young people, it is essential to consider media education's potential in achieving intercultural communication goals. In addition to student training, it is crucial to enhance the skills of teachers in teaching the basics of intercultural dialogue within the framework of

continuous professional development and introducing new teaching methods to improve the quality of education.

2 Literature review

The growing demand for intercultural competences among specialists has prompted universities to engage in activities in this area (Rawal & Deardorff, 2021). However, despite numerous attempts to meet these needs, there is a lack of proposed solutions in the literature due to the challenges of organising new teaching approaches and the complexity and inconsistency in defining the concept. Moreover, no studies have been found that statistically prove the effectiveness of various methods for achieving intercultural competence regarding academic, emotional, and social outcomes (Sabet & Chapman, 2023).

The definition of intercultural competence in modern literature varies and lacks a generally accepted meaning, which is a key factor in the complexity of the concept's construction. Deardorff (2020) describes intercultural competence as knowledge and skills related to cultural characteristics of communities aimed at achieving compromise in relationships between people despite socio-political, ethnic, economic, religious, and other differences. Fantini (2020) views intercultural competence in conjunction with linguistic competence, considering it an integral part. However, the author emphasises the impossibility of achieving a global level of intercultural competence, as it is impossible to comprehend all the diversity of world cultures. Therefore, the researcher focuses on openness, empathy, communication skills, cooperation, tolerance, and a willingness to learn new things. Schmidmeier et al. (2020) identify six elements of developed intercultural competence: interaction, communication, learning, cultural differences, mediated culture, and collaboration effectiveness. The authors studied the formation of intercultural communication in groups and conducted an analysis and survey in companies with multicultural staff.

Martorana et al. (2021) analysed defining intercultural competence and found that researchers also use synonyms for competence, such as intercultural education, learning, knowledge, and multiculturalism. More importantly, these skills share a common goal in multicultural societies, especially in European countries with high migration levels: fostering mutual respect regardless of cultural differences, establishing communication between people with different views, and promoting social justice and non-discrimination (Kryvoshein et al., 2022). Contini and Pica-Smith (2017) emphasised the difference between multiculturalism and interculturalism, arguing that multiculturalism pertains to public and political discourse, while interculturalism is considered at the micro-level, primarily concerning personal relationships. Lantz-Deaton and Golubeva (2020) differentiated between intercultural competence and cross-cultural competence, with the former describing relationships between people from different cultures, while the latter involves comparing different cultures without interaction between individuals.

In addition to defining intercultural competence, achieving its effectiveness is difficult, as evidenced by employers' dissatisfaction with specialists' intercultural relationship skills within teams and with foreign partners (Dias et al., 2020). Therefore, introducing new approaches to developing this competence is essential for educators. Braslauskas (2021) highlights creativity as one of the most effective methods for developing intercultural skills, as creativity enables the generation of new ideas and solutions to atypical problems. Thus, creativity fosters openness, a desire to learn about new cultures, and flexibility, which form the foundation for intercultural interaction. Liang and Schartner (2020) studied the positive impact of mixed intercultural classes on developing intercultural communication and teamwork skills.

In the era of technological advancement, the question arises about using technological capabilities to develop intercultural competence. O'Dowd and Dooly (2020) described the positive impact of virtual learning, which includes incorporating telecommunication with international students into linguistic curricula at universities. Ferreira-Lopes et al. (2021) described high academic intercultural achievements among business school students in Spain and the Netherlands, who virtually collaborated within curricula throughout the semester. Monika et al. (2020) argue that social media's capabilities have significantly expanded society's intercultural outlook and contributed to developing intercultural competence in students. Shadieff et al. (2023) studied the potential of videos shot using drones to enhance the perception of knowledge related to another country's culture. The use of drones for obtaining video materials was explained by the restrictions associated with the COVID-19 pandemic. The researchers conducted a video exchange between students in China and Indonesia and evaluated the survey results. Students positively evaluated this experience, noting the high-quality landscape characteristics, sounds, and visual effects, which gave the feeling of being present at the filming location.

The analysis of recent literature on intercultural competence revealed many publications, including original studies and reviews, confirming the topic's relevance. However, most studies did not provide specific recommendations for implementing practical pedagogical approaches; instead, they stimulated discussions and further research in this area.

The study aimed to identify the main stages of intercultural competence formation and the role of media education in its development.

3 Research methods

We conducted a review of recent literature on the state of development of intercultural competence and identified gaps in this research area. The main stages of forming intercultural skills were highlighted, and recommendations for pedagogical approaches were provided for each stage. An experimental

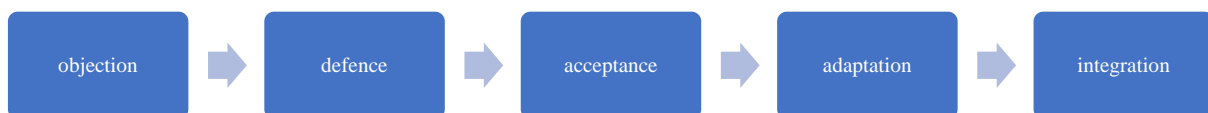


Figure 1. Intercultural competence development process

Source: compiled by the author based on (Sabet & Chapman, 2023; Arasaratnam-Smith, 2017; Lantz-Deaton & Golubeva, 2020)

When encountering a new culture for the first time, a person goes through a stage of denial, during which the new culture is not perceived as acceptable but rather as something unfamiliar, illogical, and incomprehensible. In our time, denial is not as pronounced and can be observed in its purest form among children who have migrated to another country suddenly without prior exposure to its culture. This stage is blurred and unclear among students because young people are often exposed to tourism, social media, and learning about foreign cultures through music, films, literature, and art. The next stage involves defending one's culture by contrasting it with the other. At this stage, the highest level of motivation for learning the customs and traditions of another culture is observed. The next stage, identified by the authors, is acceptance, where empathy, tolerance, and understanding of other people's culture come to the forefront. The fourth stage involves adapting one's behaviour to the customs of the studied culture, and the fifth stage, integration, includes incorporating cultural characteristics and values of another country into one's own, thus forming multicultural behaviour and worldview.

Students who come to study in another country experience all the stages above, which is why higher education institutions should promote the development of intercultural competence among teachers to facilitate the adaptation of foreign students by

pedagogical study was conducted by forming three group participants, consisting of 60 university students studying a course on intercultural interaction using different methodologies. The students were randomly assigned to groups, with 20 respondents in each group. The research adhered to the principles of pedagogical ethics and personal data anonymity. All students gave their consent to participate in the study. The first group was the control group (n=20), which studied the course traditionally without modern media education tools. In addition to the methodological recommendations, lectures, and practical sessions developed within the curriculum, students in the second group (n=20) were provided access to short video lessons. In the third group (n=20), the curriculum included creating video presentations on the lesson topics. Academic performance evaluation included a test on the course material, consisting of 95 questions, each with one correct/positive answer. To avoid random correct answers, most of the questions were open-ended. The test results were presented as a diagram and compared between groups using Student's t-test. In the third group, a correlation was identified between the number of video presentations created by the student and their academic performance. The research results were compared with data from contemporary studies, and the findings were summarised.

4 Results

The rapid increase in the role of international cooperation has placed additional demands on the education system, particularly in training specialists with well-developed intercultural thinking. This has led to the search for practical approaches to developing this skill. However, assessing the essence of forming intercultural interaction competence became necessary to identify effective methods. The study of interculturality began in the 1980s due to the challenges of adapting migrant students to European schools. Today, however, the concept of interculturality has expanded significantly, as globalisation has increased knowledge about other cultures, migration, tourism, and international relations in business, education, science, and other sectors. Figure 1 presents the stages of forming intercultural competence.

providing them with a step-by-step guide for each stage of forming interculturality. Teacher training courses should be included in the planning of continuous professional development. At the same time, continuous professional development programmes should involve educators, psychologists, philosophers, linguists, subject matter experts, and, where applicable, historians.

Students studying in their own country do not go through the denial stage and begin acquiring intercultural skills by defending or contrasting their culture with a foreign one. In our opinion, the absence of the denial stage is one factor that negatively affects the motivation to study foreign cultures because students do not understand why they need this knowledge or how they will use it in the future. Therefore, to develop intercultural competence, it is essential to conduct motivational and introductory sessions, foster cooperation with foreign universities, organise joint conferences, exchange programmes, and internships, and, depending on the university's academic focus, engage foreign companies for informational discussions.

The stages of acceptance and adaptation are most important for the practical application of intercultural skills because they determine behaviour and the tolerant perception of foreign cultures. All students should master intercultural skills at the

acceptance stage since tolerance towards different cultures forms the foundation of human rights and is an integral component of modern democratic society. Therefore, intercultural competence should be inherent in all students, and to achieve this, it is necessary to broaden students' horizons and involve them in interaction with foreign partners. It is important to note that many university partner institutions or companies collaborating with universities increase the chances of developing intercultural perspectives among students and teachers.

The adaptation stage is crucial for establishing intercultural cooperation and communication. Group work, particularly with international students, is an effective method to reach this stage. Virtual exchanges and joint international online lessons, which gained popularity during the COVID-19 pandemic (Rawal & Deardorff, 2021), have shown promising results. However, adaptation is most effectively achieved through informal communication and meetings, which cannot be conducted remotely. We believe the best forms for experience exchange with informal communication are symposiums and conferences with limited participants. At the same time, large-scale events and long-term internships can be stressful and, as a result, may negatively affect the further development of intercultural interaction.

The integration stage is characteristic of employees in companies with multicultural staff or those who have worked in another country for a long time, as well as students who have studied abroad for an extended period. The integration stage reverses after returning from another country, as it is unnecessary to integrate into a culture outside its borders. However, a knowledge base of behaviours for practical intercultural cooperation remains.

Intercultural competence is significant in various fields and should be promoted in higher education institutions. However,

international educational cooperation and conferences are not always accessible to many students, making it essential to assess the potential of digital technologies, particularly media education, for its development. Two approaches were studied to determine the effectiveness of media education methods: video lessons (group 2) and video presentations (group 3). Thus, the educational course included lectures, practical sessions, video lessons, and video presentations. Group 1 was the control group (n=20), where only lectures and practical sessions were used. In group 2 (n=20), lectures, practical sessions, and additional video lessons were used. In group 3 (n=20), the curriculum included lectures, practical sessions, and video presentations, which the students prepared themselves. The "Basics of International Communication" course (Appendix 1) was identical for all groups regarding the thematic and methodological content of the lecture and practical material. The video lessons were provided as thesis-based reviews of the material covered in the lectures and practical sessions and were only available to group 2 students for self-study. Video presentations were mandatory for group 3 students; however, students could choose the topics and number of presentations to complete. The only requirement was to present the videos to the group, followed by a question-and-answer session and discussion.

A course focused on developing intercultural competence was created to evaluate the effectiveness of the video lessons and presentations. To avoid differences in motivation levels among students, the elective course did not affect overall academic performance. The test included sections on theoretical knowledge, signs of loyalty, and behavioural characteristics of the students. Positive responses were considered and compared between the groups using Student's t-test, with a significance level of $p < 0.05$ (Table 1).

Figure 2 shows the average rates of positive responses in the groups.

Table 1. Statistical evaluation of the results

Comparable groups	Student's t-test	Reliability indicator, p
Group 1 (control) / Group 2 (video lessons)	5,53	<0,01
Group 1 (control) / group 3 (video presentations)	7,05	<0,01
Group 2 (video lessons) / group 3 (video presentations)	1,89	0,03

Source: compiled by the author

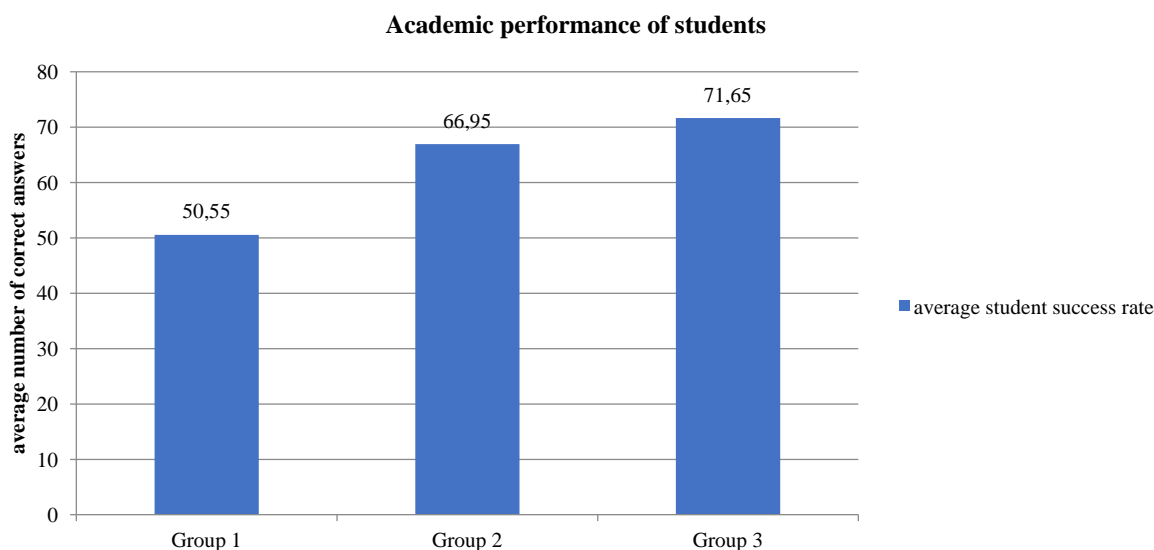


Figure 2. Comparison of academic performance in groups with different teaching methods

Source: compiled by the author

As seen in Figure 2, the lowest results were demonstrated by Group 1 (control group), in which modern media education tools were not used. The results of Group 1 differed significantly from those of Groups 2 (video lessons) and 3 (video presentations), as

confirmed by the value of Student's t-test, indicating the effectiveness of media education for developing intercultural competence. Group 2 (video lessons) showed significantly higher results, indicating the positive impact of video lessons on

the development of intercultural skills due to visualisation, self-study, and the ability to review material according to students' needs.

The highest test results were demonstrated by Group 3 (video presentations), whose results were significantly different from both Group 1 (control group) and, to a lesser extent, Group 2 (video lessons). In Group 3, students prepared and presented video presentations on the topics, which indicates the positive role of the video presentation method in visualisation, fostering creativity, the ability to conduct quality research, select critical points from a large amount of information, and summarise results.

Table 2. Determining the correlation between academic performance and the number of presentations created by students

Number of correct answers																			
85	86	65	67	67	69	68	69	72	75	76	75	72	87	61	68	66	65	65	75
Number of presentations created																			
12	11	5	4	6	5	7	2	7	9	5	5	7	8	6	3	5	7	7	11

Source: compiled by the author

Thus, the study's results indicate the positive impact of media education on the development of intercultural competence, specifically through video lessons and video presentations. Moreover, the effectiveness of video presentations increases with the number of presentations created by students. Unlike costly international internships, conferences, and visits, these media education methods can be applied to many students without requiring significant resources or increasing teachers' workload. Furthermore, the creation of video lessons by teachers may yield positive results similar to the creation of video presentations in Group 3; however, this assumption requires statistical validation and could be considered a prospect for future research.

5 Discussion

The results of the literature analysis pointed to the stages of intercultural competence development and the importance of understanding pedagogical approaches to improve them. Acquiring skills in tolerance, loyalty, empathy, understanding, and behavioural changes in the paradigm of respect for another culture forms the foundation of intercultural competence (Sabet & Chapman, 2023). Understanding the stages of the structure of intercultural competence development is essential for university lecturers who deal with many international students in today's globalised educational environment.

According to our research results, media education plays a vital role in developing intercultural competence. This can be explained by media education's ability to increase engagement in learning and the accessibility of materials through the visualisation of topics, making learning more concrete (Winoto, 2020). We also observed that the increase in academic performance when using video lessons was supported by literature which describes the positive impact of video materials on the perception of new knowledge (Fiorella et al., 2020). Christensen et al. (2020) characterised video lessons as a fast and resource-efficient method of media education. However, the authors emphasise the importance of an individual approach when selecting media education tools, as it is necessary to consider the specific perception of different media tools depending on the students' professional orientation (Fiorella et al., 2020).

The results of our research were confirmed in the literature, as the positive impact of video presentations on the development of intercultural competence is explained by the positive effect of creativity on the achievement of this skill (Braslauskas, 2021). Another aspect is the combination of communication, presentation, and intercultural interaction skills observed in Group 3 through the presentation of videos, discussions, and responses to questions on the topic. This combination of the three skills is in high demand among employers (Sonnenschein & Ferguson, 2020). The development of intercultural and communication skills is also positively influenced by group

Spearman's rank correlation coefficient was calculated to determine the correlation between positive test responses and the number of video presentations created in Group 3. The data used to determine the correlation are presented in Table 2. Spearman's rank coefficient r_{xy} for this sample is 0.79, with a significance level of $p < 0.01$, indicating a strong positive correlation between the number of video presentations created and positive test responses.

learning, including in intercultural and physical classrooms (Liang & Schartner, 2020; De Hei et al., 2020).

Among other effective media education methods that influence the development of intercultural competence is international joint online learning (Hackett et al., 2023). The test results of the joint group of students from the Netherlands and the USA were higher than those of the control group when assessed by the Cultural Intelligence Scale and the Intercultural Personality Questionnaire. Furthermore, this joint learning promoted student mobility and increased their motivation for exchange programmes in other countries (Liu & Shirley, 2021). Today, despite globalisation, the percentage of students who undergo internships or study abroad remains low, at around 10% (Teichler, 2019). While authors recognise studying abroad as the most effective method for developing intercultural competence, as students are immersed in the culture of the country where they are interning and interact with students from other countries in dormitories, there are also challenges (Sierra-Huedo & Nevado-Llopis, 2022). The negative aspect of this method is the stress and prolonged adaptation, which may persist throughout the internship, especially if the internship is short-term, resulting in a counterproductive effect that ultimately reduces motivation for further intercultural interaction. Therefore, before planning international internships, students should acquire intercultural skills, particularly communication, including language proficiency, basic knowledge of the culture, and behavioural characteristics of the country they plan to study.

6 Conclusions

After conducting a literature review on intercultural competence, many studies were identified, confirming its relevance. However, differences in the interpretation of the concept of interculturality were found, explaining the complexity of the skill's structure. Through an analysis of the stages of intercultural competence development, the main principles for developing the ability were determined, based on which recommendations were developed for action algorithms at different stages. The positive impact of media education, particularly video lessons and, to a greater extent, the creation of video presentations, on developing intercultural skills was proven. Due to the low cost and high demand for the proposed media education methods, it is recommended that they be used to teach large groups of students.

Literature:

1. Arasaratnam-Smith, L. A.: Intercultural competence: An overview. In: *Intercultural competence in higher education*, 2017, pp. 7–18. <https://doi.org/10.4324/9781315529257>
2. Braslauskas, J.: Developing intercultural competences and creativity: the foundation for successful intercultural communication. *Creativity Studies*, 2021, 14(1), 197–217. <https://doi.org/10.3846/cs.2021.14583>

3. Christensen, L., Rasmussen, C. S., Benfield, T., & Franc, J. M.: A randomised trial of instructor-led training versus video lesson in training health care providers in proper donning and doffing of personal protective equipment. *Disaster medicine and public health preparedness*, 2020, 14(4), 514–520. <https://doi.org/10.1017/dmp.2020.56>
4. Contini, R. M., & Pica-Smith, C.: Problematising the Conceptual Framework of Interculturalism and its Pedagogical Extension of Intercultural Education: Theoretical Perspectives and their Implications. *Italian Journal of Sociology of Education*, 2017, 9(3), 236–255. <https://doi.org/10.14658/PUPJ-IJSE-2017-3-10>
5. De Hei, M., Tabacaru, C., Sjoer, E., Rippe, R., & Walenkamp, J.: Developing Intercultural Competence through Collaborative Learning in International Higher Education. *Journal of Studies in International Education*, 2020, 24(2), 190–211. <https://doi.org/10.1177/1028315319826226>
6. Deardorff, D. K.: Manual for developing intercultural competencies: Story circles. Taylor & Francis, 2020. 116 p. <https://doi.org/10.4324/9780429244612>
7. Dias, D., Zhu, C. J., & Samaratunge, R.: Examining the role of cultural exposure in improving intercultural competence: implications for HRM practices in multicultural organisations. *The International Journal of Human Resource Management*, 2020, 31(11), 1359–1378. <https://doi.org/10.1080/09585192.2017.1406389>
8. Fantini, A. E.: Reconceptualising intercultural communicative competence: A multinational perspective. *Research in Comparative and International Education*, 2020, 15(1), 52–61. <https://doi.org/10.1177/1745499920901948>
9. Ferreira-Lopes, L., Elexpuru-Albizuri, I., & Bezanilla, M. J.: Developing business students' intercultural competence through intercultural virtual collaboration: A task sequence implementation. *Journal of International Education in Business*, 2021, 14(2), 338–360. <https://doi.org/10.1108/JIEB-06-2020-0055>
10. Fiorella, L., Stull, A. T., Kuhlmann, S., & Mayer, R. E.: Fostering generative learning from video lessons: Benefits of instructor-generated drawings and learner-generated explanations. *Journal of Educational Psychology*, 2020, 112(5), 895–906. <https://doi.org/10.1037/edu0000408>
11. Hackett, S., Janssen, J., Beach, P., Perreault, M., Beelen, J., & Van Tartwijk, J.: The effectiveness of Collaborative Online International Learning (COIL) on intercultural competence development in higher education. *International Journal of Educational Technology in Higher Education*, 2023, 20(1), 5. <https://doi.org/10.1186/s41239-022-00373-3>
12. Kryvoshein, V., Vdovenko, N., Buriak, I., Saienko, V., & Kolesnyk, A.: Innovative educational technologies in management training: experience of EU countries. *International Journal of Computer Science and Network Security*, 2022, 22(6), 45–50. <https://doi.org/10.22937/IJCSNS.2022.22.6.8>
13. Lantz-Deaton, C., & Golubeva, I.: Intercultural competence for college and university students: a global guide for employability and social change. Springer Nature, 2020. <https://doi.org/10.1007/978-3-030-57446-8>
14. Liang, Y., & Schartner, A.: Culturally mixed group work and the development of students' intercultural competence. *Journal of Studies in International Education*, 2020, 26(1). <https://doi.org/10.1177/1028315320963507>
15. Liu, Y., & Shirley, T.: Without crossing a border: Exploring the impact of shifting study abroad online on students' learning and intercultural competence development during the COVID-19 pandemic. *Online Learning Journal*, 2021, 25(1), 182–194. <https://doi.org/10.24059/olj.v25i1.2471>
16. Martorana, F., Rania, N., & Lagomarsino, F.: Which intercultural competences for teachers, educators, and social workers? A literature review. *International Journal of Intercultural Relations*, 2021, 85, 92–103. <https://doi.org/10.1016/j.ijintrel.2021.09.003>
17. Monika, W., Nasution, A. H., & Nasution, S.: The role of social media on intercultural communication competences. In *Proceedings of the Second International Conference on Social, Economy, Education and Humanity ICoSEEH*, 2020, 1, 483–491. Riau, Indonesia. <https://doi.org/10.5220/00101056048304>
18. O'Dowd, R., & Dooly, M.: Intercultural communicative competence development through telecollaboration and virtual exchange. In *The Routledge handbook of language and intercultural communication*. (pp. 361–375). Routledge, 2020. <https://doi.org/10.4324/9781003036210>
19. Rawal, R., & Deardorff, D. K.: Intercultural competences for all. In *Reshaping international teaching and learning in higher education*. (pp. 46–59). Routledge, 2021. <https://doi.org/10.4324/9780429278075>
20. Sabet, P. G., & Chapman, E.: A window to the future of intercultural competence in tertiary education: A narrative literature review. *International Journal of Intercultural Relations*, 2023, 96, 101868. <https://doi.org/10.1016/j.ijintrel.2023.101868>
21. Schmidmeier, J., Takahashi, A. R. W., & Bueno, J. M.: Group intercultural competence: Adjusting and validating its concept and development process. *Revista de Administração Contemporânea*, 2020, 24(2), 151–166. <https://doi.org/10.1590/1982-7849rac2020190021>
22. Shadiev, R., Sintawati, W., & Yu, J.: Developing intercultural competence through drone-assisted virtual field trips while adapting to pandemic times. *Journal of Research on Technology in Education*, 2023, 55(6), 947–970. <https://doi.org/10.1080/15391523.2022.2067797>
23. Sierra-Huedo, M. L., & Nevado-Llopis, A.: Promoting the development of intercultural competence in higher education through intercultural learning interventions. *Revista Electrónica Educare*, 2022, 26(2), 526–546. <https://doi.org/10.5281/zenodo.4906877>
24. Sonnenschein, K., & Ferguson, J.: Developing professional communication skills: Perceptions and reflections of domestic and international graduates. *Journal of University Teaching & Learning Practice*, 2020, 17(3). <https://doi.org/10.53761/1.17.3.5>
25. Teichler, U.: Bologna and student mobility: A fuzzy relationship. *Innovation the European Journal of Social Science Research*, 2019, 32(4), 429–449. <https://doi.org/10.1080/13511610.2019.1597685>
26. Winoto, D. E.: The conception of intercultural learning media and education. *International Journal of Multicultural and Multireligious Understanding*, 2020, 7(7), 111–120. <http://dx.doi.org/10.18415/ijmmu.v7i7.1752>

Primary Paper Section: A

Secondary Paper Section: AM, AJ

Appendix 1
Course syllabus for “Basics of International Communication”

Topic 1: The role of international communication in modern society. Areas of application of international communication.

Lecture.

Practical session.

Topic 2: International communication as the foundation of intercultural competence. The concept, content, and significance of interculturality.

Lecture.

Practical session.

Topic 3: Language and culture in international relations. Basics of verbal and non-verbal communication.

Lecture.

Practical session.

Topic 4: Fundamentals of business communication in the context of intercultural interaction.

Lecture.

Practical session.

Topic 5: Features of business communication in Western European countries. Business intercultural communication in France, Germany, and Belgium.

Lecture.

Practical session.

Topic 6: Features of business communication in Eastern European countries.

Lecture.

Practical session.

Topic 7: Fundamentals of business communication in Scandinavian countries.

Lecture.

Practical session.

Topic 8: Features of business communication in Southern European countries.

Lecture.

Practical session.

Topic 9: Business communication features in English-speaking countries: USA, United Kingdom, Canada, Australia.

Lecture.

Practical session.

Topic 10: Features of business interaction in Arab countries.

Lecture.

Practical session.

Topic 11: Fundamentals of office management and international relations in East Asian countries: Japan, China, India.

Lecture.

Practical session.

Topic 12: Fundamentals of business communication in Latin American countries.

Lecture.

Practical session.

Topic 13: Comparison of intercultural communication in different countries of the world. Comparison of business communication features in the G7 countries.

Lecture.

Practical session.

Topic 14: Comparison of intercultural interaction in G20 countries.

Lecture.

Practical session.

Topic 15: Analysis of the effectiveness of intercultural communication between European states within the European Union.

Lecture.

Practical session.

Topic 16: Summary session. Critical business etiquette rules in different countries. Round table creation to simulate intercultural interaction between different countries.

Practical session.

Practical session.

DEVELOPMENT OF DIGITAL COMPETENCES IN UNIVERSITY STUDENTS AS A NECESSARY CONDITION FOR THEIR PROFESSIONAL TRAINING

^aIGOR SHULIAKOV, ^bTETYANA LOHVVYENKO,
^cDARYNA CHERNYAK, ^dOLESLIA STOIKA,
^eOLENA OLIINYK

^a*O. M. Beketov National University of Urban Economy in Kharkiv, Kharkiv, Ukraine.*

^b*Drohobych Ivan Franko State Pedagogical University, Drohobych, Ukraine.*

^c*Kyiv National University of Technologies and Design, Kyiv, Ukraine.*

^d*Uzhhorod National University, Uzhhorod, Ukraine.*

^e*Uman National University of Horticulture, Uman, Ukraine.*

email: ^avalois@ukr.net, ^btetyana_social@ukr.net,

^cdaryna1804@gmail.com, ^dolesya.stoyka@uzhnu.edu.ua,

^elenauman@gmail.com

Abstract: The digitalisation of social processes determines the requirements for the competence of a modern specialist, the rapid development of information and communication technologies, and the active dynamics of the labour market. The formation of professional competence is currently focused on three main areas: hard skills, soft skills, and digital skills. This article aims to analyse the potential for developing digital competences among students of higher education institutions as a component of professional training. The primary digital skills necessary for the successful and prospective professional realisation of higher education students in today's labour market conditions have been investigated. The theoretical and methodological foundations for forming digital skills among higher education students have been systematised. The dynamics of digital skills by type among the adult population during 2019–2023 and the level of utilisation of information systems in the national higher education space during this period have been analysed. The potential of modern professional training methods in developing digital competences among university students has been examined. The vital pedagogical technologies for developing digital skills for professional competence in the modern specialist have been identified, including social media, data analysis, immersive technologies, and others. It has been substantiated that integrating innovative pedagogical solutions into the higher education environment increases student motivation, stimulates the development of critical thinking, adaptability, and the ability for self-education, and intensifies responsibility and self-organisation. It has been proven that the active use of information and communication technologies in the educational process influences the formation of students' digital skills – mobility, the ability to find necessary information quickly, and competences in the use of digital tools and services for professional and personal development. The effectiveness of this process is determined by the success of the adopted pedagogical methodologies, the readiness of the teaching and administrative staff in higher education for the dynamics and significant changes in the educational process, and the presence of state-level support.

Keywords: digitalisation, digital competences, higher education, integration, educational process, digital skills, professional training.

1 Introduction

Innovative approaches to transforming the higher education system in the modern integrated society involve the active digitalisation of the educational process. This includes shifting from traditional classroom-based teaching to blended, distance, or informal learning and implementing innovative pedagogical technologies within the learning process. Virtual environments, interactive lectures, and educational platforms are becoming integral parts of higher education and require students and educators to be prepared for the rapid development of digital learning opportunities. Overall, the process is aimed at the practical, comprehensive professional training of students in the direction of hard and soft skills and essential digital skills.

Despite the challenges to educational progress during the war, society is rapidly acquiring the characteristics of a digital one, and the labour market is forming its vision of the sought-after specialist of a pan-European standard. All this highlights the priority of integrating pedagogical approaches and tools for developing digital skills in higher education. It is advisable for Ukraine to maximally leverage the successful experiences of the international community and the opportunities for partnerships and collaboration to create a developed digital educational environment.

2 Literature review

The issues of innovative development in higher education, in its various aspects, are being explored by several foreign and domestic scholars. In particular, contemporary researchers outline the relationship between the digitalisation of education and social innovations (Melnychuk, 2023; Viunenko et al., 2023;

Henseruk & Boiko, 2020), analyse the pedagogical tools for forming digital competences in the process of higher education (Bakhmat et al., 2023; Yuldashev et al., 2022; Popov et al., 2022), study immersive technologies and educational platforms (Lubko & Sharov, 2021), and examine the possibilities of artificial intelligence in the context of education (Chychkan & Kostovskiy, 2021).

The issue of developing digital competences is also the subject of active discussions among scholars (Koval et al., 2024; Viunenko et al., 2023), who focus on exploring the interplay between digitalisation and the innovative development of higher education during periods of unstable socio-political situations and in the post-crisis period. Among the publications representing global trends in the application of information systems to improve the quality of higher education, it is necessary to highlight the works of (Koval, 2021; Larionov et al., 2021), where modern trends in virtual and mixed reality, data analysis, social, educational platforms, and interactive forms of presenting educational material are analysed. The authors pay special attention to personalised learning, individual educational systems, and pedagogical technologies of blended, flipped, and informal learning to maximise the personal potential of students, developing their unconventional thinking, and equipping them with skills for independent search, selection, and optimal presentation of information on the internet.

The development of this issue in academic circles convincingly demonstrates the relevance of the problem of forming digital competences among students of higher education institutions. At the same time, the conceptual aspects concerning the principles, guidelines, and barriers to the innovative development of the professional training system require more profound study.

The study aims to analyse the potential for developing digital competences in students of higher education institutions as a component of professional training.

3 Materials and methods

In the course of the research, several general scientific methods were used, including the structural-logical method (to develop proposals for improving the professional training of students in higher education institutions within the digital environment), analysis and synthesis (to study relevant theoretical concepts and scientific developments on the issues of forming digital competences among higher education students, clarifying the terminological framework, and assessing the impact of digitalisation on the development of higher education); comparison (for systematising conceptual approaches to defining basic concepts and criteria within innovative pedagogical approaches, identifying related risks and barriers); abstraction (to form priority requirements for the digital skills of graduates from higher education institutions).

4 Results

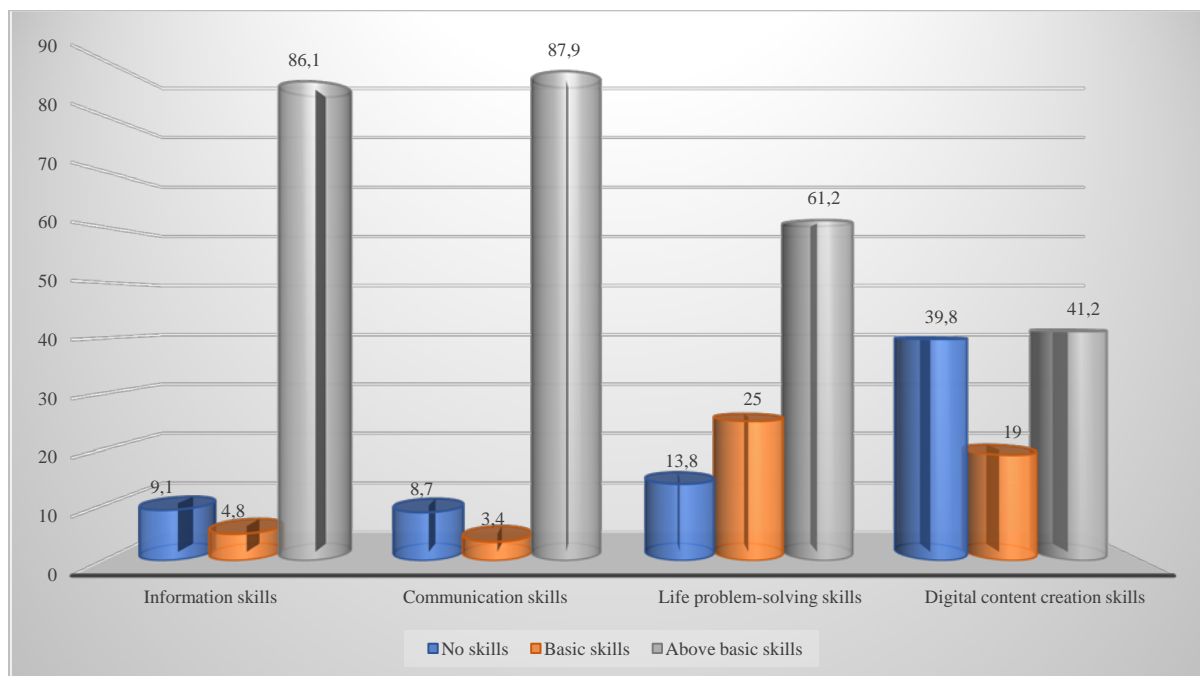
A modern specialist's fundamental professional and personal skills include critical thinking and adaptability, communication skills and creativity, quick orientation in dynamic conditions, mobility, and skills for continuous self-education and self-improvement. The current challenges related to the development of the higher education system are focused on forming three main categories of professional skills: soft skills, hard skills, and digital skills. The formation of basic skills is determined by the theoretical and pedagogical foundations of the educational process, while digital skills are primarily determined by methodological principles (Melnychuk, 2023; Viunenko et al., 2023; Henseruk & Boiko, 2020). While the formation of hard skills (core professional competences, theoretical knowledge, basic abilities) and soft skills (communication competence, creativity, critical thinking) is currently complementary to the pedagogical process, digital competences are a relatively new

concept in the context of Ukrainian higher education, multifaceted and dynamic (Chychkan & Kostovskyi, 2021).

Overall, digital skills embody innovative higher education, characterised by the mobility and adaptability of learners, the ability to quickly find necessary information, and competences in integrating electronic tools and services into work, education, and everyday life (Bakhmat et al., 2023). The current

development period is marked by a rapid increase in digital skills among the adult population (see Figure 1), driven by the global digitalisation of most social processes. Between 2019 and 2023, all digital skills increased by 4-7%. The largest share of the population – 87.9% – has mastered communication skills, while the smallest share – 41.2% – has mastered digital content creation skills (Diia. Education, 2023).

Figure 1: Dynamics of Digital Skills by Type among the Adult Population in 2019–2023



Source: Compiled and systematised by the author based on (Diia. Education, 2023)

It is evident that the positive trends recorded in the official statistics, as shown in Figure 1, are due to the active development of higher education against the backdrop of European integration processes, where future professionals acquire the necessary competences. In particular, the use of virtual and mixed reality technologies provides a unique experience that is successfully synthesised with other effective learning strategies such as simulation, visualisation, and practice-oriented learning (Kryvoshein et al., 2022; Viunenko et al., 2023; Koval et al., 2024).

By incorporating vibrant multimedia and informational content, immersive technologies create a system of unique interactivity where the context can be successfully adapted to individual learning styles (Bakhmat et al., 2023). Immersive tools are relatively new in education. While they cannot

entirely replace traditional teaching methods, they can significantly enhance the learning experience by making it more practice-oriented, simpler, and engaging (Lubko & Sharov, 2021).

Pedagogical technologies based on artificial intelligence and machine learning hold significant potential today. The main task, however, is not to master them as “replacements” for thinking but as “stimulators” of critical perception, rapid analysis of large volumes of information, and creative approaches to problem-solving (Henseruk & Boiko, 2020; Honchar et al., 2021; Melnychuk, 2023; Viunenko et al., 2023). The general directions for implementing advanced educational practices to develop digital competences in students of higher education institutions within the context of professional training are presented in Table 1.

Table 1: Teaching Methods in Higher Education Institutions for Developing Students' Digital Skills

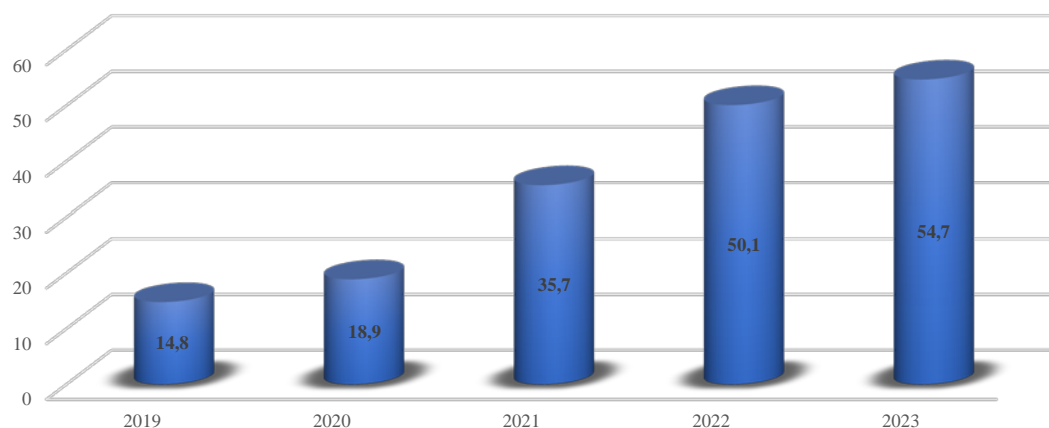
Pedagogical methodology	Functionality
Distance or blended learning	The synergy of traditional classroom and virtual classes, elements of self-education, and online modules intensifies learning's adaptability and flexibility, develops self-control and self-improvement, and increases motivation to master online communications.
Flipped practice-based learning and self-study	Students learn new material at home, while classroom lessons are practical. The method stimulates the skills of searching, selecting, and mastering a significant amount of information, the ability to surf the web, and the ability to critically evaluate online resources.
Online platforms	Targeted resources that provide maximum opportunities for practical self-study. They motivate self-improvement and develop skills in online data analysis, time management, and self-criticism.
Immersive technologies	Integration of virtual or mixed reality to maximise the visibility of the material.
Project methodology	Use of digital tools for planning, developing, adjusting and presenting projects.
Social methodology	Integrating social media into online educational projects requires efforts in communication, social media, and content development.
Adaptive (personalised) learning	Technologies involving artificial intelligence adapt educational material to professional training needs, personalising the complexity and requirements.

Source: Author's conception.

The digital skills acquired during higher education often play a crucial role in developing students as professionals. Companies in various industries strive to enhance brand recognition, improve service processes, attract potential clients, and intensify revenue (Koval et al., 2024; Viunenko et al., 2023). Despite the obstacles posed by the full-scale war, Ukrainian higher education institutions recognise the necessity of digital development and are successfully implementing innovative solutions (Figure 2).

The digital competences of higher education students encompass a range of abilities related to using digital devices, communication programmes, and the global network to access and manage information competently. These skills enable communication and collaboration, creating and sharing digital content, and problem-solving for practical self-realisation (Hawkrige, 2022).

Figure 2: Level of Information Systems Use in the National Higher Education Space, %



Source: Compiled by the author based on (Ministry of Education and Science of Ukraine, 2024).

Students who successfully acquire digital competences optimise their career prospects by understanding useful artificial intelligence tools and primary digital channels. Among the critical digital skills, the following should be highlighted:

- Communication competences, which are manifested in social interaction skills, the ability to use various communication channels, efficiently utilise online connectivity, and conduct meetings in real-time.
- Information and content processing, which forms the foundation of professional competence in terms of adaptability, creative approach, and critical thinking.
- Problem-solving skills using digital tools.
- Transaction management and digital financial literacy.
- Skills in ensuring security and compliance with legal actions online.

Analysing the global practice of developing students' digital competences, it is noteworthy that most higher education institutions currently prioritise mastering targeted digital skills, which are essential for future professionals in any field. These include social media. According to research by WeAreSocial, there are more than 4.76 billion active social media users worldwide, requiring modern graduates to understand and use them effectively, given the potential of social media for maximum community engagement (Szymkowiak et al., 2021).

Other relevant digital skills in the global educational community include search engine marketing (SEM), which allows students with the experience to increase a company's website visibility in search engines; data analysis; content creation (blog posts, videos, podcasts, infographics), which equips students with valuable skills preparing them for careers in any industry; augmented and virtual reality, and mobile technologies; digital strategy and planning based on analytics and quantitatively measured SEO data; video, which is positioned not as entertainment but as an influential professional tool, supported by the rapid growth of YouTube, TikTok, and Instagram (Haleem et al., 2022).

Thus, based on the analysis of the state of digital competence development in higher education in Ukraine and the global integrated environment, the theoretical and methodological

foundations for the formation of digital skills within professional training can be systematised as follows:

- Active integration of digital tools into the educational process.
- Continuous self-education based on acquired experience and the experience of mentors.
- Implementation of targeted tasks aimed at developing competences.
- Application of case methods and electronic tools in the learning process.
- The realities of full-scale war do not allow fully realising modern educational practices' potential to form students' digital competence in higher education. At the same time, the post-war recovery period holds the prospect of establishing modern universities as hubs of all the necessary professional competences for future specialists, which will complement the demands of social dynamics.

5 Discussion

Several modern scholars are actively exploring the impact of digitalisation on the dynamics of professional competence requirements for university graduates. In particular, Castro and Tumibay (2021) deem it necessary to develop a pedagogical methodology towards integrating machine learning and artificial intelligence. These researchers, among other things, analyse the effectiveness of online courses for higher education institutions using meta-analysis.

Conversely, N. Burbules et al. study the potential of the virtual environment for creating a practice-oriented educational environment, identifying five trends in education and technology for a sustainable future (Burbules et al., 2020). Alam (2021) argues for the importance of fostering processes of self-education and self-improvement, which form the foundation for implementing the concept of lifelong informal education, relevant against the backdrop of the mobilisation of artificial intelligence tools and learning analytics in education.

Researchers Zhao et al. (2021) and Adıgüzel et al. (2023) analyse digital skills from the synergy perspective with soft skills, believing that digital skills cannot be mastered without critical thinking, creativity, and communication skills. The

authors investigate aspects of revolutionising education through artificial intelligence, particularly its transformative potential in tools like ChatGPT while emphasising the prioritisation of cybersecurity requirements.

Continuing on this theme, scholars Reis et al. (2021) focus on transforming the traditional methodology of assessing students' knowledge, skills, and competences in the modern digitised higher education environment. According to these scholars, the main focus should be on the practical aspects of professional training, emphasising the assessment of soft skills, despite their immeasurable nature.

Several modern scholars (Baird & Parayitam, 2019; Sinambela, 2020; Hernandez-de-Menendez et al., 2020) explore the dynamics of communication models against the backdrop of the digital transformation of higher education. The authors note the need to abandon outdated action algorithms, instead advocating for the integration of online communication during the learning process to consolidate and practically apply skills related to functional chatbots, educational mobile applications, social learning projects, and media products. Meanwhile, Baird and Parayitam (2019) evaluate employer rankings in the US and Europe regarding the importance of skills and competences necessary for university graduates.

At the same time, scholars Lubko and Sharov (2021) argue for the effectiveness of educational digital platforms, which enable maximum individualisation of the professional training process by focusing on challenging aspects. The researchers pay special attention to the characteristics of expert learning systems, multi-agent intelligent systems, and intelligent adaptive systems. Lubko and Sharov (2021) conclude that intelligent systems based on artificial intelligence and personalisation effectively enhance lifelong learning quality.

Based on these scholars' research results, digital competences have already secured the status of an integral component of higher education institutions' modern professional training system. The effectiveness of the process is determined by the success of the adopted pedagogical methodologies, the readiness of the teaching and management staff in higher education to adapt to the dynamics and significant changes in the educational process, and the level of support at the state level. Despite the positive dynamics of digital optimisation of the educational environment, this issue still needs to be researched in Ukraine.

6 Conclusion

The modern system of professional training requires higher education students to master hard skills, soft skills, and digital skills. The primary digital skills necessary for successful and prospective professional realisation in today's labour market include communication competences, information and content processing skills, problem-solving abilities using digital tools, transaction management skills, digital financial literacy, and ensuring security and legality in online actions.

The theoretical and methodological foundations for forming digital skills in university students are seen in the active integration of digital tools into the educational process, the implementation of targeted tasks aimed at developing competences, continuous self-education, and the application of case studies and electronic tools in the learning process.

Integrating innovative pedagogical solutions into higher education environments enhances students' motivation, stimulates the development of critical thinking, adaptability, and the capacity for self-education, and intensifies responsibility and self-organisation. Such solutions include online platforms, flipped practice-oriented learning and self-education, immersive technologies, distance or blended learning, project and social methodologies, and personalised learning.

The active use of innovative technologies in the educational process influences the formation of essential digital skills in students – such as mobility, the ability to find necessary information quickly, and competence in using digital tools and services for professional and personal development.

Literature:

- Melnichuk, Y.Y.: Principles of building information systems for educational purposes. *Computer-integrated technologies: education, science, production*, 2023. 50, 77-83. <https://doi.org/10.36910/6775-2524-0560-2023-50-11>
- Viunenکو, O., Honzales-Ahadzhanov, K., Ahadzhanova, S. and Rudenko, Yu.: Information and communication technologies of e-learning as a basis for innovation in higher education. *Education. Innovation. Practice*, 2023. 11(4), 13-19. <https://doi.org/10.31110/2616-650X-vol11i4-002>
- Henseruk, H.R. and Boiko, M.M.: Digital technologies as a means of improving the quality of the educational process of a higher education institution. *Innovative digital education technologies in higher and secondary schools of Ukraine and EU countries*, 2020. http://dspace.tnpu.edu.ua/bitstream/123456789/15380/1/37_Henseruk_Boiko.pdf
- Bakhmat, N., Sydoruk, L. and Poberezhets, H.: Features of Using the Opportunities of the Digital Environment of the Higher Educational Institution for the Development of Future Economists' Professional Competence. *Economic Affairs (New Delhi)*, 2023. 68(1), 43-50.
- Yuldashev, O.K., Khomiachenko, S.I. and Yuldashev, S.O.: Organisational and legal model of competency-based education as a means of the transition to innovative economy. *Danube*, 2022. 13(2), 107-118. <https://doi.org/10.2478/danb-2022-0007>
- Popov, O.O., Kyrylenko, Y.O. and Kameneva, I.P.: The use of specialised software for liquid radioactive material spills simulation to teach students and postgraduate students. *CEUR Workshop Proceedings*, 2022. 9, 306-322.
- Lubko, D.V. and Sharov, S.V.: Directions of using intelligent systems in the educational process. *Ukrainian Studies in the European Context: a collection of scientific papers*, 2021. 3, 305-310. <http://eprints.mdpu.org.ua/id/eprint/11680>
- Chychkan, O. and Kostovskiy, M.: The use of information technology in distance learning for higher education students. *Health, physical education and sport: perspectives and best practices*, 2021. 56. https://fzfv.kubg.edu.ua/images/stories/Departaments/ild/kfr/plani/Abstracts_FHPES_2021.pdf#page=56
- Koval, O., Fomina, I. and Golub, I.: Resilience in the Changed Conditions of Educational and Professional Training of Future Specialists of a Socionomic Profile. *Insight*, 2024. 11, 204-221.
- Viunenکو, O., Honzales-Ahadzhanov, K., Ahadzhanova, S. and Rudenko, Yu.: Information and communication technologies of e-learning as a basis for innovation in higher education. *Education. Innovation. Practice*, 2023. 11(4), 13-19. <https://doi.org/10.31110/2616-650X-vol11i4-002>
- Koval, L.V.: Value orientations of vocational education: methodological aspect. *Scientific notes of BSPU*, 2021. <https://doi.org/10.31494/2412-9208-2021-1-2-239-246>
- Larionov, V., Kostiantyn, Kh.Ya., Matvieiev, H., Stadnichuk, O. and Kropyvnytska, L.: Multimedia technologies as a means of improving the quality of education. *Collection of scientific works of the National Academy of the State Border Guard Service of Ukraine. Series: Pedagogical Sciences*, 2021. 26(3), 82-96. <https://doi.org/10.32453/pedzbirnyk.v26i3.881>
- Survey of digital literacy in Ukraine: *Diia. Education*, 2023. https://osvita.diia.gov.ua/uploads/1/8864-presentation_ua_2023.pdf
- Ministry of Education and Science of Ukraine, 2024. <https://mon.gov.ua/>
- Hawkrigde, D.: *New information technology in education*. London: Routledge, 2022. <https://doi.org/10.4324/9781003312826>
- Szymkowiak, A., Melović, B., Dabić, M., Jegathan, K. and Kundi, G.S.: Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people. *Technology in Society*, 2021. 65. <https://doi.org/10.1016/j.techsoc.2021.101565>
- Haleem, A., Javaid, M., Qadri, M.A. and Suman, R.: Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 2022. 3, 275-285. <https://doi.org/10.1016/j.susoc.2022.05.004>
- Castro, M.D.B. and Tumibay, G.M.: A literature review: efficacy of online learning courses for higher education

institution using meta-analysis. *Education and Information Technologies*, 2021. 26(2), 1367-1385. <https://doi.org/10.1007/s10639-019-10027-z>

19. Burbules, N.C., Fan, G. and Repp, P.: Five trends of education and technology in a sustainable future. *Geography and sustainability*, 2020. 1(2), 93-97. <https://doi.org/10.1016/j.geosus.2020.05.001>

20. Alam, A.: Should robots replace teachers? Mobilisation of AI and learning analytics in education. *2021 International Conference on Advances in Computing, Communication, and Control (ICAC3)*, 2021. 1-12. <https://doi.org/10.1109/ICAC353642.2021.9697300>

21. Zhao, Y., Llorente, A.M.P. and Gómez, M.C.S.: Digital competence in higher education research: A systematic literature review. *Computers & Education*, 2021. 168. <https://doi.org/10.1016/j.compedu.2021.104212>

22. Adıgüzel, T., Kaya, M.H. and Cansu, F.K.: Revolutionising education with AI: Exploring the transformative potential of ChatGPT. *Contemporary Educational Technology*, 2023. <http://hdl.handle.net/10679/9079>

23. Reis, D.A., Fleury, A.L. and Carvalho, M.M.: Consolidating core entrepreneurial competences: toward a meta-competence framework. *International Journal of Entrepreneurial Behavior & Research*, 2021. 27(1). <https://doi.org/10.1108/IJEBR-02-2020-0079>

24. Sinambela, E.A., Mardikaningsih, R., Arifin, S. and Ayu, H.D.: Development of Self Competence and Supervision to Achieve Professionalism. *Journal of Islamic Economics Perspectives*, 2020. 1(2). <https://doi.org/10.35719/jie.p.v1i2.13>

25. Baird, A.M. and Parayitam, S.: Employers' ratings of importance of skills and competencies college graduates need to get hired: Evidence from the New England region of USA. *Education + Training*, 2019. 61(5), 622-634. <https://doi.org/10.1108/ET-12-2018-0250>

26. Hernandez-de-Menendez, M., Morales-Menendez, R. and Escobar, C.A.: Competencies for Industry 4.0. *Int J Interact Des Manuf*, 2020. 14, 1511-1524. <https://doi.org/10.1007/s12008-020-00716-2>

27. Lubko, D.V. and Sharov, S.V.: Directions of using intelligent systems in the educational process. *Ukrainian studies in the European context: a collection of scientific papers*, 2021. 3, 305-310. <http://eprints.mdpu.org.ua/id/eprint/11680>

28. Kryvoshein, V., Vdovenko, N., Buriak, I., Saienko, V. and Kolesnyk, A.: Innovative educational technologies in management training: experience of EU countries. *International Journal of Computer Science and Network Security*, 2022. 22(6), 45-50. <https://doi.org/10.22937/IJCSNS.2022.22.6.8>

29. Honchar, L., Derkachova, O., Shakhrai, V., Saienko, V., Hladoshchuk, O. and Voropayeva, T.: Formation of psychological readiness of the teacher to implement information and communication technologies in professional activities. *International Journal of Education and Information Technologies*, 2021. 15(38), 364-371. <https://doi.org/10.46300/9109.2021.15.38>

Primary Paper Section: A

Secondary Paper Section: AM

ENHANCING KEY COMPETENCES IN 5TH-7TH GRADERS THROUGH CONTEXTUAL ANALYSIS OF CONTEMPORARY LITERATURE

^aTAMILA YATSENKO, ^bOLESLIA SLYZHUK,
^cNATALIIA HOHOL, ^dNATALIIA HRYCHANYK,
^eTETIANA KLEIMENOVA

^{a,b}*Institute of Pedagogy of the National Academy of Pedagogical Sciences of Ukraine, Kyiv, Ukraine.*

^{c,d,e}*Oleksandr Dovzhenko Hlukhiv National Pedagogical University, Hlukhiv, Ukraine.*

*email: ^atamilakod@ukr.net, ^bolesja_2014@ukr.net,
^cnatashagol75@gmail.com, ^dgrichanik73@gmail.com,
^etataklym@ukr.net*

Abstract: The critical aspects of the effectiveness of contextual study of contemporary literary works in forming key competences in students of grades 5-7 are highlighted. Pedagogical, marketing, and economic-mathematical methods were used for the research. An analysis of scientific publications on this issue was conducted. The main aspects of contextual study of literature by adolescents were outlined. Approaches to classifying types of contextual study of literary works were summarised. The critical competences in the contextual study of contemporary literary works were identified and characterised. A list with a detailed description of competency-oriented tasks for teenage students in the study of literature was provided. The main directions of the methodological system of the New Ukrainian School were determined. The results of a case study analysis of the study of literary works with an emphasis on context among students of grades 5-7 in Kyiv were presented. The features of forming critical competences in grades 5-7 students in contextualising literary works based on the research results were highlighted. The study showed that the contextual approach to literature study effectively forms the competences of grades 5-7 students. It improves reading literacy, critical thinking, motivation to read, communication and creative skills, and the ability to work with information, making learning more exciting and modern.

Keywords: Students of grades 5-7, Key competences, Methodological system, Competency-oriented tasks, Contemporary Ukrainian literature, Adolescent literature, Context, Contextual study of literary works

1 Introduction

Modern educational standards require teachers to cultivate knowledge and key competences in students, such as critical thinking, communication skills, and social responsibility. Contextual study of literature contributes to achieving these goals. Emotional intelligence is one of the critical competences necessary for successful socialisation and professional activity. Literary works allow students to gain a deeper understanding of people's emotions and motivations, fostering the development of empathy and interaction skills. In today's world, where cultural diversity is the norm, it is essential to instil respect for other cultures and traditions in students. Students can better understand and accept cultural differences through contextual study of literature. Modern students live in a world where access to information is virtually unlimited. It is essential to teach them to evaluate information critically and to be able to search for and analyse it. Contextual study of literature promotes the development of these skills. Today's society faces numerous social challenges, such as discrimination, poverty, and environmental problems. Literature that reflects these issues can become an essential tool for fostering social responsibility and an active civic stance in students. Creativity and an innovative approach are becoming increasingly important in modern education. Studying literary works through the lens of context allows for the use of various creative methods, making learning more exciting and compelling.

The study of contextual study of contemporary literary works in forming key competences in students of grades 5-7 is highly relevant. It meets modern educational process requirements and promotes the comprehensive development of students, preparing them for life in a complex and rapidly changing world.

2 Literature review

Using authentic dilemmas and contemporary issues, the authors encourage teachers and their instructors to raise and explore questions based on inquiries focused on teaching various literary texts, both classic and modern, traditional and digital (Beach et al., 2020). To make the study of literature and culture a socially,

politically, and economically relevant scientific activity today, humanities scholars must turn to contextual and scientific work. Moreover, they argue that comparative cultural studies – a multidisciplinary and interdisciplinary approach using new media technologies – will achieve global presence and social significance for the humanities through enhanced scholarship (Zepetnek & Vasvári, 2014). Context is a specific term in literary studies that helps understand the meaning of a literary work. Context can be social, economic, cultural, historical, literary, biographical, etc., and many contextual categories exist. Scholars propose a cognitive approach to contextual discourse (Bovsunivska, 2011). An attempt was made to justify the contextual approach's importance in the literature study and its impact on the development of students' competences (Utami et al., 2023). The contextual approach evolves with social and school changes, aiming to effectively use new opportunities to achieve the "old" goal: to make literature lessons enjoyable for students, to form a qualified reader who can enjoy the art of words and enrich their moral and aesthetic experience (Gladyshev, 2022). Emphasis is placed on the conceptual paradigm of school literary education in Ukraine, which is based on a cultural approach to studying foreign literature. The implementation of this approach in textbooks and anthologies is discussed, where the main emphasis is on biographical, historical-literary, and cultural-artistic contexts. It is proved that the main ideas of the cultural approach in the study of Ukrainian literature are systematically embodied in literary-critical and explanatory materials and the methodological tools of textbooks for grade 10, recommended by the Ministry of Education and Science of Ukraine (Hohol, 2019). It is noted that the methodological achievements of past historical periods are effectively integrated into modern strategies for creating and using teaching materials in school literary education (Hohol, 2021). An analytical-critical review of publications on the comparative approach to the study of literature in theory and practice of methodological science was carried out in the monograph (Hrytsak, 2019, 2020). Forming civic competences in schoolchildren through studying contemporary Ukrainian literature will contribute to their personal development, fostering active citizens, understanding universal and national values, and striving for tolerance. Implementing lesson models and extracurricular activities that develop civic and social competences is promising (Slyzhuk, 2024a). The system of competency-oriented tasks in Ukrainian literature aimed at developing the critical competences of the New Ukrainian School was investigated, with a focus on the competency potential of fantasy literary works and approaches to integrating learning tasks into the process of literature lessons in grade 7 were proposed (Slyzhuk, 2024b). Attention is focused on the importance of the rational organisation of each Ukrainian literature lesson, which is part of a unified methodological system aimed at developing critical and creative thinking in student readers, skills of conscious reading, perception, comprehension, and evaluation of literary works, and the ability to independently form their reading circle (Yatsenko & Slyzhuk, 2022).

The issue of updating the curriculum and methodological support for the school course of Ukrainian literature based on the cultural approach is relevant. Emphasis is placed on the artistic context as a methodological principle of integration into studying literary works in senior classes (Yatsenko, 2021). The problem of implementing a competency-oriented model of school literary education and the importance of preparing innovative educational materials for Ukrainian literature in the New Ukrainian School is highlighted. The content of the new textbook for grade 5 from the Institute of Pedagogy of the National Academy of Pedagogical Sciences of Ukraine, aimed at forming students' key competences, is revealed. The features of organising the educational activities of fifth graders for the consistent formation of 11 key competences are demonstrated (Yatsenko & Pakharenko, 2022). The problem of contextual

study of Ukrainian literature in school is considered from a relevant perspective, and it is proved that the use of historical context in lessons of contemporary Ukrainian prose contributes to the development of civic, social, and cultural key competences and the formation of an understanding of the interconnection of historical events and the literary process.

Contextual teaching and learning is one prominent approach that can help students understand the significance of educational materials based on personal, social, and cultural contexts. This can give students the knowledge and skills to actively develop their understanding of the materials. The research aims to determine and justify the role of the contextual study of contemporary literary works in forming key competences in students in grades 5-7.

3 Research methods

Various methods were used during the research to achieve a deep and comprehensive understanding of the problem. Pedagogical methods were applied to systematically observe the educational process and student behaviour while studying literary works. The survey and questionnaire method allowed data collection from students, teachers, and parents regarding the perception and understanding of literary works and the impact of the contextual approach. Conducting interviews with students and teachers contributed to a deeper understanding of their experience and attitudes towards the contextual study of literature. The case-study method helped analyse specific instances of studying literary works in Ukrainian literature. Implementing the contextual study in the educational process and comparing the results with a control group, where traditional teaching methods were used, allowed for a correlation analysis to identify the direct relationship between the contextual study of literature and the level of formation of critical competences in students of grades 5-7. These methods can be combined to obtain a complete picture of the role of the contextual study of literature in the educational process and its impact on the development of critical competences in students of grades 5-7.

4 Results

Implementing the principle of contextuality in the school teaching of Ukrainian literature involves the interrelation of a literary work with extratextual information, ensuring a qualitative comprehension of the material and the development of skills to analyse and interpret a literary work considering its ideological and artistic-aesthetic integrity. The current Ukrainian literature curriculum includes biographical, historical, and artistic contexts actively implemented in textbooks. The analysis of the current educational provision highlights this aspect of

subject methodology (Tryhub, 2020b). Implementing the principle of contextuality in teaching Ukrainian literature focuses on connecting the work with extratextual information, which ensures a deeper understanding of the material and the improvement of skills to analyse and interpret a literary work. The current curriculum includes biographical, historical, and artistic contexts actively implemented in textbooks (Slyzhuk, 2024b).

The contextual study of contemporary literary works plays a significant role in forming critical competences in grades 5-7 students. This involves analysing literary works considering cultural, historical, social, and psychological contexts, contributing to the development of various competences (Figure 1).

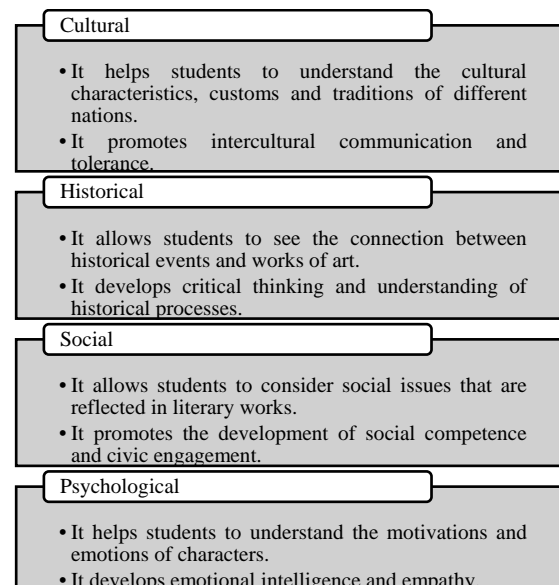


Figure 1. Critical aspects of contextual study of literature by adolescents

Source: compiled by the author based on (Jacqueline & Sue, 2012; van der Zanden et al., 2020)

Ten main types can be distinguished (Figure 2) based on the generalisation of scientific, theoretical, and practical approaches to adolescents' contextual study of contemporary literature.

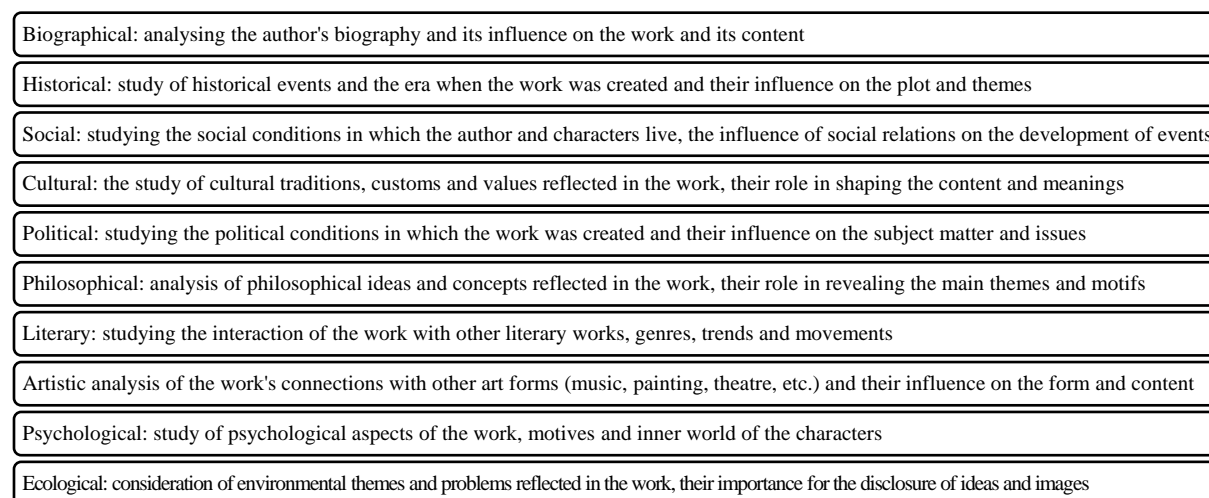


Figure 2. Classification of contextual study of a contemporary literature work

Source: compiled by the author based on (Jacqueline & Sue, 2012; Zepetnek & Vasvári, 2014; Beach et al., 2020; Yatsenko, 2021; Slyzhuk, 2021; Tryhub, 2020a)

The contextual study of literary works in grades 5-7 contributes to students' comprehensive development, helping them better understand texts, develop critical thinking, and expand their worldview.

Experts note that literary context is critical in specialised education. The peculiarity of school literary analysis of a literary work in philological-oriented classes lies in the necessity to consider the enhanced level of creative abilities and cognitive interests of senior students, which implies a deeper study of Ukrainian literature at the specialised level (Tryhub, 2017).

According to Tryhub (2017), the literary context systematises and deepens the educational process, ensuring senior students grasp subject-specific knowledge. History, literary theory, and literary criticism contribute to the formation of reading competence, the acquisition of subject-specific knowledge, and the improvement of competences necessary for the successful self-realisation of students in society (Tryhub, 2017). As a result of this approach, adolescents develop several particular competences (Figure 3).

1. Communicative competence	<ul style="list-style-type: none"> • Analysis and discussion of literary works develops oral and written language skills • It promotes the development of argumentation and debate skills
2. Social and civic competence	<ul style="list-style-type: none"> • The study of social themes in literature develops an understanding of social processes and active citizenship • It helps students to realise their role in society
3. Cultural competence	<ul style="list-style-type: none"> • Exposure to different cultures through literature broadens students' cultural outlook • It promotes respect for cultural diversity
4. Information competence	<ul style="list-style-type: none"> • Working with texts, searching for and analysing information develops skills in dealing with information sources • It promotes the development of critical thinking and the ability to analyse information
5. Emotional intelligence	<ul style="list-style-type: none"> • Studying the psychological aspects of characters develops the ability to understand and manage one's own emotions. • It promotes the development of empathy and mutual understanding.

Figure 3. Forming key competences in the contextual study of a contemporary literature work
Source: compiled by the authors based on (Gladyshev, 2022; Utami et al., 2023; Hohol, 2019, 2021)

Competence-oriented tasks play an essential role in teenagers' learning process, particularly in the study of contemporary Ukrainian literature. Their significance can be considered from several key aspects: development of critical thinking, formation

of self-learning skills, improvement of communication skills, increased motivation for learning, development of creative abilities, preparation for life in modern society, and connection with real life (Table 1).

Table 1. Competence-based tasks in literature study by adolescents

Focus	Tasks	Criteria
Analysis of a literary work	Read a selected work by a contemporary Ukrainian author and analyse it	The plot and composition of the work. Images of the main characters. Main themes and issues raised in the work. Stylistic features (language, metaphors, similes). Personal attitude to the work and its relevance in the modern world.
Writing a review	Write a review of the work you have read	A summary of the work without spoilers. Evaluation of the author's writing style and language. Personal opinion about the work with justification. Comparison with other works by the same author or genre
Interview with a character	Pretend to be a journalist and interview one of the characters in the story.	Prepare questions that would reveal the character's motivation, feelings and thoughts about the events in the story
Creating a book trailer	Create a short video (book trailer) that would interest your peers in reading the selected work	Main plot points without spoilers. Visual and sound effects that convey the atmosphere of the work. A call to read.
Creative writing	Write your sequel or alternative ending to the work you have read	It is essential to preserve the author's style and the logic of the development of events and characters
Discussion based on the work	Organise a class discussion on the topic raised in the work	Choose a moderator to lead the discussion and prepare questions for discussion in advance
Reader's portfolio	Create a portfolio	Brief descriptions of the readings. Personal impressions of each work. Illustrations or creative works related to the readings. Feedback and reviews.

Source: compiled by the authors based on (Jacqueline & Sue, 2012; Yatsenko, 2018, 2020, 2021)

Competence-oriented tasks help students develop critical thinking, one of the most essential skills in the modern world. Analysing literary works, comparing different authors and works, and discussing complex topics stimulate students to think deeply and critically approach information. Through such tasks, students learn to work independently with literary sources and

find and analyse information, a crucial skill for their future studies and lives. They also develop the ability to organise their learning process and manage their time effectively. Tasks that involve group work, discussions, writing reviews or interviews improve students' communication skills. They learn to express

their thoughts clearly and convincingly, listen to others, and collaborate in a group.

Competence-oriented tasks are usually more exciting and engaging for students than traditional forms of learning. They include elements of creativity, interactivity, and real-life situations, making the learning process more exciting and motivating. Tasks that involve writing essays and creating book trailers or illustrations contribute to developing students' creative abilities. They can experiment with different forms of expressing their thoughts and ideas, stimulating their imagination and creativity.

Competence-oriented tasks help students develop skills necessary for successful functioning in modern society. This includes academic knowledge, social skills, the ability to adapt and solve problems, and the ability to work in a team.

Such tasks help students understand how the knowledge and skills acquired in school can be applied in real life. For example, analysing contemporary literary works can help them better understand social issues and phenomena they may encounter.

Competence-oriented tasks in studying contemporary Ukrainian literature by teenagers significantly impact their educational process, contributing to the development of essential skills and competences. They make learning more enjoyable, practical, and relevant to the demands of modern society.

The contextual study of contemporary literature helps make the learning process more exciting and compelling, contributes to students' comprehensive development, and forms vital competences necessary for successful adaptation in the modern world.

Active searches for influential factors in implementing the competence-based approach necessitate creating and implementing a methodology for effectively organising competence-oriented learning of Ukrainian literature, which will contribute to improving the quality of modern school literary education in school practice (Yatsenko, 2018).

In Ukraine, several measures have already been implemented to contextualise contemporary literature to form key competences in grades 5-7 students. Textbooks "Ukrainian Literature" for grades 5, 6, and 7, created by Yatsenko et al. (2022), are a modern and effective tool for teaching that meets the requirements of the new Ukrainian school. They contribute to developing key competences, integrating the contextual study of literature, and providing an interactive approach to learning, making them valuable and exciting for students and teachers (Yatsenko et al., 2021, 2022, 2023a, 2024). An essential step in improving the educational process and meeting modern

requirements and challenges is the publication of Model Educational Programmes in Ukrainian Literature for grades 5-6 (Yatsenko & Kachak et al., 2021) and for grades 7-9 (Yatsenko et al., 2023b), which are recommended by the Ministry of Education and Science of Ukraine. These programmes aim to form a comprehensively developed personality who possesses not only knowledge of literature but also crucial competences necessary for a successful life in modern society.

The updated educational programmes include works by contemporary Ukrainian authors, allowing students to become familiar with modern trends in literature. The programmes include works of various genres - from poetry to prose, which contribute to the diverse development of students. The programmes envisage the creation of projects based on the read works, where they explore themes, symbolism, and cultural context of the work, conduct research, and analyse its historical and social context. An important aspect is interactive teaching methods: staging excerpts from works and role-playing games based on plots help students understand the texts more deeply, using presentations, video materials, and audiobooks for greater immersion in the material. In the context of digitalisation, the use of educational platforms (for example, "Na urok", "Osvita.ua") is becoming increasingly important, where materials are available for deeper study of literature, and students can create video reviews, virtual exhibitions, blogs, on the topic of read works. Literary clubs operate in schools, where students discuss contemporary works and share impressions and critical comments. Holding debates on topics raised in the works of contemporary authors helps to form critical thinking and communication skills.

Organising meetings with contemporary Ukrainian writers allows students to communicate directly with authors, ask questions, and learn about the book-writing process. Students participate in literary festivals and competitions at the school, regional, and national levels. Encouraging students to write stories or poems based on read works or motifs. Creating illustrations for works and comics helps students better visualise what they have read and develop artistic abilities. Thanks to implementing these measures, students in grades 5-7 in Ukrainian general education institutions better understand contemporary literature and develop key competences, such as critical thinking, creativity, communication, and social skills. This contributes to the comprehensive development of personality and preparation for active life in society.

Researchers at the Institute of Pedagogy of the National Academy of Pedagogical Sciences of Ukraine conducted case studies of specific cases of literary works with an emphasis on context among students of grades 5-7 in one of the general secondary education institutions in Kyiv (Table 2).

Table 2. Results of case study of teaching artistic works focusing on context among students of grades 5-7 in Kyiv

Work	Context	Methodology	Results
I. Franko "Zakhar Berkut" - novella	Historical, socio-political	Using the historical context to understand the work	Students developed critical thinking and skills in analysing historical events and their impact on the literary process.
I. Nechuy-Levytsky "The Kaidash Family" - novella	Cultural and everyday life	Focus on the everyday and social aspects of life in a nineteenth-century Ukrainian village.	Students increased their understanding of the cultural and social conditions of the time, which contributed to the development of social competences.
I. Franko "Moses" - poem	Philosophical, religious	Integrating philosophical and religious ideas into the process of analysing the novel	Students developed the ability to think philosophically and to have a deeper understanding of spiritual and ethical issues.
I. Bagryany "Tiger Hunters" - novel	Political, historical	Studying a novel in the context of the political history of Ukraine in the twentieth century	Students learned to analyse political events and their impact on people's lives, contributing to developing civic competences.
T. Shevchenko "The Cherry Orchard by the House" - a collection of poems	Literary, cultural	Interpreting poetry in the context of the national revival	Students strengthened their national consciousness and developed aesthetic perception, which contributed to the formation of cultural competences.

Source: author's research

In all cases, studying literary works emphasising context contributed to developing key competences in students, such as critical thinking, social and civic skills, cultural awareness, and philosophical understanding. During observations, records were made of students' activity during discussions and text analysis, as

well as students' reactions to various elements of the work (characters, conflict, themes) in the form of analytical notes. As a result of summarising observations throughout the academic year, specific patterns were identified (Table 3).

Table 3. The results of observing the learning process and behaviour of grades 5-7 students in the study of a work of art

Results of the observation	Description of the result
Students reactions to the theme of the story	The students were highly interested in discussing the topic of the work. Most students showed interest in the topic's relevance and reflection in modern life.
Understanding of the characters and their motivations	Students showed diversity in their understanding of the characters. Some students showed a deeper understanding of the main character's motivations, while others paid more attention to the dialogues and interactions between the characters.
Participation in discussions	It was observed that some students actively participated in the discussions, often asking questions of each other and expressing their opinions about the events in the novel. Others took a more passive role, listening to the discussion.
Demonstration of critical thinking	The analysis showed that some students displayed high critical thinking, questioning the author's position and expressing their opinions about the characters' actions.

Source: own observations

This analysis demonstrates how systematic observation of the educational process can help understand the impact of studying literary works on students' academic achievements and development in grades 5-7. The correlation analysis conducted (data analysis package in Excel) based on the assessment data of students in grades 5-7 (50 individuals) by the level of formation of critical competences (scale of 50-100 points) and the contextual study of literature (scale of 2-5 points) showed that there is a strong positive relationship between them (correlation coefficient 0.87). This means that more frequent use of the

contextual approach is associated with higher student competences.

The results of the correlation analysis can confirm or refute the hypothesis that the contextual study of literature influences the formation of key competences in students of grades 5-7. However, correlation does not imply a causal relationship and additional studies may be necessary to confirm the results.

Table 4. The results of the correlation analysis of assessing students of grades 5-7 by the level of formation of key competences and the contextual study of literature (data analysis package in Excel)

	Contextual literature study	Competence level
Contextual literature study	1	
Competence level	0,877715579	1

Source: calculated by the authors

5 Discussion

The formation of key competences in students of grades 5-7 is an essential stage in their development. During this period,

students transition from primary to secondary school, which requires adaptation to new forms of learning and increased independence. Below are the main features of forming key competences at this age (Table 5).

Table 5. Features of forming key competences in students of grades 5-7 through the contextual study of literary works

Competence	Features
Reading with understanding	
Development of analytical thinking	Students learn to analyse texts, understand character motivations, plot structure and literary devices
Critical thinking	The ability to question and discuss what they have read, express their own opinions and give reasons for them
Cultural and literary competence	
Introduction to literary heritage	Understanding the significance of literary works in the context of national culture and history
Aesthetic perception	Fostering a love of literature and art, developing emotional intelligence
Communicative competence	
Development of language skills	Ability to express thoughts orally and in writing, participate in discussions
Social skills	Working in groups, listening and understanding other points of view
Information and digital competence	
Working with information sources	Learning to use libraries, online resources and e-textbooks
Digital literacy	Using digital tools to create presentations, projects, etc.
Civic and social competence	
Development of national identity	Fostering patriotism, understanding the importance of literature in shaping national identity
Social activity	Involvement in social and cultural projects, studying the problems of modern society through the prism of literary works
Practical methods	
Project work	Creating projects based on the readings
Role play and theatre	Re-enacting scenes from literary works
Discussions and debates	Discussing the themes raised in the stories
Creative tasks	Writing essays, creating illustrations, literary criticism

Source: own observations

The formation of key competences in studying Ukrainian literature contributes to students' comprehensive development, enhancing their education and preparing them for active participation in public life. Forming key competences in grades 5-7 students is a complex but necessary process that ensures their successful development and preparation for future learning and life.

6 Conclusion

The contextual approach to studying literature significantly improves students' reading literacy. They better understand texts, can identify main ideas, and can analyse and interpret the content of works.

Through the contextual study of literature, students develop critical thinking. They learn to evaluate literary works from different perspectives and discuss the social, cultural, and historical contexts in which they were created.

The contextual approach allows for integrating knowledge from various subjects, such as history, culture, and geography, contributing to a better understanding of literary works and their context. This helps students see connections between disciplines and apply the knowledge gained in new situations.

Contextual literature study makes learning more exciting and motivating for students. They see the practical value of literature and understand its connection with real life and contemporary issues, which stimulates them to read more actively.

Students participating in discussions, presentations, and group projects develop communication skills. They learn to express their thoughts, listen to others, argue their position, and work in a team.

The contextual study of literature involves working with various sources of information, which promotes the development of skills in searching, analysing, and synthesising information. Students learn to use different sources to deepen their knowledge and understanding of literary works.

Contextual tasks, such as writing their works, creating projects, and other creative activities, contribute to developing students' creative abilities. Students have the opportunity to express their imagination, creativity, and individuality.

Research has shown that the contextual approach to studying literature effectively forms various competences in grades 5-7 students. It improves reading literacy, critical thinking, motivation to read, communication and creative skills, and working with information. This approach makes the learning process more exciting and relevant to modern requirements.

Literature:

1. Beach, R., Appleman, D., Fecho, B., & Simon, R.: *Teaching Literature to Adolescents*. Routledge, 2020. <https://doi.org/10.4324/9780429347337>
2. Bovsunivska, T.: On the semantic function of context. *Word and Time*, 2011, 6(7), 3-13. <https://il-journal.com/index.php/journal/article/download/786/578>
3. Gladyshev, V. V.: Evolution of the contextual approach to the study of works in the school course of foreign literature. In: N. R. Hrytsak (Eds.), *Tendencies and prospects of studying literature in secondary and higher schools: materials of the All-Ukrainian scientific and practical conference*. (pp. 89–92). Ternopil Volodymyr Hnatiuk National Pedagogical University, 2022. <http://dSPACE.tnpu.edu.ua/bitstream/123456789/28288/1/Hladyshev.pdf>
4. Hohol, N.: The artistic context of modern textbooks of Ukrainian literature for grade 10 as a means of implementing a cultural approach. *Scientific Journal of the National Pedagogical Dragomanov University. Series 5. Pedagogical Sciences: Realities and Prospects*, 2019, (67), 57–61. <https://enpui.npu.edu.ua/handle/123456789/27301>
5. Hohol, N.: The cultural context of textbooks and textbooks on foreign literature: didactic and methodological aspect. *Problems of the Modern Textbook*, 2021, (26), 58–71. <https://doi.org/10.32405/2411-1309-2021-26-58-71>
6. Hrytsak, N. R.: *Theory and methodology of genre analysis of small epic and lyric-epic multinational works of art: a monograph*. Ternopil: TNEU, 2020. <http://dSPACE.tnpu.edu.ua/bitstream/123456789/30975/1/Hrytsak.pdf>
7. Hrytsak, N. R.: Formation of competence of qualified analysis of a foreign artistic work in philology students. *Journal "ScienceRise: Pedagogical Education"*, 2019, 1(28), 13–17. <https://doi.org/10.15587/2519-4984.2019.155115>
8. Jacqueline, M., & Sue, B.: *Teenagers and Reading: Literary Heritages, Cultural Contexts and Contemporary Reading Practices*. Wakefield Press/AATE, 2012.
9. Slyzhuk, O. (2021). Formation of civic competencies of adolescents in the process of school study of modern Ukrainian literature. In: J. Grzesiak, I. Zymomria, V. Ilnytskyi (Eds.), *Development of modern education and science: results, problems, prospects. Volume X: Effects of participation in the development of science and education at a distance*. (pp. 174–177). Konin – Użhorod – Przemyśl, 2012. <https://dSPACE.uzh.nu.edu.ua/jspui/handle/lib/51982>
10. Slyzhuk, O.: Historical context in the process of studying modern Ukrainian prose in 7th grade. In: O. Pometun, T. Remekh, P. Moroz, S. Motsak, I. Moroz (Eds.), *Competency-based learning: challenges and prospects*. (pp. 146–149). Osvida Publishing House, 2024a. https://undip.org.ua/wp-content/uploads/2024/05/Zbirnyk_tez_viddil_susp_2024_ost.pdf
11. Slyzhuk, O.: Formation of natural science competence of 7th grade NUS pupils in the process of studying fantastic works. In: V. Radchenko, A. Zaliskyi, T. Davydova, N. Hrona, I. Kovaleva, S. Molochko, V. Yushchenko (Eds.), *Language and literature in the dimensions of the present: linguistic and linguodidactic aspects: Materials of the IV All-Ukrainian scientific and practical conference of pedagogical, scientific and pedagogical workers and students*. (pp. 222–224). Nizhyn Hohol State University, 2024b. <https://drive.google.com/file/d/1GBEUuyuf1bBYddKfqtZk9rXbPL7ah79I/edit>
12. Tryhub, I.: Literary context as an effective means of in-depth study of work of art. In: V. Labunets (Eds.), *Pedagogical education: Theory and Practice: Collection of research papers*. (pp. 287–292). Kamianets-Podilskyi Ivan Ohienko National University; Institute of Pedagogy of the NAES of Ukraine, 2017. https://ped.kpnu.edu.ua/wp-content/uploads/2019/12/23_2017_ch_2.pdf
13. Tryhub, I. A.: Involvement of biographical context in the process of studying a work of art. In: O. Ponomarenko & L. Sushchenko (Eds.), *Actual problems of pedagogical education: innovations, experience and prospects: collection of abstracts of the I All-Ukrainian scientific and practical conference with international participation*. (pp. 61–63). Zaporizhzhia: AA Tandem, 2020a. <https://files.znu.edu.ua/files/Bibliobooks/Inshi61/0044961.pdf>
14. Tryhub, I. A.: Implementation of the principle of contextuality in modern school textbooks of Ukrainian literature for high school. In: T. Yatsenko (Eds.), *School literary education: traditions and innovation. VIII Voloshynsky readings: collection of abstracts of the All-Ukrainian scientific and practical conference*. (pp. 218–223). Institute of Pedagogy of the National Academy of Pedagogical Sciences of Ukraine. Kyiv: UOVC "Orion", 2020b. <http://surl.li/fztadg>
15. Utami, N., Yahrif, M., Rosmayanti, V., & Siradjuddin, S.: The Effectiveness of Contextual Teaching and Learning in Improving Students Reading Comprehension. *Journal of Languages and Language Teaching*, 2023, 11(1), 83. <https://doi.org/10.33394/jollt.v11i1.6732>
16. van der Zanden, P. J. A. C., Meijer, P. C., & Beghetto, R. A.: A review study about creativity in adolescence: Where is the social context? *Thinking Skills and Creativity*, 2020, 38, 100702. <https://doi.org/10.1016/j.tsc.2020.100702>
17. Yatsenko, T. O.: Competence approach as a basis of school literary education modernization. *Bulletin of Hlukhiv Oleksandr*

Dovzhenko National Pedagogical University: *Pedagogical Sciences*, 2018, 2(1), 156–165. <https://doi.org/10.31376/2410-0897-2018-1-37-156-165>

18. Yatsenko, T. O.: Model of a modern school textbook of Ukrainian literature. In: T. Yatsenko (Eds.), *School literary education: traditions and innovation. VIII Voloshynsky readings: collection of abstracts of the All-Ukrainian scientific and practical conference*. (pp. 195–199). Institute of Pedagogy of the National Academy of Pedagogical Sciences of Ukraine. Kyiv: Orion Publishing House, 2020. <https://undip.org.ua/wp-content/uploads/2021/07/shkilna-literaturna-osvita--zbirnyk-tez.pdf>

19. Yatsenko, T.: Artistic context in the updated content of modern school literary education. *Scientific Bulletin of IZmail State University of the Humanities*, 2021, (48), 238–245. <http://visnyk.idgu.edu.ua/index.php/nv/article/view/314>

20. Yatsenko, T. O., & Slyzhuk, O. A.: Formation of subject competence of pupils of grades 5-6 of the New Ukrainian School in the process of teaching Ukrainian literature. *Innovative pedagogy*, 2022, (51), 88–91. <https://doi.org/10.32782/2663-6085/2022/51.2.17>

21. Yatsenko, T. O., Kachak, T. B., Kyzlyova, V. V., Pakhareno, V. I., Dyachok, S. O., Slyzhuk, O. A., ... & Makarenko, V. M.: *Model curriculum "Ukrainian Literature. Grade 5-6" for general secondary education institutions*. Ministry of Education and Science of Ukraine, 2021. <https://lib.iitta.gov.ua/726148/>

22. Yatsenko, T. O., Pakhareno, V. I., & Slyzhuk, O. A.: *Ukrainian literature: a textbook for 6th grade. institutions of*

secondary education. Kyiv: Osvita Publishing House, 2023a. <https://pidruchnyk.com.ua/2611-ukralit-6-klas-yatsenko.html>

23. Yatsenko, T. O., Pakhareno, V. I., Slyzhuk, O. A., & Tryhub, I. A.: *Model curriculum "Ukrainian Literature. Grade 7-9" for general secondary education institutions*. Ministry of Education and Science of Ukraine, 2023b. <http://surl.li/nbuaff>

24. Yatsenko, T. O., Pakhareno, V. I., Slyzhuk, O. A., & Tryhub, I. A.: *Ukrainian literature: a textbook for 7th grade*. Kyiv: Gramota, 2024.

25. Yatsenko, T., & Pakhareno, V.: Key competencies in the content of the Ukrainian literature textbook for the 5th grade of the New Ukrainian School. *Problems of the modern textbook*, 2022, (28), 202–211. <https://doi.org/10.32405/2411-1309-2022-28-202-211>

26. Yatsenko, T., Pakhareno, V. I., & Slyzhuk, O. A.: *Ukrainian literature: textbook for 5th grade of secondary schools*. Kyiv: Osvita Publishing House, 2022. https://pidruchnyk.com.ua/1678-5_ukrlit_yacenko.html

27. Zepetnek, S. T., & Vasvári, L. O.: The Contextual Study of Literature and Culture, Globalization, and Digital Humanities. In: S. T. de Zepetnek & T. Mukherjee (Eds.), *Companion to Comparative Literature, World Literatures, and Comparative Cultural Studies*. (pp. 3–35). Foundation Books, 2014. <https://doi.org/10.1017/UPO9789382993803.002>

Primary Paper Section: A

Secondary Paper Section: AM, AJ

EVALUATING NEEDS AND ENHANCING LIFE SKILLS FOR VULNERABLE ADOLESCENTS IN UKRAINE

^aOLENA LESHCHENKO, ^bNATALIIA ZAVERYKO,
^cYULIANA MATSKEVICH, ^dTETIANA SOLOVIOVA,
^eULIANA AVRAMENKO

^{a,b,c,d,e}Zaporizhzhia National University, Zaporizhzhia, Ukraine.
 email: ^aleon22a@ukr.net, ^bzaveryko@urk.net, ^cyuliana30-12@ukr.net, ^dtg_solovyova@ukr.net, ^eavramenkosp@gmail.com

Abstract: The dynamics of the developmental environment of modern adolescents demonstrate an increase in adolescence and a shift in age boundaries. The new life landscape determines the importance of developing life skills in adolescence. The concept of life design today is positioned as a continuous comprehensive process of personality formation through the development of life skills. The study aims to analyse the processes of life skills development of modern adolescents in the context of vulnerable categories of the population in Ukraine to assess their priority needs. The article highlights the main trends in understanding the essence of life skills, such as social, communication, and adaptation concepts. It is established that the basic life skills manifest in overcoming difficulties by showing personal initiative or leadership, communicating and working in a team, adhering to ethics, and using time management skills in practice. It is proved that the modern landscape of life is changing, and modern adolescents need to be prepared for the new pace of life in an uncertain and dynamic social environment. It is established that adolescents will be able to achieve their goals more quickly if they develop priority life skills. It is substantiated that activating personal resources stimulates adolescents to develop independence, self-regulation, and research behaviour. This allows them to master difficult life situations and interact in social groups, promote creative problem-solving, and generate creative ideas. It has been established that in difficult life situations, it is essential for adolescents to receive support from adults and advice on how to respond to external stimuli (overcome fears, reduce anxiety, and make the right decision). The study pays considerable attention to soft skills in demand in modern society. The definition of resilience is characterised by allowing one to adapt to extreme conditions and respond effectively to external stimuli, internal reflections and experiences. It is proved that resilience helps people understand themselves and their desires and teaches them to develop themselves and strive for the best, which is especially important in adolescence.

Keywords: Adolescents, Resilience, Life skills, Adaptation, Communication, Population category, Vulnerability

1 Introduction

Today, uncertainty is positioned as an integral element of modern culture, actively influencing the formation of the emotional and volitional sphere, the development of personal qualities, and the self-regulation skills of the younger generation. In this context, the problem of searching for and developing personal characteristics that contribute to successful adaptation and mastery of life difficulties by modern adolescents is actualised.

Given this, the trait of resilience is of paramount importance in modern society. Resilience is a complex and multifaceted definition that characterises an individual's potential to withstand challenges. It is based on the concepts of inclusion, influence, and challenge that determine how an individual interacts with the world. Resilience helps adolescents to understand themselves and their desires and allows them to master the skills of self-development and self-improvement. In addition, developed resilience allows adolescents to adapt to extreme conditions and respond quickly to external stimuli, internal reflections and experiences.

This context is of particular relevance for adolescents from vulnerable groups in Ukraine. Activating personal resources in the context of the life skills of vulnerable adolescents stimulates them to research behaviour, independence, and self-regulation, which contributes to mastering difficult life situations, effective social interaction, creative problem-solving, and critical thinking. Readiness for independent living also enables them to cope with situations of uncertainty during the transition to adulthood. Given the above, it is of particular importance to study and assess the life skills and needs of vulnerable adolescents in Ukraine.

2 Analysis of recent studies and publications

Issues related to resilience as an essential life skill have been addressed in the works of such scholars as Nechereda and

Kyrychenko (2019), Predko (2020), Shcherban and Ternovai (2016), Arkatova (2020), and others. According to the authors, resilience enables adolescents to simultaneously develop, enrich their potential and cope with the stresses that arise. This concept emphasises the importance of emotional experience in interacting with the environment. Several leading scientists have significantly contributed to studying adolescents' life skills (Kondratiuk, 2022; Basenko, 2019; Prabhu, 2023; Pinto et al., 2021). The concept of personality resilience, according to scientists, is of great practical importance, as it protects the individual from disintegration personality disorders, creates the basis for inner harmony, good mental health, high performance, regulation of behaviour and activities, and preservation of the hierarchy of life values, motives, and goals.

Foreign psychology has developed a theory of a unique personal quality called "hardiness", which transforms the changes that occur to a person into his or her capabilities. In particular, Ungar (2020) and Dray (2021) identify resilience as "a system of beliefs about oneself, the world, and relationships with the world, which contains three relatively autonomous components: engagement, control, and risk-taking". In continuation, scientists Anderson and Priebe (2021) emphasised that these components of resilience prevent tension in stressful situations through sustainable coping behaviour.

Considerable attention is paid to the development of soft skills. An analysis of publications (Andreoni et al., 2020) reveals that flexible skills mean a set of knowledge, skills, and characteristics that allow a person to be successful, regardless of the vector of actions performed. First, they include socio-psychological, socio-emotional, cognitive, organisational, and managerial skills. The components of these skills are convergent with essential life skills.

Some scientists (Tang et al., 2021) understand soft skills as a set of skills, abilities, and abilities that are formed based on "life" skills accumulated at the previous stage of development. Soft skills are the basis of supra-professional competences that allow a person to realise themselves in professional activities and intercultural and interpersonal communication. Soft skills ensure a person's high adaptive potential, mobility, self-employment, and success in all spheres of life and influence the quality and satisfaction of life.

The social services commissioning focuses modern socialisation institutions on developing adolescents who can set goals, make decisions, take responsibility, engage in personal development, combine resilience to external circumstances and flexible responses to changes in external and internal situations. This is confirmed by numerous studies by modern scholars (Sagone et al., 2020). However, despite significant scientific work assessing adolescents' needs for life skills development, there is no single definition of these skills and the specifics of their management in modern conditions in scientific circles, making the research topic relevant.

The study aims to analyse the processes of developing the life skills of modern adolescents in the context of vulnerable categories of the Ukrainian population and assess their priority needs.

3 Research methods

The methodological and theoretical basis of the work was formed, considering the priority principles of systemic research based on an integrated approach. Analysis and synthesis were used to identify the significant aspects and main elements of the object under study. The comparison method was used during the study to determine the specifics of adolescents' current life skills, particularly in the context of vulnerable categories of the Ukrainian population. Deduction and induction were used to develop proposals to optimise the life skills development system

and meet adolescents' needs. The abstract-logical and dialectical methods of scientific cognition were used to clarify the conceptual apparatus, identify the main concepts and categories, and formulate theoretical generalisations and conclusions of the study. The formalisation method was employed to identify priority vectors for optimising adolescents' life skills and structuring their implementation's principles, functions, and tasks.

The life skills assessment was performed using the Ansell-Casey Life Skills Assessment methodology. From 29 April to 8 May 2021, an empirical study was conducted on developing life skills of vulnerable adolescents aged 15-16. For this purpose, a questionnaire for adolescents was developed, including several scales. Each scale includes 15 statements for a total of 90 questions. Each statement has four response categories: "Strongly agree", "Rather agree", "Rather disagree", and "Disagree".

The survey was completed using the online service Google Forms. The link to the questionnaire was distributed with the involvement of regional departments of education and science and institutes of postgraduate pedagogical education, which, in turn, sent them to educational institutions. The questionnaire was administered by psychologists, social workers or educators of particular educational institutions and general secondary education institutions where vulnerable adolescents study. The study lasted one meeting (1 – 1 hour 20 minutes).

Table 1. List of educational institutions where students were interviewed

Luhansk region 18 educational institutions 150 students	
1.	Severodonetsk Regional Sanatorium School
2.	Shchastia Regional Sanatorium School
3.	Novoaidar Regional Sanatorium School
4.	Rubizhne Regional Sanatorium School
5.	Svativska Regional Special School
6.	Rubizhne Regional Special School "Kryshtalyk"
7.	Mountain Regional Special School
8.	Popasna Secondary School No. 21 of Popasna District Council
9.	Rubizhne Secondary School No. 3 of Rubizhne City Council
10.	Nyzhnya Vilkhova Institution of Stanytsia-Luhanska District
11.	Demianivka Gymnasium of Bilokurakynne Village Council
12.	Starobilsk Lyceum №2 of Starobilsk City Council
13.	Stanytsia-Luhanska Secondary School No. 1
14.	Kuriachivka Secondary School of the I-II Grades of Markivka Village Council
15.	Markivka Secondary School No. 1 of Markivka Village Council
16.	Trokhizbenka Secondary School of I-III grades of Novoaidar District Council
17.	Sharivska Secondary School of Bilokurakynne Village Council
18.	Lysychansk Secondary School No. 4 of Lysychansk City Council
Zaporizhzhia region 24 educational institutions 152 students	
1.	Zaporizhzhia specialised boarding school of the II-III level "Kozatskyi Lyceum"
2.	Zaporizhzhia Special Boarding School "Oberig"
3.	Zaporizhzhia Educational Complex No. 64
4.	Zaporizhzhia Secondary School №49
5.	Zaporizhzhia Secondary School No. 76
6.	Berdiansk General Education Sanatorium Boarding School
7.	Khortytsia Academy General Education Sanatorium Boarding School of I-III Grades
8.	Melitopol Secondary School No. 3
9.	Zaporizhzhia Educational Complex No. 111
10.	Zaporizhzhia Gymnasium №3
11.	National University "Zaporizhzhia Polytechnic"
12.	Zaporizhzhia Secondary School No. 80

13.	Zaporizhzhia Machine-Building Higher Vocational School
14.	Zaporizhzhia Secondary School No. 92
15.	Zaporizhzhia Secondary School No. 66
16.	Zaporizhzhia Specialised Boarding School "Sich Collegium"
17.	Small Academy of Humanities
18.	Zaporizhzhia Electrotechnical College
19.	Zaporizhzhia Collegium №98
20.	Zaporizhzhia Secondary School No. 101
21.	Melitopol Professional Agricultural Lyceum
22.	Berdiansk Machine-Building Professional Lyceum
23.	Primorsky Professional Agricultural Lyceum
24.	Yakymivka Professional Agricultural Lyceum

4 Results

Modern adolescents' socialisation occurs in conditions of social transitivity when several variants of the social world exist simultaneously. At the same time, the content of the stages of growing up, the nature of adolescent development, and the specifics of intergenerational relations are radically transformed. This age period is characterised by an active search for self, assimilation of social values, formation of worldview, adaptation to different social roles, and the process of sexual polarisation in behaviour.

The adolescent period determines the main vectors of an individual's future life path and how he/she develops socially, professionally, and familyly. In general, positive and negative factors have a decisive impact on an individual's resilience development. Positive factors include harmonious parent-child relationships, a positive sense of life purpose, building confidence, and maintaining high standards. Negative factors include lack of support from loved ones, alienation from significant adults, stress in early childhood, serious illness, financial difficulties, and parental divorce (Shcherban & Ternovai, 2016).

One of the priority psychological tasks of older adolescents is understanding one's uniqueness and forming one's identity, which involves building one's world model. The adolescent seeks to stand out from peers, to prove himself or herself initially, and to declare his or her uniqueness. If the task of identification is not successfully solved, inadequate identity is often formed in specific destructive ways: avoidance of close interpersonal relationships, inability to make life plans, fear of growing up and change; levelling of productive and creative abilities, inability to mobilise internal resources; formation of a "negative identity", choice of negative role models (deviant, antisocial behaviour). Different variants of inadequate identification lead to different degrees of confusion and role confusion. Adolescents cannot connect their past and present perceptions of themselves, so they have no plans for the future.

All the processes of adolescence are interconnected with adolescents' ideas about their future. Self-determination is the process of forming individual values, capabilities, needs, ways and norms of behaviour, as well as the criteria by which a person evaluates himself or herself and his or her achievements. Modern society increases the opportunities for adolescents to find identity groups, allows them to expand the boundaries of self-determination, and provides additional opportunities for activity and independence (Tang et al., 2021; Honchar et al., 2021). However, increased variability in the choice of socialisation groups is simultaneously associated with increased responsibility for the choice made. This can lead to increased anxiety and fear of new, unfamiliar situations. The uncertainty and volatility of the current social situation lead to a decrease in adolescents' optimism about their future and a decrease in confidence in their ability to control and plan their lives.

Attitudes towards others and the world in general are becoming more rigid and partly aggressive, which is closely linked to high levels of anxiety in almost all adolescents. Adolescents are particularly anxious and concerned about their future regarding

material well-being and achieving the desired role identity. Vulnerable adolescents are a group that is more susceptible to adverse environmental factors and the immediate social environment and is distinguished from other adolescents by more pronounced conflict, aggression, isolation and detachment. Scientists consider the concept of vulnerability as a state of family insecurity caused by the presence of internal and/or external risk factors or the emergence of new ones that upset the balance and negatively affect the state of meeting the child's needs (Nechereda & Kyrychenko, 2019; Predko, 2020; Voropayeva et al., 2022).

In the current conditions of development of Ukrainian society, the most vulnerable categories of the population are families with children, huge families; single-parent families; underage parents; refugees or internally displaced persons/families; families affected by disasters and war; families with incapacitated persons; persons with disabilities; and orphans. Many vulnerable adolescents are characterised by increased suggestibility, lack of reflection, uncritical imitation, self-doubt, and a tendency to overdramatise. Egocentrism, anxiety, extreme self-esteem, and the priority of defence mechanisms are also observed. At the same time, some vulnerable adolescents are well-developed, and negative behavioural manifestations demonstrate independence and maturity and raise their authority among peers.

A significant problem for these adolescents is their psychological unpreparedness for life in the existing system of social relations. They start life with an already low threshold of adaptive and integrative abilities. The lack of self-control, self-care, and self-development throughout their lives is due to the fundamental limitations of their childhood life. The development of life skills expanding the boundaries of life competencies of adolescents from vulnerable populations involves assistance in understanding what is happening to them and around them, in processing life experience; developing various forms of communication and formation of social behaviour skills in conditions of maximally expanded social contacts; activation of cognitive interest in the surrounding social world; formation of the ability to consciously regulate behaviour (Ungar, 2020; Tang et al., 2021).

The Ansell-Casey Life Skills Assessment (ACLSA) helps identify the development of skills for independent living among adolescents (Prabhu, 2023). The ACLSA methodology includes life skills such as career planning, communication, daily living, family life, social relationships, and work and study skills. This assessment was chosen as a priority for the study because it is culturally sensitive and applicable to all adolescents, regardless of their circumstances.

The assessment aimed to collect and analyse data to prioritise the life skills needs of vulnerable adolescents. The survey was

conducted among vulnerable adolescents in Zaporizhzhia and Luhansk oblasts. The total number of respondents was 301, including 151 girls (50.2%) and 150 boys (49.8%), 151 respondents in Zaporizhzhia oblast and 150 in Luhansk oblast. The respondents include adolescents aged 15-16 with disabilities (hearing impairment, visual impairment, intellectual disability, cerebral palsy), IDP children, orphans and children deprived of parental care who are placed in boarding schools and family-based care (foster families, family-type children's homes, guardianship, custody).

Based on the results of the assessment within the experiment conducted in the study, representative graphical scales were formed that reflect trends in the formation of the leading life skills of adolescents that are relevant in society and that relate to the most significant crisis problems of youth society. In particular, the answers to the question about having a person to talk to about sexual relations and unplanned pregnancy showed that 40.2% have such an opportunity, 25.9% also know a person they trust, 21.3% find it challenging to identify, and 12.6% have no one to talk to about these issues. Analysis of the answers to the last three questions allows us to conclude that approximately one-third of respondents do not have knowledge of comprehensive sex education and do not discuss such issues with trusted adults (Figure 1).

When asked what determines the respondents' ability to explain their feelings (e.g., anger, joy, happiness, or concern), we received the following answers (Figure 2): 20% find it challenging to explain their feelings, 36.9% can often understand them, 43.2% of respondents believe that they are entirely able to explain them.

Questions about the ability to manage their emotions (Figure 3): 38.9% of children can manage their anger without harming others; 33.2% can often manage their anger safely, 20.9% only occasionally, and 7% admit they cannot.

The respondents' opinions on gender issues are important. 27.5% of adolescents support the statement that a man is more important than a woman in society, while 72.4% do not. In addition, 77% of respondents said that boys and girls get along well with each other, while 23% disagreed (Figure 4).

Most respondents (78.7%) said that they believe they have the power to influence how their lives turn out, but 21.3% said they do not believe in their influence (Figure 5).

Respondents' answers about the risks of online dating: 79.9% believe they are aware of the risks, but 20.3% said they were not; 27.6% said they were unaware of online safety (Figure 6).

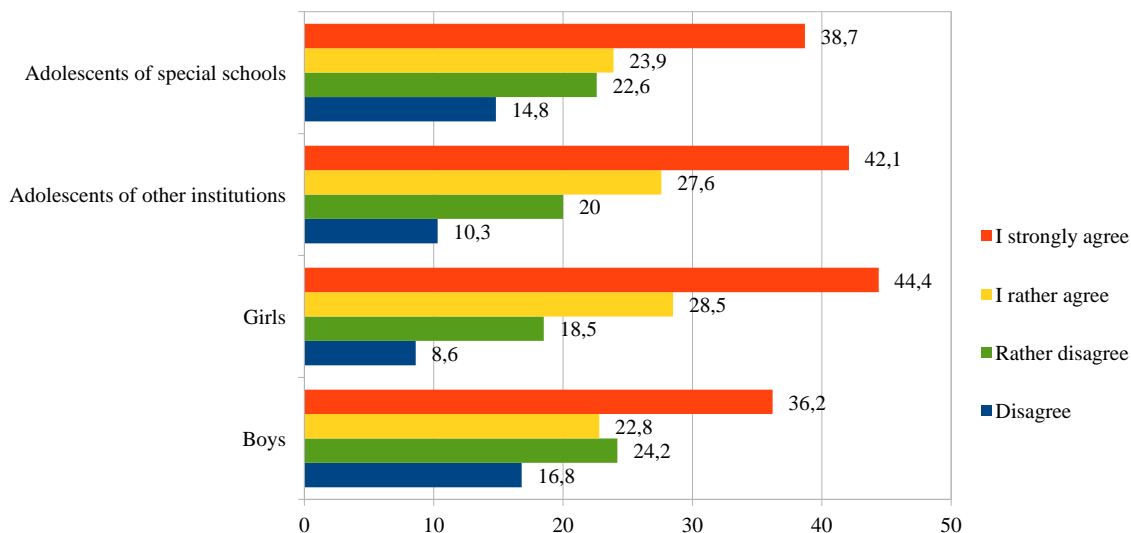


Figure 1. Question: I have someone I trust and can talk to about sexual relations and unplanned pregnancy (in %)

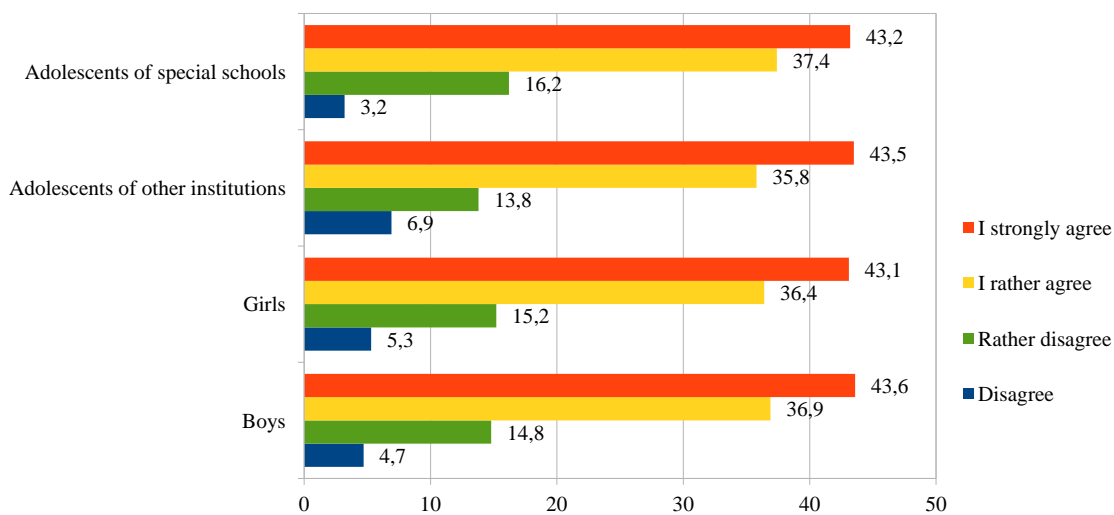


Figure 2. Question: I can explain how I feel (e.g. angry, happy, happy or worried) (in %)

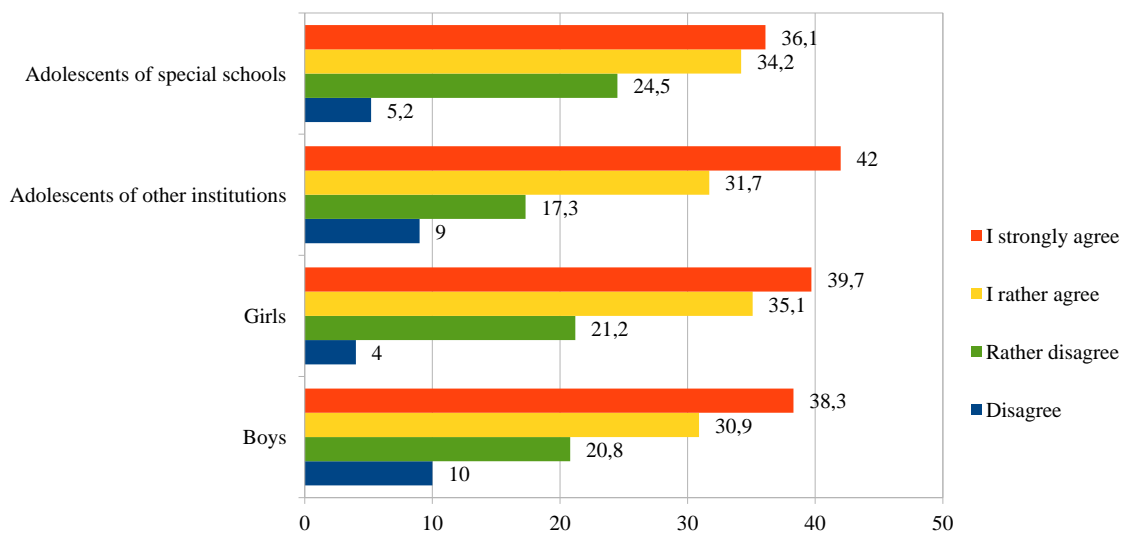


Figure 3. Question: I can cope with anger without hurting other people or things (in %)

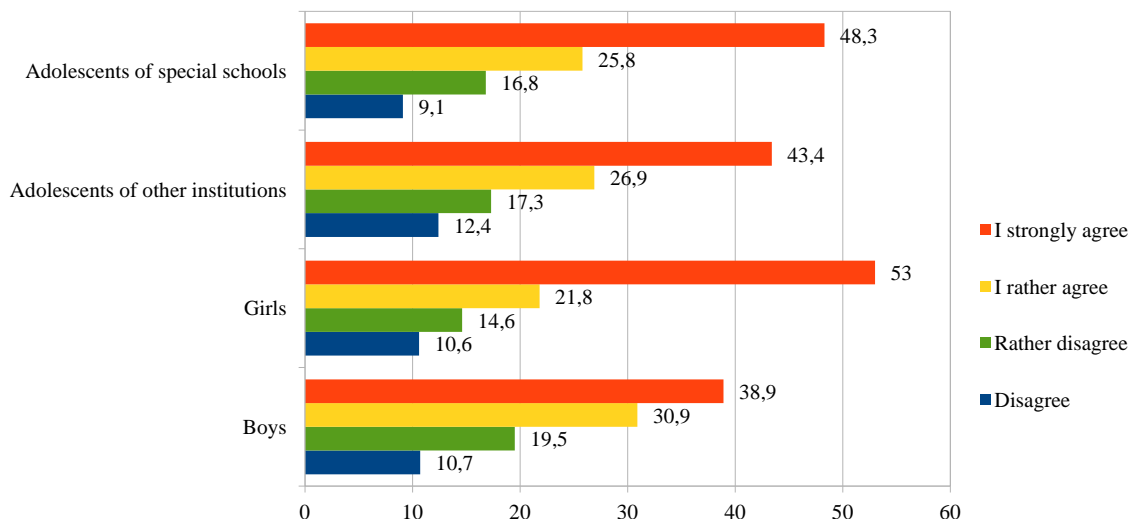


Figure 4. Question: I believe that men are not more important than women (in %)

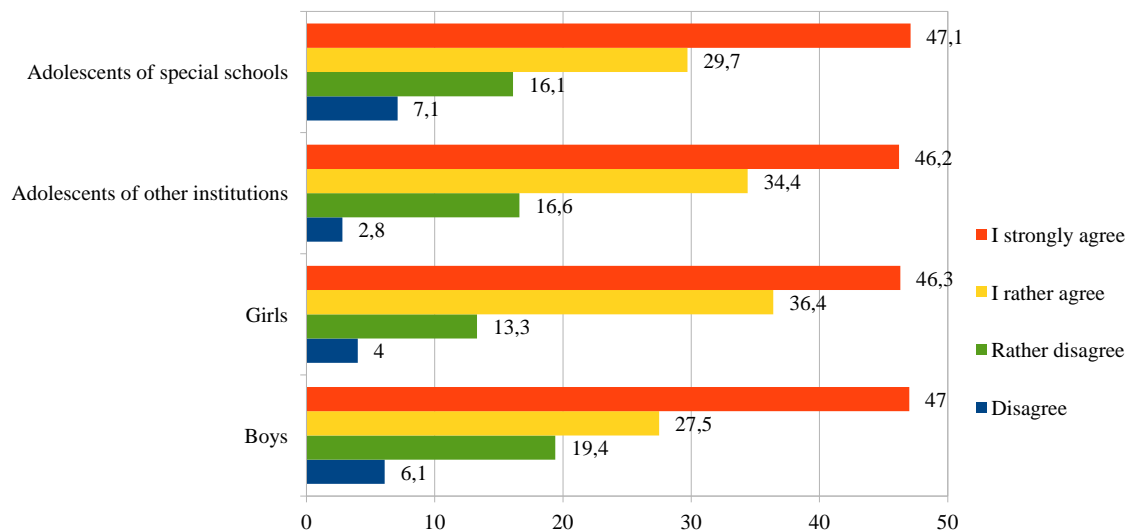


Figure 5. Question: I believe that I can influence how my life will turn out (in %)

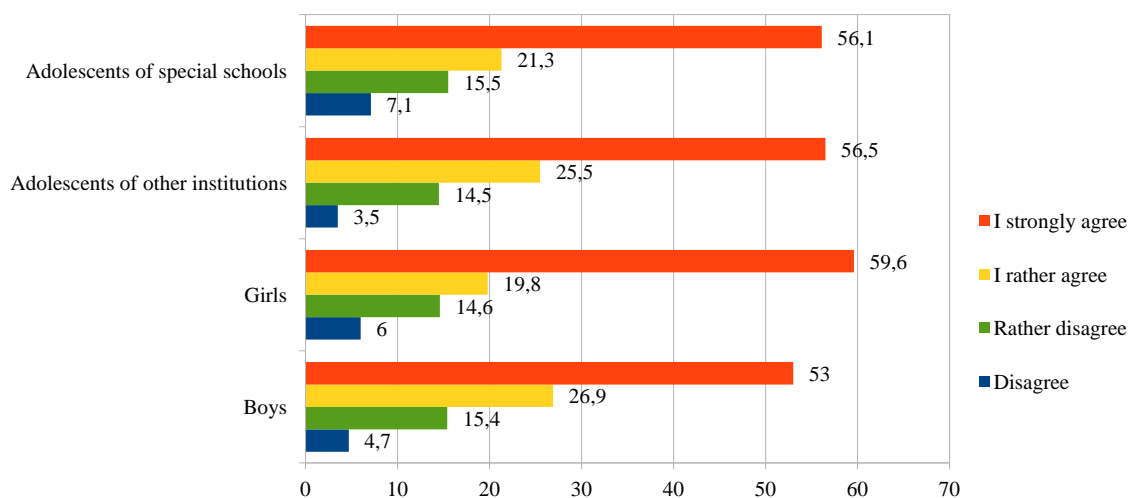


Figure 6. Question: I know the risks of dating on the Internet (in %)

After assessing vulnerable adolescents' needs and life skills, we determined the statistical dependence of respondents' answers on gender and type of educational institution (particular school and other educational institution). To do this, we used K. Pearson's

coefficient of correlation, which was calculated using the formula.

In particular, an examination of the correlation between boys' and girls' answers to the questions about their readiness for the

next stage of life and their belief in their ability to positively influence their future confirmed that both girls (significance level close to zero) and boys (significance level close to zero) have this trait. This means that there are no significant gender differences in the answers. Both girls and boys consider themselves ready for a new stage of life and are confident in their abilities to improve their future.

The next pair of questions allowed us to determine the relationship between having a close person to talk to about sexual relations/unplanned pregnancy and awareness of the symptoms and ways of HIV/AIDS transmission. We found that girls are more likely to have someone they trust and can talk to about sexual relations and unplanned pregnancy and are more aware of the symptoms and ways of HIV/AIDS transmission (their significance level is 0.001) than boys (significance level is 0.045). This indicates that it is easier for girls than for boys to discuss topics related to sexuality. At the same time, adolescents from special schools are more likely to have a trusted person to talk to about sexual relations and unplanned pregnancy. They are more aware of the symptoms and ways of HIV/AIDS transmission (significance level 0.001) than adolescents from other educational institutions (significance level 0.029). This indicates that adolescents with disabilities have a closer relationship with their parents and teachers and perhaps even hyper-parenting compared to adolescents studying in other educational institutions. However, the extent to which this discussion relates to sexuality education must be clarified.

Checking the correlation between boys' and girls' answers to the questions "I can explain how I feel (e.g., angry, happy, or worried)" and "I can handle anger without hurting other people or things" allowed us to draw certain conclusions. We found out that boys, unlike girls, can better understand their emotions and feelings and manage them without harming others. In addition, only adolescents from other educational institutions have a manifest significance level of the trait (tends to zero). This means adolescents studying in general education institutions can better understand their emotions and feelings and manage them without harming others. As for adolescents with special educational needs, they do not have characteristics related to understanding and managing their feelings and emotions.

A critical analysis of the results obtained allows us to propose a conceptual framework for a programme aimed at enhancing the development of life skills among adolescents from vulnerable groups in Ukraine. In particular, the programme should:

- The life skills curriculum for vulnerable adolescents should integrate modern technologies for the development of social and personal competences of adolescents;
- Special programmes should be introduced into the work of special schools, as well as general secondary education institutions where vulnerable adolescents, including adolescents with special educational needs, are integrated;
- The content of special programmes can be based on the content of diagnostic scales tested during the survey, each of which can become the content of a programme for the development of adolescents' life skills;
- Life skills development should be based on management functions and the synergy of a person's social, emotional, and cognitive capabilities to solve problems and achieve goals.

Priority life skills allow us to see alternative perspectives, respond to changing circumstances, resist automatic impulsive behaviour, think purposefully, and solve problems. Summarising the respondents' answers, we can identify the skills adolescents seek to develop: communication, leadership, self-confidence, ability to control emotions, choice of profession, and development of skills in their hobbies. Analysing the survey results allows us to detail vulnerable adolescents' primary life skills and abilities that need to be developed and shaped. These include understanding emotions, self-regulation skills, leadership development and the ability to accept challenges, reflection,

communication, cognitive flexibility, self-control and self-organisation skills. The formation of life goals, the development of self-confidence, the elimination of gender stereotypes, knowledge of comprehensive sexuality education, the ability to resolve conflict situations with adults and peers, tolerance and empathy, and the desire for cooperation and mutual assistance are also considered necessary.

5 Discussion

Research by modern scholars shows that the prerequisites for the effective development of life skills of adolescents, including vulnerable groups, are ensuring an adequate level of realisation of the right to full-fledged educational and upbringing support, its quality and compliance with the challenges of crisis periods of social development. In some scientific works (Finklestein et al., 2022; Rachmawati et al., 2021), the essential content of adolescents' life skills is based on socio-philosophical, psychological and sociological approaches. At the same time, according to scientists' research, adolescents with higher self-differentiation demonstrated higher individual resilience, and self-efficacy is positioned as the main factor influencing the formation of youth resilience.

Researchers (Wang & Kong, 2020; Ma et al., 2020) emphasise that the problems of developing adolescents' resilience skills require special attention. In this context, the influence of scientific recommendations on the development of communication competence, critical thinking and tolerance is gaining importance. This will intensify the expected results of educational achievements and motivate the need for further research into life resilience to increase its impact on the quality of life skills development processes for adolescents from vulnerable groups.

Hatamizadeh et al. (2020), and Zinn et al. (2020) study adolescents' life skills as complex multidisciplinary socio-psychological formations. The critical determinant of their development is prioritising self-determination, self-worth, and a human-centred humanistic concept of social progress. This happens through unique mechanisms for implementing relationships, ensuring rights, meeting needs, and achieving the common interests of adolescents and the social environment.

Most authors argue that adolescents' development of life skills from vulnerable groups is closely linked to the strategic management of educational processes. At the same time, scientists' conclusions regarding the practical tools for implementing the functions of such dependency are inconsistent.

6 Conclusions

The concept of life design – a continuous process of comprehensive personality development through the formation of life skills – contributes to the actualisation of modern adolescents' quality development of life skills. The identification of the main trends in understanding the essence of life skills as social, communication and adaptation concepts allow us to assert that the basic life skills are manifested in the ability to overcome difficulties, show personal initiative or leadership, communicate and work in a team, adhere to ethics, and use time management skills in practice.

The dynamics of the modern landscape of social life require adolescents to be ready for a new pace of life in an uncertain and dynamic social environment. Adolescents can achieve their goals more quickly if they develop priority life skills. At the same time, activating personal resources stimulates adolescents to develop independence, self-regulation, and research behaviour, which allows them to cope with difficult life situations and promotes creative problem-solving and generates creative ideas during interaction in social groups. The definition of resilience, which allows for adaptation in extreme conditions and effective response to external stimuli, internal reflections and experiences, helps individuals to understand themselves and their desires,

teaches them to develop themselves and strive for the best, which is especially important in adolescence.

The study's results convincingly demonstrate the need to modernise the traditional educational process for adolescents from vulnerable groups in Ukraine. This issue is especially relevant in times of full-scale war. Integrating modern psychological and pedagogical technologies, increasing trust in society, and stimulating psychological practices in this context will significantly increase the resilience of modern adolescents and promote the active development of their life skills.

Literature:

- Anderson, K., & Priebe, S.: Concepts of resilience in adolescent mental health research. *Journal of Adolescent Health*, 2021, 69(5), 689–695. <https://doi.org/10.1016/j.jadohealth.2021.03.035>
- Andreoni, J., Di Girolamo, A., List, J. A., Mackevicius, C., & Samek, A.: Risk preferences of children and adolescents in relation to gender, cognitive skills, soft skills, and executive functions. *Journal of economic behaviour & organisation*, 2020, 179, 729–742. <https://doi.org/10.1016/j.jebo.2019.05.002>
- Arkatova, O. S.: Features of life-resistance of teenagers with different manifestations of tolerance to uncertainty. *Theory and practice of modern psychology: a collection of scientific papers*, 2020, 1(1), 123–128. <https://doi.org/10.32840/2663-6026.2020.1-1.23>
- Basenko, O. E.: Psychosocial preconditions for resilience building in adolescents affected by the armed conflict. *Ukrainian Psychological Journal*, 2019, 2(12), 27–48. [https://doi.org/10.17721/upj.2019.2\(12\).2](https://doi.org/10.17721/upj.2019.2(12).2)
- Dray, J.: Child and adolescent mental health and resilience-focused interventions: A conceptual analysis to inform future research. *International Journal of Environmental Research and Public Health*, 2021, 18(14), 7315. <https://doi.org/10.3390/ijerph18147315>
- Finklestein, M., Pagorek-Eshel, S., & Laufer, A.: Adolescents' individual resilience and its association with security threats, anxiety and family resilience. *Journal of Family Studies*, 2022, 28(3), 1023–1039. <https://doi.org/10.1080/13229400.2020.1778504>
- Hatamizadeh, N., Adibsereshki, N., Kazemnejad, A., & Sajedi, F.: Randomised trial of a resilience intervention on resilience, behavioural strengths and difficulties of mainstreamed adolescent students with hearing loss. *International journal of pediatric otorhinolaryngology*, 2020, 128. <https://doi.org/10.1016/j.ijporl.2019.109722>
- Honchar, L., Derkachova, O., Shakhrai, V., Saienko, V., Hladoshchuk, O., & Voropayeva, T.: Formation of psychological readiness of the teacher to implement information and communication technologies in professional activities. *International Journal of Education and Information Technologies*, 2021, 15(38), 364–371. <https://doi.org/10.1016/10.46300/9109.2021.15.38>
- Kondratiuk, S. M.: Resilience as a resource for overcoming life difficulties in war. *Dnipro Scientific Journal of Public Administration, Psychology, Law*, 2022, (4), 78–83. <https://doi.org/10.51547/ppp.dp.ua/2022.4.11>
- Ma, L., Zhang, Y., Huang, C., & Cui, Z.: Resilience-oriented cognitive behavioural interventions for depressive symptoms in children and adolescents: A meta-analytic review. *Journal of Affective Disorders*, 2020, 270, 150–164. <https://doi.org/10.1016/j.jad.2020.03.051>
- Nechereda, V. B., & Kyrychenko, V. I.: *Adolescents of vulnerable categories: typology and peculiarities of education in general secondary education institutions: methodological manual*. Kropyvnytskyi: Imex-Ltd, 2019. 134 p. <http://surl.li/dkmpb>
- Pinto, T. M., Laurence, P. G., Macedo, C. R., & Macedo, E. C.: Resilience programmes for children and adolescents: a systematic review and meta-analysis. *Frontiers in psychology*, 2021, 12. <https://doi.org/10.3389/fpsyg.2021.754115>
- Prabhu, S.: Resilience Building for Adolescents in Institutions. *Indian Journal of Social Psychiatry*, 2023, 39(2), 110–112. https://doi.org/10.4103/ijsp.ijsp_283_20
- Predko, V. V.: Psychological significance of hardiness for the effective adolescent development in the educational environment. *Habitus*, 2020, (19), 185–189. <https://doi.org/10.32843/2663-5208.2020.19.32>
- Rachmawati, I., Setyosari, P., Handarini, D. M., & Hambali, I. M.: Do social support and self-efficacy correlate with academic resilience among adolescents? *International Journal of Learning and Change*, 2021, 13(1), 49–62. <https://doi.org/10.1504/IJLC.2021.111664>
- Sagone, E., De Caroli, M. E., Falanga, R., & Indiana, M. L.: Resilience and perceived self-efficacy in life skills from early to late adolescence. *International Journal of Adolescence and Youth*, 2020, 25(1), 882–890. <https://doi.org/10.1080/02673843.2020.1771599>
- Shcherban, T. D., & Ternovai, A. V.: Psychological features of resilience formation in adolescents from single-parent families. *Problems of modern psychology*, 2016, 32, 586–600, 591–592.
- Tang, X., Upadyaya, K., & Salmela-Aro, K.: School burnout and psychosocial problems among adolescents: Grit as a resilience factor. *Journal of Adolescence*, 2021, 86, 77–89. <https://doi.org/10.1016/j.adolescence.2020.12.002>
- Ungar, M.: *Working with children and youth with complex needs: 20 skills to build resilience*. Routledge, 2020. <https://doi.org/10.4324/9780429341953>
- Voropayeva, T., Jarvis, M., Boiko, S., Tolchieva, H., & Statsenko, N.: European experience in implementing innovative educational technologies in the training of management specialists: current problems and prospects for improvement. *International Journal of Computer Science and Network Security*, 2022? 22(7), 294–300. <https://doi.org/10.22937/IJCSNS.2022.22.7.35>
- Wang, K., & Kong, F.: Linking trait mindfulness to life satisfaction in adolescents: The mediating role of resilience and self-esteem. *Child Indicators Research*, 2020, 13, 321–335. <https://doi.org/10.1007/s12187-019-09698-4>
- Zinn, M. E., Huntley, E. D., & Keating, D. P.: Resilience in adolescence: Prospective self-moderates the association of early life adversity with externalising problems. *Journal of adolescence*, 2020, 81, 61–72. <https://doi.org/10.1016/j.adolescence.2020.04.004>

Primary Paper Section: A

Secondary Paper Section: AN, AO

EXPLORING THE CREATIVE POTENTIAL OF CHORAL CONDUCTING IN UKRAINE'S MODERN ARTISTIC SCENE

^aLYUDMYLA SHUMSKA, ^bYULIIA PUCHKO-KOLESNYK,
^cLYUDMYLA KOSTENKO, ^dOLEKSANDR VILA-
 BOTSCHAN, ^eOLHA MARTYNOVSKA

^{a,b}*Ukrainian National Tchaikovsky Academy of Music, Kyiv, Ukraine.*

^c*NizhynMykola Gogol State University, Nizhyn, Ukraine.*

^{d,e}*Odessa National A. V. Nezhdanova Academy of Music, Odesa, Ukraine.*

email: ^achoirsvitych@ukr.net, ^bpuchko-kolesnik@ukr.net,

^clusy07@ukr.net, ^davilabotsman@gmail.com,

^eo.martynowskaia@gmail.com

Abstract: The development of sound recording and information and communication technologies leads to expanding opportunities for artistic groups related to the creation and distribution of audio and video content. Introducing information and communication technologies also affects art education, offering new forms of educational process. Ukrainian choral art has a centuries-old tradition, which originates partly from folk singing, the early forms of which were formed in the times of paganism in the 6th to 10th centuries, and partly from the traditions of Orthodox singing, which was borrowed by Ukrainians from Byzantium in the 10th century after the adoption of Christianity. The rapid development of sound recording and information and communication technologies opens up new opportunities for the art of music, which relate to the production and distribution of sound recordings and educational technologies and are currently the subject of research by scholars. The object of our study is contemporary conducting and choral art. The work aims to characterise the latest possibilities of conducting choral art in Ukraine that have emerged in the development of information and communication technologies. The research methodology is based on comparative and structural analysis, including integrated statistics on video views of recordings of choral works performed by choirs and statistics on the use of educational technologies by music educational institutions of Ukraine from open sources. The study showed that recordings made by professional Ukrainian choirs and published on YouTube reach several million views, while student and children's videos reach several hundred thousand views. These figures exceed the possibilities of face-to-face audience engagement to discuss the benefits of modern communication methods for choral art. At the same time, these figures are inferior to those in pop music. The development of distance educational technologies has had a lesser impact on choral art. It is shown that the current capabilities of information and communication technologies are insufficient to ensure ensemble performance due to the unavoidable delay of the digitised signal that occurs when it is transmitted via the Internet, which is why such forms as auditory rehearsals and public concerts remain indispensable in choral art.

Keywords: Vocal and choral culture of Ukraine, National choral art, Artistic space, Chorus, Performance, Modern conducting and choral education.

1 Introduction

The digital era opens up new opportunities for artists and artistic collectives to create musical artefacts and distribute and popularise them among a broad audience. Digital technologies cover opportunities such as digitising cultural heritage, digital sound recording and processing, and disseminating information on the Internet, which provides access to materials from all over the world.

Innovations related to the introduction of digital technologies also affect art education. We are talking about both methods of distance education and the use of certain technologies in classroom lessons. To what extent have Ukrainian choral art mastered modern technologies, and to what extent have they influenced its development at the present stage? These questions became the starting point of our research. Thus, the paper aims to identify the achievements of conducting and choral art in Ukraine against the background of the development of information and communication technologies. This goal implies the following tasks: to analyse the representation of professional and university choirs on the Internet, to identify new opportunities that the development of information and communication technologies opens up for choir directors and modern possibilities for disseminating choral artefacts.

2 Literature review

In general, the study of choral performance can be divided into three broad groups: the basics of conducting, the study of choral repertoire, and the study of innovative opportunities associated with developing digital technologies.

The works of Ukrainian authors on the study of the basics of conducting art are mainly didactic (Lukyanova, 2014; Colleen & Michele, 2014; Puenteadura, 2015; Rampstedt & Johannes, 2019; Puchko-Kolesnyk et al., 2024). They are based on the monographs by Pihrov (1956), Kolessa (1973) and Markhlevskiy (1986), which define the main criteria of high-quality choral performance – intonation, timbre, rhythmic and diction ensemble, reveal methods of learning repertoire with a choir, methods of educating conductors and choral singers. Shumska (2017) and Hryhorieva (2021) are among the most recent didactic works on choral performance. The innovativeness of these works lies mainly in the attempts to describe the process of teaching choral art in the category of the credit-module system adopted in Ukraine. Shumska (2017) defines a module as “a documented, completed part of an educational and professional programme implemented in appropriate forms of the educational process” (p. 9), and suggests that “conducting theory” and conducting individual works should be considered as “modules”. Hryhorieva (2021) proposes a slightly different approach to the division of conducting education into modules – her approach is based on the separation of certain aspects of the conductor's work into separate modules, such as “Fundamentals of Conducting Technique”, “Basic Tacting Schemes”, “Work on a Choral Score”, as well as the allocation of separate modules related to the processing of works written in different musical sizes (three-bar, seven-bar) and different musical forms (large and polyphonic). Some works are devoted to the use of innovative technologies for musicology education; in particular, such areas of their application as “using the Internet is necessary to find the best-performing examples of vocal and conducting skills” and “monitoring the educational process” have been invented (Kravtsova, n.d.; Vasylevska-Skypa & Kravtsova, 2021).

In recent years, musicological studies of the choral repertoire have focused mainly on recently discovered and restored choral works by Ukrainian composers of the seventeenth and eighteenth centuries, mainly on Christian themes, which were banned from performance in Soviet times due to the Soviet authorities' prejudiced attitude towards religion in general and church music genres in particular. Among the most significant monographs are Husarchuk (2019), dedicated to the work of Artemii Vedel, and the collective work *Partes Creativity in Ukraine of the 17th-18th centuries* (2023), which summarises bibliographic and musicological information about manuscripts from the Kyiv collection of party music. This area of work is primarily of practical importance. Namely, it contributes to the replenishment and diversification of the repertoire of Ukrainian choirs and the opening of previously unknown pages of choral music to the world community.

Digital technologies and communications have led to a global shift in artistic discourse (Stephenson & Limbrick, 2015; Teryaeva, 2017; Cook et al., 2019). Digital communications accelerate the exchange of information between artists from different countries, providing them with opportunities to get acquainted with even the most distant countries of the world (Talsik, 2015). According to Kovalenko (2015), this is also true for Ukrainian music culture, which remains largely unknown to the international community.

Much of the work is devoted to the peculiarities of music education in the context of digital technologies. One of the first to draw attention to the need to transform pedagogical approaches in the context of distance technologies was Johnson (2017). A similar conclusion was reached in 2019 by Gorgoretti (2019), who studied the use of technologies in music education at a university in Northern Cyprus. Álvarez (2017) explores the tools available in music education based on quality, stability and freedom of use criteria. Silveira and Gavin (2016) conducted a study in a music school, asking children to listen to audio recordings of their performance at a concert, and investigating the impact of such listening on self-esteem. Yefimenko et al.

(2020) consider the problem through the prism of teacher's competence in the field of information technology, emphasise the importance of using the latest technologies to increase students' interest in studying art and contribute to the development of critical thinking.

The COVID-2019 pandemic and related unprecedented quarantine measures have led to an intensification of the processes of introducing distance education, including music education, which has been reflected in the scientific literature (Georgaki, 2004; Korobka, 2015; Eren & Öztuğ, 2020; Galvan & Clauhs, 2020; Kerry, 2022). Some scholars perceived the new challenges as an incentive for developing and implementing innovative technologies in music education. According to Thorgersen and Mars (2021), innovative technologies will allow "inducing teachers to evaluate their teaching strategies". Lebid et al. (2021) note the possibility of innovative technologies to build an individual educational trajectory, considering students' needs.

According to Krechko (2021b), distance education methods "may be useful for additional theoretical and practical classes, consultations, elements of control of unsupervised activities of students, means of expanding communicative, professional opportunities as well as to encourage the search for new creative solutions to the realisation of an artistic idea". More sceptical is the study by Bondarenko et al. (2023), which shows a predominantly negative perception of distance music education by teachers, a decrease in the motivation of students, the ineffectiveness of quarantine measures. A decrease in efficiency, mainly due to the transition to a more independent practice of teaching students, is noted by Kushnir et al. (2021).

According to Bondarenko (2020), the main technical drawback is the limited capabilities of communication technologies, especially the delay of the sound signal, which is 0.2-0.4 seconds and is critical for ensemble music. This drawback also applies to choral art, which involves the coordinated, time-synchronised performance of a musical piece by dozens of participants. The role of communication technologies in promoting choral art and providing access to choir recordings to a wide range of interested parties remains less studied, which determines the direction of our work.

3 Methodology

The formation and development of socio-cultural trends in the context of globalisation also extend to culture and art, including music. In such circumstances, a comparative structural analysis that defines the principles of the effectiveness of digitalisation in modern industrial society in general and in the field of music in particular is relevant (Lebid et al., 2021).

To implement this method, we collected statistics from open sources reflecting the level of audience coverage and processed the results. The importance of this approach is related to the intensification of the use of social platforms, and especially YouTube, by modern music bands to popularise their work, which was previously focused on by Cheng et al. (2008), Cayari (2011), Bärtl (2018). They consider indicators such as the number of video views, the number of subscribers, and the number of videos on the channel. These indicators make it possible to conclude the active involvement of the collective in the digital communication space and the level of audience interest in certain forms of choral art. The aggregate number of views makes it possible to compare the effectiveness of publishing on the Internet with traditional forms of live performances by concert groups, where the capacity of concert halls limits the number of spectators.

The impact of remote music technologies on choral art, which became especially widespread during the quarantine measures in 2020, which in many countries, including Ukraine, prohibited gatherings, including for rehearsals or concerts, requires a separate analysis. To study this impact, we will also analyse YouTube videos of choirs from the relevant period to study the specific video product published under strict bans.

4 Results

The study shows that modern forms of distributing music content via the Internet are becoming integral to a choir's image and popularity. According to YouTube channels, the most famous choir in Ukraine is the Veriovka Folk Choir, with a total number of views of over 11 million. This group specialises mainly in performing Ukrainian folk music in classical arrangements using the folk style of singing (Skoptsova, 2017). The achievements of other groups can be seen in the following table (Table 1).

Table 1. Popularity of YouTube channels of Ukrainian choirs

Channel	Year of creation channel	Number of followers	Total number of views	Number of videos
Veriovka Folk Choir (@Veriovka)	2012	34.4 thousand	11 million	249
G. Mayborody Bandura Chapel (@Mayborody)	2015	14.9 thousand	4 million	126
Men's choir "Dudaryk" (@DudarykLviv)	2010	3.21 thousand	775 thousand	196
DUMKA Chapel (@dumkachoir)	2011	1.95 thousand	408 thousand	75
Revutsky Male Choir (@revutskykapela)	2008	1.39 thousand	341 thousand	133
Homin Choir (@ChoirHomin)	2011	918	205 thousand	186
P. Maiboroda Ukrainian Radio Choir (@RadioChoir ua)	2014	726	160 thousand	192
Kyiv Chamber Choir (@ChamberChoirKyiv)	2019	871	92 thousand	13
Cherkasy Ukrainian Folk Choir (@cherkasy folk choir)	2018	453	53 thousand	7
Khreschatyk Academic Chamber Choir (@khreschatychoir4384)	2020	597	81 thousand	62

Source: compiled by the authors as of 1 October 2024

Along with professional music groups, choirs from music schools are also creating their own YouTube channels. The Table 2 below shows the performance of educational choirs.

Notably, the leading position in this table is also held by a choir specialising in performing arrangements of Ukrainian folk songs in classical arrangements in a folk style.

Table 2. Popularity of YouTube channels of Ukrainian student choirs

Channel	Year of creation	Number of followers	Total number of views	Number of videos
Stanislav Pavlyuchenko Ukrainian Folk Choir of the Kyiv National University of Culture and Arts (@pavluchenko23)	2021	970	115 thousand	37
The Pochajna Choir (@OfficialChannel of the Pochajna Choir)	2020	556	54 thousand	243
Choir of M. ZankovetskaNizhyn College (@academ choir)	2009	131	54 thousand	82
The Choir of the S. Vorobkevych Chernivtsi College (@KhorChOKMim.S.Vorobkevych)	2013	124	24 thousand	126
Academic choir "Anima" of the Kyiv National University of Culture and Arts (@anima652)	2016	137	22 thousand	44
Student Choir ONMA named A.V. Nezhdanova (@onma_studentchoir)	2021	149	16.5 thousand	66

Source: compiled by the authors as of 1 October 2024

A separate choirs category comprises children's groups working at children's art centres. The Table 3 below shows that the

popularity of the best choirs is not inferior to that of many professional groups.

Table 3. Popularity of YouTube channels of Ukrainian children's choirs

Channel	Year of creation	Number of followers	Total number of views	Number of videos
Vognyk Girls' Choir (@vognykchoir)	2014	699	151 thousand	94
Children's choir "Vesnyanka"	2012	211	83 thousand	80
Children's Choir of Zdomyshel village @Detskykhor.v.Zdomyshel	2021	360	47 thousand	51
Children's choir "Shchedryk" @Children's Choir Shchedryk	2017	47	7 thousand	2

Source: compiled by the authors as of 1 October 2024

The introduction of digital technologies in educational institutions is not limited to the activity of artistic teams on the Internet but covers various areas of activity. The data collected by (Velychko-Semennyk et al., 2022) show that during 2018–

2021, the prevalence of digital technologies in artistic universities in Ukraine has increased significantly and covers the following areas (Table 4).

Table 4. The level of digital infrastructure equipment of music institutions and establishments, %

Technology/year	2018	2021	increase
Access to the Internet	78%	91%	13%
Use of Software	36%	51%	15%
Digital infrastructure	57%	66%	9%
Participation in international events	44%	58%	14%
Distance education	29%	84%	55%
Availability of the subject of "digital directing", "digital vocal synthesis"	34%	41%	7%

Source: compiled according to the data of the Ministry of Digital Transformation of Ukraine

The most noticeable growth was in distance education – 84% of artistic institutions used distance education in some form. For choral performance, the use of distance education has proved to be the most significant challenge due to the specifics of choral performance as a collective art. According to Bondarenko (2020), the delay resulting from digital data transmission corresponds to the eighth beat in the Allegro tempo, which leads to an imbalance in the rhythmic ensemble. Moreover, even at slower tempos, a one-beat delay may be less noticeable when performing music with long durations. However, it will affect the diction ensemble, which requires much finer sensitivity.

- choice of repertoire;
- preparation of methodological instructions by the conductor on the peculiarities of the interpretation of the selected work;
- the conductor records a video of himself conducting the selected piece;
- individual study of the score by each of the performers, taking into account the conductor's methodological instructions and video recordings of the conducting;
- video recording by performers

A study of the video content of Ukrainian choirs in 2020 indicates the spread of a specific genre of remote choral performance videos. The training technique was pioneered by Eric Whitacre and inspired many choir directors, primarily in educational institutions. The study of experience allows us to identify the methods of preparing such videos and to identify the following stages of work:

Remote choral performance was quite widely used in Ukraine in 2020, as evidenced, in particular, by publications by teachers of the Kyiv National University of Culture (Krechko, 2021a), Khmelnytskyi Humanitarian and Pedagogical Academy (Kachurnets, 2020), Sumy (Karpenko & Kramaska, 2021), and KryvyiRih (Kokarieva, 2022) music colleges.

As an example of such a performance published on YouTube, we will cite the publication of the ANIMA academic choir "M. Skoryk "Melody" online", performed in April 2020, which received more than 1,500 views. Even though this figure is higher than most of the choir's publications made in the usual ensemble way, with the lifting of bans on classroom education, the activity of remote choral music-making has faded, and the choirs have returned to the practice of traditional classroom rehearsals and concert performances.

5 Discussion

A comparison of the popularity of Ukrainian choirs with similar indicators of pop singers and pop bands shows that choral performance is less popular than modern forms of pop culture. For example, the channel of the Ukrainian pop band Okean Elzy (@okeanelzyofficial) has over 730 million views, the channel of the pop singer Dzidzio (@dzidzio) has 665 million views, and Alyona Alyona (@alyonaalyona) has 250 million views. These figures provoke a discussion about whether choral art can continue to be considered part of mainstream culture, or whether we should instead talk about its transition to an elite, niche culture.

A similar question will arise when analysing the achievements of symphony orchestras, whose performance, at least on the YouTube platform, is inferior to that of choral groups.

Finally, the impact of the Russian Federation's aggressive military actions starting in 2022 on Ukraine's choral art will soon require a separate study.

6 Conclusion

Currently, the creative possibilities of choral ensembles have been expanded through the use of recording technologies and internet communication technologies. Traditional possibilities of live public performances are thus complemented by the ability to produce audio and video recordings, which can then be distributed via the Internet. The tables show that the Internet allows choral ensembles to reach audiences of several million people, equivalent to holding several thousand concerts in large halls with an audience of up to 1,000.

The experience of 2020, when during the COVID-19 pandemic, many governments banned public gatherings, including classroom education and concert events, demonstrated that using digital technologies allowed choral art to survive such strict prohibitions through the ability to remotely prepare video recordings. At the same time, the lifting of restrictions in 2021–2022 showed that live, traditional ensemble-based recording preparation remains a priority for all groups, and thus, the technology of remote recordings can be considered significantly inferior to traditional forms of choral performance in terms of possibilities.

Literature:

1. Álvarez, M. R.: Tecnología al servicio de la educación musical. *Revista Española de Pedagogía*, 2017,75(268), 481–495. <https://doi.org/10.22550/REP75-3-2017-09>
2. Bärtl, M.: YouTube channels, uploads and views: A statistical analysis of the past 10 years. *Convergence*, 2018, 24(1), 16–32. <https://doi.org/10.1177/1354856517736979>
3. Bondarenko, A.: Distance Education for Musicians-Performers: Problems and Perspectives. *Image of a modern teacher*, 2020, 3(192), 69–72. [https://doi.org/10.33272/2522-9729-2020-3\(192\)-69-72](https://doi.org/10.33272/2522-9729-2020-3(192)-69-72)
4. Bondarenko, A., Humeniuk, T., Romanenko, A., Makarenko, L., & Lysenko, L.: The Impact of the COVID-19 Pandemic on Music Education in Ukraine. *Fontes Artis Musicae*, 2023, 70, 244–262. <https://doi.org/10.1353/fa.m.2023.a909191>
5. Cayari, C.: The YouTube effect: How YouTube has provided new ways to consume, create, and share music. *International Journal of Education & the Arts*, 2011, 12(6). <http://www.ijea.org/v12n6/>
6. Cheng, X., Dale, C., & Liu, J.: Statistics and Social Network of YouTube Videos. In *2008 16th International Workshop on Quality of Service, Enschede, Netherlands*, 2008, (pp. 229–238). Enschede, Netherlands. <https://doi.org/10.1109/IWQOS.2008.32>
7. Colleen, P., & Michele, H. L.: The Effects of Technology on the Sight-Reading Achievement of Beginning Choir Students. *Texas Music Education Research*, 2014, pp. 23–28. <https://eric.ed.gov/?id=EJ1102254>
8. Cook, N., Ingalls, M. M., & Trippett, D.: *The Cambridge Companion to Music in Digital Culture*. Cambridge: Cambridge University Press, 2019, (pp. 5–28). <https://doi.org/10.1017/9781316676639>
9. Eren, H. C., & Öztuğ, E. K.: The implementation of virtual choir recordings during distance learning. *Cypriot Journal of Educational Science*, 2020, 15(5), 1117–1127. <https://doi.org/10.18844/cjes.v15i5.5159>
10. Galvan, J., & Clauhs, M.: The Virtual Choir as Collaboration. *Choral Journal*, 2020, 61, 8–18.
11. Georgaki, A.: Trends on the synthesis of the singing voice: technical problems and perspectives. *International Computer Music Conference*. November 2004. http://scholar.uoa.gr/sites/default/files/georgaki/files/19_2004-trends_on_the_synthesis_of_the_singing_voice_icmc.pdf
12. Gorgoretti, B.: According to student music teachers, the use of technology in music education in North Cyprus. *South African Journal of Education*, 2019, 39(1), 1–10. <https://doi.org/10.15700/saje.v39n1a1436>
13. Husarchuk, T. V.: *ArtemiyVedel: The artist's figure in the context of the epochs* (O. L. Rud, Ed.). Kyiv: Musical Ukraine, 2019.
14. Johnson, C.: Teaching music online: Changing pedagogical approach when moving to the online environment. *London Review of Education*, 2017, 15(3), 339–456. <https://doi.org/10.18546/LRE.15.3.08>
15. Kachurynets, L.: Virtual choir as a necessary pedagogical experience. *Current questions of humanitarian science*, 2020, 34(3), 211–218.
16. Karpenko, Y., & Kramaska, S.: Study of choral conducting in the conditions of distance education. *Pedagogical sciences: theory, history, innovative technologies*, 2021, 1(105), 402–414.
17. Kerry, V. J.: "The Birth of the Virtual Choir": Exploring the multimodal realisation of the Covid-19 liminal space in a YouTube virtual choir performance. *Multimodality & Society*, 2022, 2(2), 141–164. <https://doi.org/10.1177/26349795221086882>
18. Kokarieva, E.: Features of choral conducting classes in distance learning conditions. *Scientific notes. Series: Pedagogical Sciences*, 2022, 204, 143–149.
19. Kolessa, M.: *Fundamentals of conducting*. Kyiv: Musical Ukraine, 1973.
20. Korobka, T.: *In the air of the Ukrainian Radio choir*. Kyiv: Musical Ukraine, 2015.
21. Kovalenko, A. N.: On the use of DAW in informal adult education [online]. In V. Bykov (Ed.), *Proceedings of III a nationwide scientific conference of young scientists "Scientific Youth 2015" by the Society*. Kyiv: IITLT NAES Ukraine, 2015. <http://lib.iitta.gov.ua>
22. Kravtsova, Nataliia. (n.d.). scholar.google.com.ua. <https://scholar.google.com.ua/citations?hl=uk&user=A5bcrxYAAAAAJ>
23. Krechko, N.: Information and communication distance technologies in music educational practice. *Bulletin of KNUKiM. Series in Arts*, 2021a, 45, 100–106.
24. Krechko, N. M.: Online performances of choral groups: Role and significance in the educational process. *Innovative Pedagogy*, 2021b, 2(33), 150–153. <https://doi.org/10.32843/2663-6085/2021/33-2.29>
25. Kushnir, K., Bilozerska, H., Sidorova, I., Kravtsova, N., & Kostenko, L.: Integrated professional training of the music teacher by means of innovative artistic and pedagogical technologies. *LaplageemRevista*, 2021, 7(1), 543–551. <https://doi.org/10.24115/S2446-6220202171855p.543-551>
26. Lebid, Y., Sinelnikova, V., Pistunova, T., Tormakhova, V., Popova, A., & Sinenko, O.: Organisation of Qualitative Education of Music Students in the Conditions of Distance Education. *Postmodern Openings*, 2021, 12(Sup1), 76–93. <https://doi.org/10.18662/po/12.3Sup1/352>

27. Lukyanova, L.: *Adult education: a brief terminological dictionary*. Kyiv: Nizhyn: Publisher Lysenko M. M., 2014.
28. Markhlevskiy, A.: *Practical foundations of working in the choral class*. Kyiv: Musical Ukraine, 1986.
29. Ministry of Digital Transformation of Ukraine. <https://thedigital.gov.ua/>
30. Partes creativity in Ukraine of the 17th-18th centuries (according to the catalogue by N. O. Herasymova-Persydska). Eds: L. H. Rudenko, E. S. Klymenko; NAS of Ukraine, V. I. Vernadskyi National Library of Ukraine; General Editors: L. V. Ivchenko, O. P. Stepchenko. Kyiv: NBUV, 2023.
31. Pihrov, K.: *Choral management*. Kyiv: Musical Ukraine, 1956.
32. Puchko-Kolesnyk, Y., Skoryk, A., Shumska, L., Shevchuk, I., & Antipina, I.: Performance style of a contemporary choral conductor in the context of the current artistic space: from rehearsal to media presentation. *Ad Alta*, 2024, 14(1), XXXIX, 185–188. <https://doi.org/10.3354/3/140139185188>
33. Puentedura, R. R.: SAMR: A brief introduction [Blog post], 2015. http://hippasus.com/trpweblog/archives/2015/10/SAMR_ABriefIntro.pdf
34. Rampstedt, K., & Johannes, B.: From Audio Broadcasting to Video Streaming: The Impact of Digitalisation on Music Broadcasting among the Swedish-Speaking Minority of Finland. *Journal of European Popular Culture*, 2019, 10(2), 145–159. https://doi.org/10.1386/jepc_00006_1
35. Silveira, J. M., & Gavin, R.: The effects of audio recording and playback on self-assessment among secondary school instrumental music students. *Psychology of Music*, 2016, 44(4), 880–892. <https://doi.org/10.1177/0305735615596375>
36. Skoptsova, O.: Innovative activity of H. Verovka as the founder of professional folk choir performance in Ukraine. *A young scientist*, 2017, (11), 670–673.
37. Stephenson, J., & Limbrick, L.: A Review of the Use of Touch-Screen Mobile Devices by People with Developmental Disabilities. *Journal of autism and developmental disorders*, 2015, 45(12), 3777–3791. <https://doi.org/10.1007/s10803-013-1878-8>
38. Talsik, E.: The investigation of readiness for e-learning of pre-service music teachers in Turkey. *Anthropologist*, 2015, 21(1-2), 263–270. <https://doi.org/10.1080/09720073.2015.11891815>
39. Teryaeva, L.: Formation of methodological competence of college students' fir choral competence of college students for choral conducting classes. In G. Gubarev (Ed.), *Modernisation of the content of professional education – The condition of training a competent specialist of a new form: a collection of conference materials*, 2017, (pp. 212–215). Zhytomyr: Ed. O. O. Evenok (in Ukrainian).
40. Thorgersen, K. A., & Mars, A.: A pandemic as the mother of invention? Collegial online collaboration to cope with the COVID-19 pandemic. *Music Education Research*, 2021, 23(2), 225–240. <https://doi.org/10.1080/14613808.2021.1906216>
41. Vasylevska-Skypa, L., & Kravtsova, N.: Introduction of innovative technologies into the system of vocal and choral training of future teachers of music art. *Modern Information Technologies and Innovation Methodologies of Education in Professional Training Methodology Theory Experience Problems*, 2021, 45, 154–158. <https://vspu.net/sit/index.php/sit/article/view/2622>
42. Velychko-Semennyk, Z., Velychko, N., Bondarenko, A., Kyrylenko, Y., & Shumska, L.: Development of Ukrainian choral art in conditions of digitalisation. *Amazonia Investiga*, 2022, 11(58), 151–160. <https://doi.org/10.34069/AI/2022.58.10.16>
43. Yefimenko, I. V., Yakymchuk, O. M., & Kravtsova, N. Ye., Sotska, H. I., & Korol, A. M.: Modern innovative pedagogical technologies in art education. *Universal Journal of Educational Research*, 2020, 8(11D), 56–62. <https://doi.org/10.13189/ujer.2020.082407>

Primary Paper Section: A

Secondary Paper Section: AL, AM

EXPLORING THE ROLE OF UKRAINIAN FOLK ELEMENTS IN MODERN CLASSICAL MUSIC: CURRENT TRENDS AND FUTURE DIRECTIONS

^aKATERYNA ONYSHCHENKO, ^bNASSIB RADWAN,
^cTARAS KMETIUK, ^dNATALIIA TOLOSHNIAK,
^eIHOR DEMIANETS

^a*Communal Institution of Higher Education "Academy of Culture and Arts" of the Zakarpattia Regional Council, Uzhhorod, Ukraine.*

^b*Sohar University, Sohar, Oman.*

^{c,d,e}*King Danylo University, Ivano-Frankivsk, Ukraine.*

email: ^a*k.onyschenko77@gmail.com,*

^b*naseebradwan@gmail.com,* ^c*kmetiuk.taras@ukr.net,*

^d*nataliia.toloshniak@ukd.edu.ua,* ^e*ihor.demianets@ukr.edu.ua*

Abstract: Interest in folk art is one of the most complex issues in today's globalised world, driven by market mechanisms and economic interests. At the same time, art cannot avoid the existential questions of existence and identity, which are especially relevant in countries that face the threat of external aggression, as happened to Ukraine in the 2020s. This fully applies to musical folklore, which does not lose its attractiveness for modern classical composers. The subject of our study is the use of Ukrainian folklore in composers' works of the early twenty-first century. The aim of the work is to investigate the nature of the use of folk motifs in works of contemporary symphonic, chamber instrumental and electronic music. The chronological framework of the study is 2000–2024. Conclusion. The article analyses the works of 12 Ukrainian composers written in Contemporary classical music traditions, including melodies of Ukrainian folk songs. It is shown that Ukrainian melodies are used in various contexts – experimental electronic sounds, atonal and aleatoric orchestral sounds, jazz harmony, and the dramatic and semantic centre of a symphonic work. Although the problem of preserving folklore is relevant for many countries in the world in the context of contemporary globalisation, it is Ukrainian folklore that shows the most extraordinary vitality and ability to adapt in the context of contemporary art.

Keywords: postmodern, folk revival, Ukrainian music, Contemporary classical music

1 Introduction

Interest in folk art remains relevant in today's globalised world, especially in countries that have experienced colonial oppression in the past or are under threat of intervention. One such country is Ukraine, which gained independence only in 1991 and has faced the threat of destruction by the Russian Federation since 2014.

In such circumstances, artists' appeal to folklore has a profound basis in aesthetics and socio-politics. It is connected with the desire to preserve national identity against external threats (Moore, 2011). Musical art has a wide range of possibilities for incorporating recognisable elements of folk art, broadcasting and demonstrating them to the general public, which makes it possible to use musical art as a specific tool of cultural diplomacy – conveying to the world the idea of the self-worth of each nation, the right of peoples to self-determination and the right to protection from aggressive encroachments by other countries.

How can elements of folk art be incorporated into contemporary academic music, which is characterised by a complex musical language, using the latest compositional techniques and multimedia technologies? Does folklore lose its recognisable features when integrated into a modern orchestral or electronic score? These questions became the starting point of our research.

2 Analysis of recent studies and publications

The interest of musicologists in the study of folklore motifs in classical and later modern classical music is associated with the concept of "Nationalism in Music", which covers a range of phenomena associated with political independence movements and was characterised by an emphasis on national musical elements such as the use of folk songs, folk dances or rhythms, or on the adoption of nationalist themes for operas, symphonic poems, or other forms of music (Liasenko, 1991; Kennedy, 2006).

In Ukraine, the concept of "nationalism in music" was first comprehended by Lyudkevych (1999), although the term

nationalism itself was not widely used due to excessive political connotations. In his monograph, Liashenko (1991) examines the influence of folklore through the prism of the dialectic of the national and the international, which means that "the national always carries the charge of the outgrowth of its local-ethnic thoughts", and "the international, in turn, is not "near", "above" or "below", but within the national" (Liashenko, 1991, p. 15). We consider the fundamental work in this direction to be the work of Kozarenko (2000), in which the phenomenon of national musical language as a distinctive feature of composer's creativity was first substantiated.

In recent years, we have seen an increase in the interest of Ukrainian researchers in folklore topics, which is to some extent related to foreign policy factors, namely the aggression of the Russian Federation. In particular, Tormakhova (2017) and Tkach (2020) study folklore trends in Ukrainian pop music, Chabanenko (2019) explores folklore motifs in choral and symphonic music, Bondarenko (2021a) in contemporary electronic music, and some works are devoted to the works of Ukrainian composers who have addressed Ukrainian folklore, in particular, L. Kolodub (Makarenko, 2014, 2015) and H. Liashenko (Markova, 2007).

In European countries, interest in folklore remains relatively modest, with the culture of Eastern Europe – Bulgaria (Draganova, 2002), Poland (Nidecka, 2015), Czech Republic (Kouba, 2015), Romania (Vlad, 2013), and Slovenia (Kovačič & Šivic, 2023) – being more represented. Instead, in Western European countries, in the context of globalisation, researchers are forced to defend the right to use the terms and concepts of 'traditional music' (Morgenstern, 2021).

At the same time, studies of the musical folklore of Asian peoples in the context of its influence on contemporary music are worthy of attention, in particular in Kazakhstan (Mukhitdenova, 2016; Zhussupov et al., 2024) and China (Lei, 2024). In recent years, the musical folklore of African countries in modern interpretations has also become the subject of research, particularly in Zimbabwe (Muparutsa, 2013) and South Africa (Izu, 2022; Yende, 2023). However, the studies mentioned above focus more on popular than academic music.

Most researchers agree that folk art is a source of indigenous knowledge systems as exuded through societal norms, values, and cultural belief systems (Mauwa, 2020). In developed countries, the aesthetics of attitudes towards folklore "has begun to mutate" (Moor, 2011), and the number of folklore ensembles has been rapidly declining over the twentieth century (Morgenstern, 2017). Folklore remains relevant mainly among "older, less-educated, religious, politically right-leaning people in the countryside" (Stanković & Bobnić, 2022). Contemporary culture leaves virtually no room for folk music in its original form, and therefore, in order to maintain its attractiveness, traditional music has been fused into modern genres as a strategy to remain commercially relevant (Caleb, 2020). The nature of such fusions in academic music became the starting point of our research.

3 Research methods

To collect information about contemporary Ukrainian works of academic music, the programmes of the KyivMusicFest music festivals, which traditionally perform premiere works by Ukrainian composers, and concert programmes of philharmonic societies in the largest cities of Ukraine were analysed. In order to identify trends and study the influence of folk motifs on academic music, a set of musicological methods was applied, including formative, melodic, harmonic and performance analysis of musical works, which allows us to identify the immanent features of musical folklore reflected in symphonic, choral and electronic works by contemporary composers. In

addition, the study of performance techniques used by performers of contemporary academic music and their comparison with the performance techniques of folk music also allows us to identify common approaches that give grounds to speak of folklore influences in contemporary academic music. The study's results were summarised in a table, indicating the authors, date of composition, genre of the work and the nature of musical folklore. The timeframe of the study is from 2000 to 2024.

4 Results

The role of folk motifs in composing has been a subject of considerable interest to European artists since at least the late nineteenth century. It is associated with the emergence of national schools in countries where secular musical culture developed in the European traditions and church culture - within the canons of the Catholic or Orthodox Church. It is in this context that the national schools of Poland (F. Chopin, S. Moniuszko), Ukraine (M. Lysenko), and Hungary (F. Liszt) developed in Eastern Europe, characterised by the implementation of intonational models of musical folklore in secular genres of European music, such as opera, symphony, instrumental and vocal miniatures.

The modern stylistic trends of the twentieth century introduced new approaches to musical fabric's rhythmic and harmonic organisation, which encouraged artists to search for new approaches to working with folklore material. This period was characterised by the development of neofolklorism, a trend that

combined folk melodies with innovative elements of the musical language of the modern era. The neofolklorism of the first half of the twentieth century is mainly associated with the use of "songs of archaic folklore origin, which were developed based on repetition and variation, often with blurring the contours of the folklore theme" (Derevianchenko, 2005). Among the representatives of this trend are B. Bartok and I. Stravinsky, and partly the early works of B. Lyatoshynsky and W. Lutosławski.

The second folklore wave, associated with the postmodern era, is characterised by "a bolder use of folklore in its 'pure', 'pristine' form, along with the latest means of expression" (Bondarenko, 2021b). A characteristic compositional technique is ethnophrasms, defined as "the timbre and sound aspect of folk instrumentation" (Broiako, 2020) for instrumental music or the use of folk singing styles (Bondarenko, 2021b) for vocal music. Referring to folklore motifs in this period is seen as "opposition to cultural assimilation and globalisation" (Marchun, 2024) and "acquires the features of genre-style and semantic duality" (Zlotnik, 2018).

The following table presents the list of the most relevant works with folk motifs. The table is limited to the period 2000–2024. Works in the genres of folk song arrangements and music written for Ukrainian folk instruments are not included; only independent compositions in the traditions of academic music that were performed in public and written for choirs, symphony orchestras, and chamber and instrumental ensembles are included.

Table 1. Works by contemporary Ukrainian composers 2000–2024 based on folklore

Composers	Work, Year	Genre	Folk elements present in a work
Lev Kolodub	Seven Ukrainian Folk Songs (2000)	Symphonic cycle	use of folk song melodies
Lev Kolodub	Symphony No. 8 "Pryluky" (2003)	Symphony	melody of folk songs
Yevhen Stankovych	Sounds of a Sad Dream (2005)	for cello and chamber orchestra	imitation of the sounds of folk instruments (drumming)
Oleksandr Shymko	"Chosen of the Sun"	ballet	melodies of folk songs and dances, in some numbers singing in a folk style is used
Sergiy Yarunsky	"Viy" – mystery-buff No. 2 (2009)	piano solo	folk song "Oh, there is a dream" combined with aleatoric music
Alla Zahaikevych	Nord/Ouest (2011)	Electroacoustic	the use of authentic singing combined with electronic sound
Volodymyr Runchak	An excursion into Ukrainian off-colour humour on texts of Ukrainian folk songs (2015)	Choir	a theatrical work based on the plot and melody of the song "Oh in the Cherry Orchard".
Zoltan Almashi	Quartet "Carols" (2014)	String quartet	Melodies of Ukrainian carols were used
Alla Zahaikevych	Friend Li Po (2015)	Live electronics (versions for Bandura and Guzhen).	folk instruments (Bandura or Guzhen) with electronic audio processing
Hanna Havrylets	"The Winds Are Blowing" (2018)	Oratorio, for a capella choir	folk songs combined with drums
Bohdan Kryvopust	"Songs from the Ancient World" (2018)	For soprano and chamber orchestra	Melodies of archaic folk songs with orchestral accompaniment, mostly in atonal form
Volodymyr Runchak	Folk – concerto No. 2 for percussion quartet (2019)	Ensemble	The folk instrument used is the drybma, a fretted instrument based on Carpathian folklore
Andriy Bondarenko	Ukrainian folk songs (2018–2020)	Piano solo	melodies of folk songs arranged with the use of modern harmonic means
Ivan Taranenko	Fusionfonia (2002)	Symphony	folk vocals are combined with jazz motifs in the orchestra and some folk songs
Ivan Nebesnyy	Shadows of Forgotten Ancestors (2023)	Ballet	Ladotonic features of Carpathian folklore in a symphonic setting
Olena Ilnytska	To Victory (2023)	Symphony	The song "Plyve Kacha" was used

Source: compiled by the author

The provided table is not exhaustive. In addition to the mentioned works, it is worth mentioning a large number of folk song arrangements for choirs (composers such as Hanna Havrylets, Yevhen Petrychenko, Nadiia Kurinna, Hanna Khazova, and others), for a trio of bandura players (Viktor

Stepurko, Lesia Dychko), for piano four-hands or two hands (Maksym Kanke), and others. These works are performed at festivals such as Kyiv Music Fest, Two Days and Two Nights of New Music, and Contrasts, among others, and are also included in educational repertoires.

Pop music performers partly adopt the experience of working with folk motifs accumulated by academic composers. This refers to the possibilities of modern harmonisation, expanding instrumental composition, and using changing time signatures, which are generally not characteristic of pop music but are typical of certain genres of Ukrainian music and modern contemporary music in general.

It is also worth noting that the course on musical folklore is one of the mandatory disciplines taught in music education institutions in Ukraine at composition faculties. The discipline includes mastering folklore theory, becoming familiar with various genres of Ukrainian musical folklore, and several practical tasks in notating folk melodies. Thus, composers already gain experience studying musical folklore during their education at music academies (universities) and approach their professional careers with sufficient skill sets and expertise.

5 Discussion

The table above shows that Ukrainian folklore is relevant as a source of inspiration for many composers of both older and younger generations. In some cases, the authors try to use not only the melody of the folk song itself but also the manner of its performance (for example, in the works by A. Zahaikevych Nord/Ouest, O. Shymko's Chosen of the Sun). In most cases, we can observe a complex stylistic interaction between folklore material and modern methods of composing, in particular, the means of experimental electronic music (A. Zahaikevych), avant-garde techniques (B. Kryvopust, V. Runchak, S. Yarunsky), postmodern allusions and games (V. Runchak), elements of jazz stylistics (I. Taranenko, A. Bondarenko, partly O. Shymko). Particularly noteworthy is the inclusion of the song "Plyve kacha po Tysyne" (A Duckling Swims in the Tisza) in O. Ilnytska's compositions, where it performs an essential dramatic and semantic function – in Ukraine, this song is traditionally performed during the commemoration of the fallen Ukrainian soldiers in the fight against the Russian aggressor. Hence, its inclusion creates a thematic link to the events of the current Russian-Ukrainian war.

6 Conclusion

It is shown that the Ukrainian song occupies a significant place in the work of contemporary composers, both older and younger generations. Folk songs often combine atonal composing techniques, electronic sound, and jazz harmony. In some cases, using folk songs in the context of avant-garde sounds adds a semantic load that refers to current events. Compared to the folklore of other nations, Ukrainian folklore is the most represented in contemporary academic music, both in quantity and quality.

Literature:

1. Bondarenko, A.: Electronic music in Ukraine at the beginning of the XX century and the beginning of the XXI century. *Dissertation ... for the degree of candidate of art studies*. Kyiv: KNUKiM, 2021a.
2. Bondarenko, A.: Ukrainian electronic music in globalisation and national revival. *Scientific Journal of Polonia University*, 2021b, 43(6), 9–15. <https://doi.org/10.23856/4301>
3. Broiako, N.: E. Stankovych's "Symnoi drimbi zvyki" in the aspect of embodiment of the neofolkloristic tendencies. *Music Art and Culture*, 2020, 1(30), 19–24. <https://doi.org/10.31723/2524-0447-2020-30-1-3>
4. Caleb, M.: Influence of traditional musics in modern genres. 2020. https://www.researchgate.net/publication/343481008_influence_of_traditional_musics_in_modern_genres
5. Chabanenko, N.: Neofolklorism as a stylistic direction in the composer's creativity of the 20th century. *Culture and Modernity*, 2019, 2, 137–141. <https://doi.org/10.32461/2226-0285.2.2019.190624>
6. Derevianchenko, O.: Neo-folklorism in musical art: statistics and dynamics of development in the late 20th century.

Abstract of dissertation ... for the degree of candidate of arts: 17.00.03. National Music Academy of Ukraine named after P. I. Tchaikovsky. Kyiv, 2005.

7. Draganova, A.: Folktron: Folklore Influences in Contemporary Bulgarian Popular Music. In Margaret Hiebert Beissinger (ed.), *The Oxford Handbook of Slavic and East European Folklore*. Online edn. Oxford Academic, 21 June 2022. <https://doi.org/10.1093/oxfordhb/9780190080778.013.34>
8. Izu, B. O., & de Villiers, A.: The functional role of traditional music and dance in Xhosa traditional healers' ceremonial rites. *E-Journal of Humanities, Arts and Social Sciences*, 2022, 3(13), art. 6, 716–729. <https://doi.org/10.3815/9/ehass.20223136>
9. Kennedy, M.: "Nationalism in Music". The Oxford Dictionary of Music, second edition, revised, Joyce Bourne Kennedy, associate editor. Oxford and New York: Oxford University Press, 2006. <https://doi.org/10.1093/acref/9780199203833.001.0001>
10. Kouba, V.: "Our song!" Nationalism in folk music research and revival in socialist Czechoslovakia. *Studia Musicologica Academiae Scientiarum Hungaricae*, 2015, 56(4), 397–405. <https://doi.org/10.1556/6.2015.56.4.7>
11. Kovačić, M., & Šivic, U.: Migracije nacionalizacije glasbe: Od ljudske k narodnozabavni. *Two Homelands*, 2023, (2). <https://doi.org/10.3986/dd.2023.2.06>
12. Kozarenko, O.: *The phenomenon of Ukrainian national musical language*. Lviv, 2000.
13. Lei, L.: The latest technological developments in Chinese music education: Motifs of national musical culture and folklore in modern electronic music. *Education and Information Technologies*, 2024, 29, 10595–10610. <https://doi.org/10.1007/s10639-023-12227-0>
14. Liasenko, I.: *National and international in music*. Kyiv: Naukova Dumka, 1991.
15. Lyudkevych, S.: Nationalism in music. In S. Lyudkevych, *Research, articles, reviews, performances*, 1, 35–52. Edited, with introduction, translation, and commentary by Z. Shtunder. Lviv: Dyvosvit, 1999.
16. Makarenko, L. P.: Features of musicological analysis of the folklore foundations of the author's style in domestic orchestral music (on the example of L. Kolodub's work). *Culture of Ukraine*, 2014, 47, 230–237.
17. Makarenko, L. P.: *Folklore foundations of the orchestral works of Lev Kolodub: A textbook*. Vinnytsia: Nova Knyha, 2015.
18. Marchun, O.: Folk revival as a means of expressing identity and promoting folk motives. *Modern Engineering and Innovative Technologies*, 2024, 4(32-04), 92–99. <https://doi.org/10.30890/2567-5273.2024-32-00-094>
19. Markova, O.: The concept of national in music I. Lukashenko in conditions of development of modern performance musicology. *Educational Dimension*, 2007, 18(1), 258–267. <https://doi.org/10.31812/educdim.5937>
20. Mauwa, C.: Influence of traditional musics in modern genres. *Researchgate*, August, 2020. https://www.researchgate.net/publication/343481008_influence_of_traditional_musics_in_modern_genres
21. Moore, A.: The end of the revival: the folk aesthetic and its 'mutation'. *Popular Music History*, 2011, 4(3), 289–307. <https://doi.org/10.1558/pomh.v4i3.289>
22. Morgenstern, U.: Imagining Social Space and History in European Folk Music Revivals and Volksmusikpflege. The Politics of Instrumentation. In: Ardian Ahmedaja (Hg.). *European Voices III. The Instrumentation and Instrumentalisation of Sound. Local Multipart Music Cultures and Politics in Europe*, 2017, pp. 207–232. Wien: Böhlau.
23. Morgenstern, U.: In defence of the term and concept of traditional music. *Musicologist*, 2021, 5(1), 1–30. <https://doi.org/10.33906/musicologist.913512>
24. Mukhitdenova, B. M.: Traditional folk, vocal, and professional songs as the basis for development and modernisation of the new forms of Kazakh musical stage. *IEJME – Mathematics Education*, 2016, 11(9), 3203–3219.
25. Muparutsa, T.: Transformations in Zimbabwean Traditional Music of North America. Doctoral Thesis. Edmonton, Alberta: University of Alberta, 2013. <https://doi.org/10.14418/wes01.2.188>

26. Nidecka, E.: Folklor we wczesnej twórczości fortepianowej Witolda Lutosławskiego. *Studia Artystyczne*, 2015, 3, 109–114.
27. Stanković, P., & Bobnič, R.: *Občinstva sodobne slovenske narodnozabavne glasbe v kulturološki perspektivi. Družboslovne razprave*, 2022, 38(100), 131–162. <https://doi.org/10.51936/dr.38.100.131-162> (in Slovenian)
28. Tkach, A.: The revival of folklore in the modern space of Ukrainians. *Musical Art*, 2020, 37, 134–138. <https://doi.org/10.32461/2226-2180.37.2020.221784>
29. Tormakhova, V. M.: *Ukrainian pop music and folklore: Interpenetration and synthesis: monograph*. Kyiv: Lira-K, 2017.
30. Vlad, C. A.: Elements of traditional folk music and serialism in the piano music of Cornel Tăraanu. *Revista de Științe Sociale*, 2013, 4(1), 45–55.
31. Yende, S. J.: Challenges experienced by South African indigenous musicians: A critical discourse analysis. *E-Journal of Humanities, Arts and Social Sciences*, 2023, 4(11), art. 8, 1404–1414. <https://doi.org/10.38159/ejass.20234118>
32. Zhussupov, N., Baratova, M., Zhussupova, G., Zhussupov, Ye., & Mukusheva K.: Features of collecting Kazakh folklore and methods of collecting folklore of the first half of the XX century. *Scientific Herald of Uzhhorod University. Series "Physics"*, 2024, (56), 833–843. <https://doi.org/10.54919/physics/56.2024.84goe3>
33. Zlotnik, O.: The intertextual system "composer-folklore". *Kyiv Musicology*, 2018, (57), 243–253. <https://doi.org/10.33643/kmus.2018.57.21>

Primary Paper Section: A

Secondary Paper Section: AJ, AL

FEMINATIVES IN THE OFFICIAL AND BUSINESS STYLE OF CONTEMPORARY UKRAINIAN LITERARY LANGUAGE: OFFICIAL AND SEMI-OFFICIAL PRACTICE

^aGALYNA SIUTA, ^bNADIYA BOBUKH,

^cLARYSA KOZLOVSKA, ^dIRYNA HOTSYNETS,

^eLILIYA SOBOL

^a*Institute of the Ukrainian Language of the National Academy of Sciences of Ukraine, Kyiv, Ukraine.*

^b*Ukoopspilka "Poltava University of Economics and Trade", Poltava, Ukraine.*

^c*Kyiv National Economic University named after Vadym Hetman, Kyiv, Ukraine.*

^{d,e}*Drohobych Ivan Franko State Pedagogical University, Drohobych, Ukraine.*

email: ^asiutagalina@gmail.com, ^bbobukh2017@gmail.com,

^clarysa26@ukr.net, ^dhotsynets@ukr.net, ^elilia.sobol@gmail.com

Abstract: The study of feminatives in the official and business style of the contemporary Ukrainian literary language is relevant in light of changing social norms and language practices in the context of gender equality. A range of methods were used in the study to comprehensively analyse this phenomenon, including comparative analysis, qualitative analysis, and content analysis of texts in the official business style of contemporary Ukrainian literary language. The article traces the features of the use of feminatives in official and semi-official linguistic and literary practice. It has been proven that in written official business practice (especially in the administrative-clerical variety, which serves the needs of administrative and managerial communication), male forms of profession, speciality, and position names dominate according to the current stylistic norm. This reflects the current status of feminatives, which are not yet established as a single grammatical norm but are a recommended option. It has been found that semi-official language practice, particularly in online resources, is the most sensitive to social demands for the use of feminatives, demonstrating gender tolerance among officials and civil servants and becoming a kind of tool for spreading feminatives into the official language domain. The stylistic use of feminatives in official business communication is still only partially developed and is in the process of standardisation. Current trends provide grounds for predicting a more consistent standardisation of word-formation models and the communicative popularisation of feminine forms of naming women by positions and professions in this style.

Keywords: Official-business style, Administrative and managerial communication, Semi-official language practice, Norm, Orthography, Feminative

1 Introduction

A significant feature of Ukrainian language practice in the 2010s–2020s was the active inclusion of feminine forms for naming women based on their profession, position, social status, age, and preferences. This heightened societal attention has logically determined the feminine-focused priorities of Ukrainian linguistics. It is essential that, for an objective characterisation and stratification of the already substantial corpus of feminatives, linguists take into full account the key sociocultural factors – primarily the modern trends towards gender equality in society, their reflection in language, the development and popularisation of gender culture, and the adherence to gender tolerance.

The linguistic result of the growing recognition of the social and state-building role of women, their mastering of numerous new professions traditionally considered "male," and the return to the inherent systemic-structural features of the Ukrainian language is the multiple increase in the number of feminatives, their active formation, and integration into language practice. However, the intensity of the adaptation of these units in texts of various genres and styles is uneven, as stylistic norms can block or slow down and regulate these processes. For example, the traditional conservatism characteristic of the official business style regarding naming women's positions, professions, ranks, and statuses with masculine forms can be observed in administrative-clerical written and oral communication and document circulation. Semi-official practice is more receptive to feminine innovations.

The communicative practice of many sectors notes the observance of stylistic norms that do not allow or recommend using feminatives in government documents, legal and sub-legal texts, standards, and instructions. However, the current edition of the Ukrainian Orthography of 2019 indicates that feminatives are

recommended for naming women based on the characteristics above, including in business and official communication. Therefore, there is a visible prospect for resolving the debate on the appropriateness and normative status of using feminine forms in this style.

2 Literature Review

The intensive feminisation of language practice in various styles (both oral and written) is one of the most noticeable and actively discussed changes occurring in the Ukrainian language in the first third of the 21st century, which has already been reflected in numerous linguistic works. The main sociocultural factors and motivators of these changes are the gender transformation of public consciousness, the reassessment of stereotypes regarding the social role of women, and the aspiration for their symmetrical "equalisation" with men on the scale of social significance. It also involves rethinking models of female behaviour in society and the family and methods of self-realisation (Adhikari & Mukherjee, 2020).

The change in linguistic forms, including the intensification of feminatives in official and semi-official practices, should also be regulated within the context of corpus linguistics and the creation of various dictionaries (Riezina, 2019). Rohova and Varaksina (2010) have examined the main issues regarding creating library resources that reflect the use of literary language.

Studies have also been conducted on the impact of generative artificial intelligence on writing and the correctness of forming official and semi-official texts based on its prompts (Pienimäki et al., 2021; Yan et al., 2019). Various models for creating such texts were analysed in control and experimental groups, and the pedagogical consequences of using this technology were discussed (Dotsenko et al., 2023).

The use of information technologies in linguistics also positively affects the quality of translation in official and semi-official practices. Authors (Elaraby et al., 2018) explored the issue of translating from gender-neutral languages to languages with gendered agreement, such as English to Arabic. Machine translation allows for unbiased translations that take gender markers into account, which positively influences the correct application of feminatives in the context of translation (Dai & Chen, 2020; Liu et al., 2024).

It was determined how accurately gender linguistic nuances are considered in translating positions, statuses, and professions, where gender biases may arise. Therefore, correctly using gender-specific linguistic constructions contributes to more nuanced and sensitive interlingual communication (Davydov & Lozynska, 2016).

In the course of corpus analysis of languages in the study (Gamboa & Estuar, 2024), it was concluded that there is a bias in the use of feminatives in the official business style, as most texts are by default associated with heterosexual men. Therefore, there is a need to use balanced gender-linguistic associations. As lexical units of contemporary Ukrainian literary language, feminatives have only recently become relevant (Moser, 2023; Wu et al., 2021).

To date, linguistic literature has accumulated experience analysing the structure, semantics, and pragmatics of feminine usage in texts of various genres and styles. In particular, the achievements and shortcomings of the current edition of the orthography concerning feminine formation have been examined, and linguistic-social reflections on the stylistic parameters of feminine usage have been proposed (Stezhko, 2020). Lexicographical ordering and systematisation of feminatives have been carried out. Based on the "Feminative Dictionary," nominations of Ukrainian and foreign-origin

women were analysed, and the relative proportion and a functional-pragmatic load of common words, regionalisms, and dialectisms as carriers of feminine semantics were characterised (Brus, 2019). However, given the current political and socio-economic realities, these achievements do not fully meet the cognitive needs in studying the structure, semantics, functions, thematic organisation, and stylistic parameters of feminine usage. The functioning of feminine units and neologisms in the official business style of the contemporary Ukrainian language requires increased attention.

The study aims to trace the structural-semantic and functional-pragmatic parameters of the use of feminatives in the official and semi-official segments of Ukrainian business communication.

Research tasks:

1. Analyse the literature and scientific studies on the use of feminatives.
2. Analyse the use of feminatives in the official business style of contemporary Ukrainian literary language.

Based on the analysis of official business texts, identify the main features of applying feminatives.

3 Research methods

Comparative analysis: Study of the practice of using feminatives in different languages and legal systems to understand how such constructions function in the official language of other countries, identifying common trends and differences, as well as the impact of international experience on Ukrainian language practice.

Content analysis: Analysis of texts in the official business style (laws, regulatory acts, official documents) to identify feminatives and assess the frequency of their use, studying the context in which feminatives are used, their combination with other words, and their functional features within the text.

Qualitative analysis: In-depth study of individual texts to identify the application of feminatives in the official business style of the contemporary Ukrainian language.

4 Research Results

Under the pressure of fashion, "the latest names for women <...>, which up to now have been normatively used to identify the female gender, at the current stage of the development of language are perceived, loosely speaking, as 'unsuccessful,' and have ceased to satisfy the Ukrainian-speaking society (or certain segments of it)" (Arkhangelska, 2019). This has caused a real boom in the creation of feminatives – a forced and uncoordinated production of variant nominations for women based on their profession, speciality, position, social status, and preferences without considering grammatical, lexical, or stylistic norms. One of the most famous such series evolved from the masculine noun "director": *direktorka*, *direktorinia*, *direktoritsia*, *direktoretsa*, *direktorsha*, *direktorikha*, *direktorova*. Ignoring the internal laws of language development and its systemic organisation, many of these newly created units destabilise the literary standard, undermine the aesthetic quality of the vocabulary, and lower society's sociocultural and linguistic level.

The efforts of linguists to direct this hypertrophied feminine creation into the framework of literary norms, unfortunately, remain ineffective against public opinion: "The interpretation and evaluation of contemporary feminisation of masculines from the normative-systemic and sociolinguistic perspectives reveal significant discrepancies, as the former relies on the structure of the language, while the latter focuses on current issues of communication and public opinion regarding the linguistic phenomenon" (Arkhangelska, 2019).

The heightened attention to feminativity in society persists, partly because many speakers consider them to be evidence of

adherence to gender culture, a tool for meeting modern demands for gender-sensitive communication, and gender-correct language behaviour. However, advocates and promoters of this position do not always adequately consider the fact that in language, adherence to gender correctness and tolerance is not limited to feminatives. In addition to them, as is well known, the Ukrainian language has historically developed an extensive system of normative means for identifying women. In particular, these include disaggregated analytical nominations with masculinity serving a generalising function (*zhinka-akademik* – female academic, *zhinka-heneral* – female general) and constructions with syntactic agreement (*moloda dyrektor* – young director, *advokat vyhrala spravu* – the lawyer won the case). At the same time, it is undeniable that feminatives are entirely natural units of the national lexicon at all stages of its development. This is evidenced, for example, by linguistic works of the early 20th century: "Professional and other similar names in the Ukrainian language are mostly distinct for men and women. The Ukrainian language generally avoids using common-gender words to denote positions, professions, and ranks. Moreover, it assigns these words characteristics of grammatical (formal) masculine gender regardless of the person's sex. In Russian, as we know, words like *author*, *composer*, *writer*, *comrade*, and *friend* can equally apply to both men and women. In Ukrainian phrases, it is different: *he* – *avtor*, *she* – *avtorka*; *he* – *kompozytor*, *she* – *kompozytorka*; *he* – *pysmennyk*, *she* – *pysmennytsia*; *he* – *likar*, *she* – *likarka*; *he* – *profesor*, *she* – *profesorka*, and so on <...> In professional and other similar names for women, the Ukrainian language widely uses the corresponding formal feminine endings (grammatical), although this is not always the case" (Sheremet, 2021). Feminine forms remained active in language use, with many recorded in the register of the academic 11-volume Dictionary of the Ukrainian Language. However, until recently, linguists consistently emphasised, and often still insist today, on their stylistic limitations. For example: "They are used in all styles except scientific and, especially, official-business"; "Feminine equivalents are not used in the official-business style. Their main area of function is the colloquial style, from where they penetrate artistic and journalistic texts. <...> With active use, such words gradually lose their colloquial colouring but still remain in the group of stylistically limited vocabulary, and they are unacceptable in business language"; "Restrictions on the use of feminatives in official-business communication are still clearly written in all grammars and business language guides" (Siuta, 2024).

To date, the normative models for creating feminatives have been codified in the current edition of the "Ukrainian Orthography," which was approved by the Cabinet of Ministers of Ukraine decree No. 437 on May 22, 2019, and confirmed by the Ukrainian National Commission on Orthography. Specifically, in § 32, item 4, these models are described in sufficient detail: "Using the suffixes **-k-**, **-ytsya**, **-ynya**, **-es-** and others, nouns indicating women are formed from masculine nouns. The most common suffix is **-k-**, as it can be combined with various types of bases: *avtorka*, *dizaynerka*, *dyrektorka*, *redaktorka*, *spivachka*, *studentka*, *fihurystka*, etc. The suffix **-ytsya** is mainly added to bases ending in **-nyk**: *verstalnytsya*, *nabirnytsya*, *poradnytsya*, and **-en**: *uchenytsya*. The suffix **-ynya** is added to bases ending in **-ets**: *kravchynya*, *plavchynya*, *prodavchynya*, and to consonants: *maystrynya*, *filolohynya*; *boykynya*, *lemkynya*. The suffix **-es-** is rare: *dyakonesa*, *patronesa*, *poetesa*" (Ukrainian Spelling, 2019). It is important to note that in this edition of the orthography, feminatives are not codified as a single norm but are recommended as optional forms.

Naturally, feminisation occurs differently across various functional styles. The official business style is the least receptive to the outlined innovations, which meets the needs of written and oral communication along the administrative-management vertical (with institutions, organisations, professional communities, and employees) and horizontal (between institutions, organisations, their structural subdivisions, and employees). In practice, this implies regulation within the

management-executive apparatus of the state, in specific institutions, between citizens and institutions, as well as informing subordinate institutions and individuals about certain measures, changes, and organisational factors. In written form, the effectiveness of such communication is ensured by the key genres of document circulation: directive (orders, decrees, resolutions, instructions), organisational (contracts, agreements, job descriptions, statutes, staff schedules), informational-reference (autobiographies, resumes, applications, personnel record sheets, explanatory/memorandum notes, reports, plans, character references, minutes, extracts from minutes, certificates).

It is known that the clarity of official business communication is ensured, among other things, by such differential features as standardisation (formulaic and clichéd expressions) and stylistic neutrality (Manca, 2020). Not least, it is this stylistic norm that

blocks the active implementation of feminatives for the official naming of professional and social status, positions, and honorary titles of women because "in the literary codified language, there remain normative-stylistic restrictions: titles for women according to current rules are presented in masculine form: *doktor nauk* (Doctor of Sciences), *akademik* (Academician), *chlen-korrespondent* (Corresponding Member), *Heroi Ukrainy* (Hero of Ukraine), *diyach nauky ta tekhniky* (figure in science and technology), *pratsivnyk osvity* (education worker) <...> The use of masculine nouns as 'title names' in the official business style is fixed by language tradition and etiquette rules." A convincing visualisation of the minimal inclusion of feminatives in the lexicon of contemporary Ukrainian official business language compared to other functional spheres is presented in Figure 1.

The ratio of feminine vocabulary in the styles of the Ukrainian language

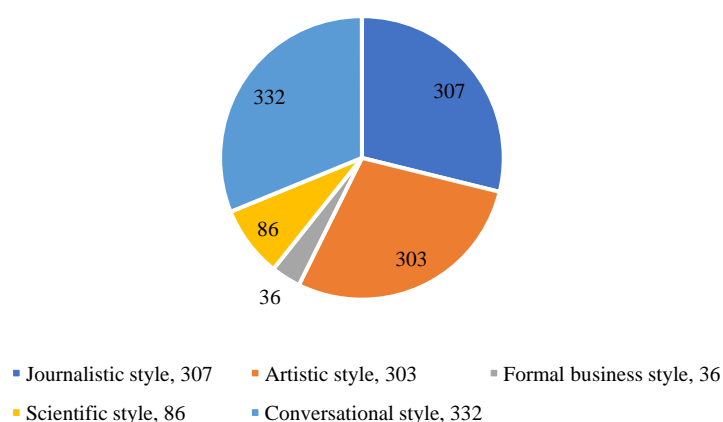


Figure 1. Correlation of feminine vocabulary in the styles of the Ukrainian language
Source: compiled based on (Sheremet, 2024)

At the same time, there is a noted lack of coordination between the current normative-stylistic restrictions on the use of feminatives in the official business style of the Ukrainian language and the actual functioning of feminine vocabulary and the social demand for such vocabulary. This collision is even more pronounced against the backdrop of recommended measures to ensure equal rights and opportunities for women and men (for example, in the system of Ukraine's diplomatic service, as well as in the circulation of recommendations and instructions on the use of gender-sensitive language intended for use in the Ministry of Defence of Ukraine, the Armed Forces of Ukraine, the State Special Transport Service, and intelligence agencies (Siuta, 2024).

Official events organised at the state level play a particularly significant role in implementing feminatives in official business language, especially in the communicative practices of state management bodies. These events are conducted to develop, refine, and implement strategies for gender standardisation of language. A notable example is the roundtable "Standardisation of the Ukrainian Language in the Context of Gender Policy," held on September 9 2020, at the initiative of the National Commission on State Language Standards and the Government Commissioner for Gender Policy. One of the main working vectors of this event was the alignment of the official business style of contemporary Ukrainian literary language with European practice and the acceleration of the implementation of feminative norms in both oral and written official business communication. Notably, particular attention was given to the discussion of the problem of using feminatives in the official documentation of central executive bodies, as "the implementation of these norms in office work remains problematic, as the legislation currently

only provides for the optional use of feminised professional titles. <...> They can be adapted as needed by the user."

The above thesis about the tightness of the official business language is also confirmed by the information published on April 16 2024, on the website of the Ministry of Defence of Ukraine about the implementation of the 'Instruction on the use of gender-sensitive language', which will be used in the Ministry of Defence of Ukraine, the Armed Forces of Ukraine, the State Special Transport Service and the intelligence agency of the Ministry of Defence. At the same time, Deputy Minister of Defence of Ukraine N. Kalmykova emphasised that feminine titles will not be used for military ranks. This guideline is clearly reflected in the texts posted on official resources: military ranks and positions for women are not feminised: *The audience was interested in the speech of the representative of the Air Force Command, the head of the military social work group of the UMPZ KPS, Lieutenant Colonel Angelina Kushmir. She noted that the Ministry of Defence has begun to actively move towards providing women with career prospects in line with their level of education, experience and performance; 20 girls are already studying at the Ivan Bohun Kyiv Lyceum, with a platoon commander, combat officer Junior Lieutenant Yulia Mykytenko.*

A fully consistent position is maintained regarding the use of feminatives by a structure related to the Ministry of Defence – the Ministry of Internal Affairs. Recognising the validity of recommendations regarding the need to apply the norms of the new edition of the orthography in all spheres of public life, in the official business practice of the Ministry of Internal Affairs, masculine nouns are prioritised for naming positions, professions, and ranks, as "these words are used to denote both

men and women, emphasising not the gender of the person, but their professional and social status. As for their use in the writing of normative-legal documents, according to established official-business etiquette, it is accepted to use words in the masculine gender, which in no way discriminates against women's rights."

The closed nature of official business language to feminine innovations is also demonstrated in the written practices of other state administration bodies. Relevant information on this has been published on the previously mentioned online platform Chytomo. Based on the corresponding monitoring results, it can be concluded that recommendations for the use of feminatives are being followed by the State Service for Education Quality and the State Migration Service.

Several government bodies (for example, the State Service for Geodesy, Cartography and Cadastre, the State Export Control Service) in written practices and document circulation adhere to the traditional norm of naming official positions of women with masculine nouns. However, if needed, upon the request of individual employees when preparing personnel documents, feminatives can be used. This position has normative-legal support, as it is aligned with Order No. 1574 of the Ministry of Economic Development, Trade, and Agriculture of Ukraine (dated August 18 2020), which approved amendments to the National Classifier of Professions. Henceforth, while professional job titles in the classifier will continue to be presented in masculine form, except for titles that are exclusively used for women (e.g., *housekeeper, nanny, maid, sister-housekeeper, seamstress*), if required by an individual employee, when recording the job title in personnel documents, the professional job title can be adapted to reflect the gender of the person performing the corresponding work. During the analysis of the State Classifier of Professions of Ukraine, it was determined that "the SCPU contains approximately 7,000 job titles, only 38 of which are presented in the feminine form."

In the language practices of the State Tax Service and the State Archival Service, feminatives are not used due to their status as a recommended option rather than a codified unified norm.

An informative aspect regarding the processes of feminisation in the official business language is the analysis of texts posted on the website of the Ministry of Education and Science of Ukraine, the website of the Center for Innovative Education "Pro.Svit," and the official and semi-official segments of educational platforms such as "Vseosvita," "Na Urok," and "Ed.Era." The texts on the Ministry of Education and Science website, particularly departmental documents as examples of the administrative-clerical substyle, do not contain feminatives (except specific genres such as announcements and notifications), even though on this same website, as of June 3, 2019, it was "recommended to apply the norms and rules of the new edition of the orthography in all spheres of public life, including the official-business style of language." In contrast, the language of educational platforms and educational information resources (as a semi-official sphere of communication) is more flexible and noticeably receptive to these units. A notable example is the lexical correlation between *minister* (male) and *ministerka* (female). The consistent position of the Ministry of Education and Science regarding adherence to stylistic norms and, at the same time, gender neutrality in the administrative-management sphere (Siuta, 2024) is demonstrated by the official signatures of women who held the positions of Minister and Deputy Minister of Education at various times from 2019 to the present. Letters, directives, and other normative-legal documents are signed by the Minister of Education and Science, Hanna Novosad; Deputy Minister, Vira Rohova; Deputy Minister, Svitlana Danylenko; and Deputy Minister, Liubomyra Mandzi.

The absence of the feminine *zastupnytsia* (female deputy) in this segment of official business written language is considered entirely justified and normative, as "to call a woman holding the position of deputy director *zastupnytsia* is incorrect, because this word has become established in the Ukrainian language with the meaning 'a woman who protects someone, a protector' <...> The

position of deputy for any head does not imply such protection. Therefore, *zastupnyk* (male deputy) is the correct official title for a woman who deputises for a leader in any position."

As it has already been noted, the language of educational platforms and educational information resources is more loyal to feminine innovations, so wording such as *The newly minted Minister of Education Hanna Novosad made 9 mistakes in a short message on Facebook; Hanna Novosad is the Minister of Education of Ukraine*.

Traditional masculine forms for naming women's positions, statuses, and specialities dominate the texts of *letters* and *orders*, the most frequent genres of administrative and managerial communication of education and science authorities carried out vertically. For example: *Control over the order implementation shall be entrusted to Deputy Minister Mandzi L.*

Dobrovol'ska Oksana Mykolaivna - Director of the Kyiv Palace of Children and Youth To Fidanian Olena, Director of the Department of Education and Science of the executive body of the Kyiv City Council (Kyiv City Military Administration) 'On the Jury of the All-Ukrainian Teacher of the Year 2023 Contest'. I would like to express my gratitude for the effective work of the jury, and high professionalism <...> to Aleksiechuk Yevheniia Yuriiivna, teacher of the subject 'Defence of Ukraine' at the secondary school of I - III levels 'Gymnasium No. 34 "Lybid" named after Viktor Maksymenko' (nomination 'Defence of Ukraine'), and Gurenko Yulia Mykolaivna, primary school teacher at Gymnasium No. 59 named after O.M. Boychenko (nomination 'Primary Education').

There are no feminine articles (except *uchenyt'sia* – female student)) in the texts of orders and instructions of the Minor Academy of Sciences of Ukraine for the academic years 2021-2022 and 2022-2023.

The need to respond to typical, frequently repeated communicative situations, processes, and facts characteristic of texts of the official business style motivates the development of certain genres and related linguistic units, means and formulas. It is noteworthy that in such texts, the need to choose a feminine or masculine form is levelled out, as the nominations of positions statuses are used in a generalised plural form: *A special thank you is extended to the directors <...> Osadcha Tetiana Volodymyrivna and <...> Matvieieva Lina Oleksandrivna for their assistance in conducting the competition "Lesson"; We also ask the heads of out-of-school educational institutions to strictly adhere to labour legislation. Necessary explanations regarding labour relations during martial law can be found on the website of the Ministry of Economy of Ukraine; <...> the teaching staff of out-of-school educational institutions are adapting classes to current conditions, offering their students master classes, quizzes, virtual tours, excursions, multimedia presentations, engaging in project and research activities, and making every effort to organise various activities for children and their parents; We ask that the content of this letter be communicated to the heads of education management bodies at different levels, as well as to the heads and teaching staff of educational institutions to organise preventive measures with student groups and to promote the benefits of a healthy lifestyle among children; <...> contact information for the heads and staff of the educational institution should be placed in an accessible location within the institution, to whom <...> individuals can turn for the prompt resolution of issues related to the preservation of life or health, as well as the protection of children's rights and interests.*

Also, in letters, orders, and other directives regulating educational activities, this textual position is often occupied by complex (three-component) terms such as *participants in the educational process* and *recipients of educational services*. For example: "It is important to document crimes of which participants in the educational process have been witnesses or victims and gather as much evidence as possible to hold the perpetrators accountable"; "The Ministry of Education and

Science of Ukraine requests, with the involvement of local government bodies and in cooperation with international and non-governmental organisations within their competencies, to carry out preventive work among participants in the educational process and provide socio-psychological support to those affected by the war and violence related to the armed aggression of the Russian Federation on the territory of Ukraine"; "The Ministry, educational management bodies, and educational institutions are implementing measures within the educational process to raise awareness among recipients of educational services and their parents on issues of combating child trafficking."

The outlined picture of the "non-receptiveness" of the administrative-management discourse in the educational and scientific sphere to feminine innovations can be partly explained by the fact that the mechanisms and strategies for gender standardisation, aimed at aligning Ukrainian official business communication with European standards, are still in the development stage. As a result, feminatives have not yet been codified as a unified grammatical norm but remain a recommended option. However, certain notable shifts in this area are already occurring. In particular, on September 9 2020, at the initiative of the National Commission on State Language Standards, a roundtable was held titled "Standardisation of the Ukrainian Language in the Context of Gender Policy." One of its main tasks was to discuss and outline ways to resolve "problematic issues regarding the use of feminised professional and position titles in the official documentation of central executive bodies" and to develop the foundations for codifying normative forms for naming women by professions and positions and their subsequent inclusion in the national "Classifier of Professions of Ukraine."

Under the influence of such measures and in response to societal demands (including accusations of insufficient efforts by the Ministry of Education and Science to ensure gender equality and uphold gender culture), the official business language of the educational-scientific sphere responds to feminisation trends very selectively, so far only in "transitional formats" and in certain genres of document circulation. Specifically, in the text of one of the Ministry's letters, paired constructions with masculine and feminine personal names connected by the conjunction *and* (or *and/or*) were observed (To prevent bullying (harassment), we recommend: <...> using the video "Resolving conflicts peacefully. Peer mediation of male and female peers"; <...> Ukrainians, both men and women, continue to be victims of labour or sexual slavery in Armenia, Azerbaijan, Belarus, Belgium, Bulgaria, Cyprus, Denmark (ibid.) or graphically differentiated by a slash (<...> develop peer mediation, create peer understanding services based on the principle "equal – equal / equal (feminine) – equal (feminine)" and resolve conflicts peacefully in educational institutions (ibid.)). Notably, the illustrated writing options are recorded within a single document.

The moderators of the Young Scientists Council page on the Ministry of Education and Science website are also loyal to feminatives (the linguistic-stylistic organisation of the texts posted here allows them to be classified as semi-official discourse). In line with the thematic specifics covered, the following feminatives are used: *zdobuvachka* (female applicant), *aspirantka* (female postgraduate student), *asystentka* (female assistant), *naukovytsia* (female scientist), *naukova spivrobitytsia* (female research associate), *dotsentka* (female associate professor), *zaviduvachka* (female head), *studentka* (female student), *finalistka* (female finalist), *spikerka* (female speaker). For example: *The Young Scientists Council at the Ministry of Education and Science involves associate members (without voting rights) from among national experts who have significant experience in the field that corresponds to the purpose of the MSG at the MES <...> zdobuvachka PhD, asystentka of the department of marketing, reputation and customer experience management at the State Biotechnology University.*

A notable example of situational saturation of feminatives in a text is the announcement published on February 10 2020, for an event dedicated to the International Day of Women in Science titled "The Ministry of Education and Science invites you to meet Ukrainian **female scientists**." Its presentational nature motivates the systematic use of feminine forms as obligatory structural components in identification formulas that introduce or promote the event's participants (although they often appear alongside masculine forms as components of a list).

At the event, the L'Oréal "For Women in Science" Award 2018-2019 finalists will discuss how they achieved success in science <...> Uchenytsi (female schoolgirls) and studentky (female students) of STEM specialities are invited to join the event. Among the top speakers:

- *Olena Vanieieva, candidate of Physical and Mathematical Sciences, spivrobitytsia (female senior researcher) at the Institute of Mathematics of the National Academy of Sciences of Ukraine, peremozhnytsia (female winner) of the L'Oréal-UNESCO "For Women in Science" Award 2018;*
- *Viktoriia Savaryn, candidate of Physical and Mathematical Sciences, asystentka (female assistant) at the Department of Physics and Mathematics, Lviv National University of Veterinary Medicine and Biotechnologies named after S.Z. Gzhytskyi;*
- *Kateryna Terletska, Doctor of Physical and Mathematical Sciences, spivrobitytsia (female senior researcher) at the Institute of Mathematical Machines and Systems of the National Academy of Sciences of Ukraine, winner (peremozhnytsia: female winner) of the L'Oréal-UNESCO "For Women in Science" Award 2019;*
- *Valeriia Trusova, Doctor of Physical and Mathematical Sciences, dotsentka (female associate professor), zaviduvachka (female head) of the Department of Medical Physics and Biomedical Nanotechnologies at V.N. Karazin Kharkiv National University;*
- *Oksana Krupka, candidate of Chemical Sciences, spivrobitytsia (female senior researcher) at Taras Shevchenko National University of Kyiv.*

The texts of reports on the Centre for Innovative Education's activities for 2019-2023 published on the Centre for Innovative Education platform are informative about the feminisation of official business practices in the educational sector. The number of feminine lexemes recorded shows that a clear guideline for compliance with gender-tolerant language has been developed, as set out in instructions and recommendations (including the roundtable above, 'Standardisation of the Ukrainian Language in the Context of Gender Policy'). For example: *Viktoriia Bryndza – sociolohynia (female sociologist), member (chlenkynia: female member) of the "Nestor Group"; Inna Hindych – metodystka (female methodologist) at Myropil Community, Zhytomyr region; Oleksandra Mukhina – koordynatorka (female coordinator) of the "School 3.0" project; Lina Kovalenko – uchytelka (female teacher), nastavnytsia (female mentor) of the "Fulcrum" team at Boyar Academic Lyceum "Harmony"; Anastasiia Martynenko – ekokonsultantka (female eco-consultant), lektorka (female lecturer), holova (female head) of the NGO Zero Waste Society, mentorka (female mentor) at the ZERO WASTE Academy; Marianna Bilyk – kerivnytsia (female head) of the social department at the LOF charity organisation; Liliia Borovets – spivzasnovnytsia (female co-founder) of the organisation; Oleksandra Mukhina – menezherka (female manager) at Pro.Svit and GoFundEd.*

We note the template of lexical and syntactic structures - again, these are formulas for identifying a woman educator's speciality, social status, and functional responsibilities.

Since 2022, using feminine pronouns has become an increasingly cultivated norm in the 'report' genre on the Pro.Svit platform: *Nataliia Pipa – deputatka (female deputy) of Ukraine from the 115th electoral district in Lviv, sekretarynia (female secretary) of the Committee of the Verkhovna Rada of Ukraine on Education, Science, and Innovation; ekspertka (female*

expert) involved – *Nataliia Katashynska; Anna Uvarova – ekspertka* (female expert) and *kerivnytsia* (female head) of the NGO "Pro.Svit" from 2019 to 2021; *Olena Viednikova – dyrektorka* (female director) of Mykolaiv Classical Lyceum; *prezydentka* (female president) of our lyceum *Tetiana Trofimchuk*, edited a video about the project and shared it on Instagram; *Yana Ratman, chlenkynia* (female member) of the supervisory board; *Varvara Sierova – asystentka* (female assistant).

However, it is also important not to ignore examples of conscious adherence to the classical norm, according to which the names of people by profession, occupation, or position do not exhibit features of femininity/masculinity. Therefore, nouns in the masculine form are rightly "used to denote both men and women <...> as general personal names."

One could also assume that the illustrated inconsistency in linguistic presentation models (designer, developer – *spivzasnovnytsia*) is related to linguistic taste and personal positions regarding the appropriateness or inappropriateness, correctness or incorrectness of using feminine forms. Let us recall the indicative opinion of I. D. Farion on this matter: "I am categorically against being called 'profesorka' or 'doktorka' (comment on Facebook)." Moreover, this is convincing evidence of the status of feminatives in the current edition of the orthography – not as a mandatory norm, but as a recommended option, used as needed by the user.

The orientation of the moderators and contributors of the Pro.Svit resource to adhere to the standards of gender equality in language is also demonstrated by mini-texts with paired feminine and masculine forms: *expert – ekspertka, trener – trenerka, uchasnyk – uchasnytsia*: *In the project, over 200 uchasnykiv and uchasnyts were involved; To our ekspertam and ekspertkam, treneram and trenerkam, respondentam and respondentkam of the research.*

On educational platforms such as "Vseosvita" and "Na Urok," we observe the use of feminatives in various texts, from recommendation materials to analytical articles. Predictably, the most frequently used terms are: *uchytelka* (female teacher), *vykhovatelka* (female caretaker), *vykladachka* (female lecturer), *asystentka* (female assistant), *dotsentka* (female associate professor), *esperka* (female expert), *konsultantka* (female consultant), *pedahohynia* (female pedagogue), *psykholohynia* (female psychologist), *lohopedynia* (female speech therapist), *defektolohynia* (female defectologist), *metodystka* (female methodologist), *retsenzentka* (female reviewer). Based on this corpus, we can identify the most productive models for forming feminine nouns from masculine nouns that denote persons by profession or social activity. These models are described in the current edition of the "Ukrainian Spelling" and are created using suffixes:

-k-: *uchytelka* (female primary school teacher); *vykhovatelka* (female preschool educator); *metodystka* (female methodologist at the methodological office); *asystentka* (female teaching assistant); *Nataliia Zyma*, the best chemistry *uchytelka* (female chemistry teacher) according to the Global Teacher Prize Ukraine 2020 and *ekspertka* (female expert) of the EdEra online course "Courage to Teach"; *ekspertka* in clinical psychology and health psychology, crisis psychology, family work; this year, *avtorka* (female author) of the text for the National Unity Radio Dictation will be the Ukrainian *pysmennytsia* (female writer) and *rezhyserka* (female director), *chlenkynia* (female member) of PEN Ukraine, *Iryna Tsilyk* ("Na Urok", 09.11.22); *Inna Horbenko* <...> *kandydatka* (candidate of pedagogical sciences), *trenerka* (female trainer) and *konsultantka* (female consultant) of the educational programmes of WCF "Step by Step," UNICEF. Such visible productivity in creating feminine nouns – names of female persons from masculine nouns (sometimes linguists metaphorically refer to it as "feminine creation monopoly") – is motivated by the ability of this suffix to combine with different types of stems.

-yn(-ya): *psykholohynia* (female practical psychologist); *lohopedynia* (female speech therapist); *defektolohynia* (female defectologist); while preparing this journal, we wanted to cheer up *pedahohynia* (female educators) at least a little and help her; female journalist of "Vseosvita" along with *filolohynia* (female philologist) analyse the Ukrainian language and correct mistakes.

-yts(-ya): *zastupnytsia* (female deputy director) for educational work; *Olena Patrykeieva, nachalnytsia* (head) of the STEM education department at the Institute of Educational Content Modernization; *Inna Horbenko* <...> *spivzasnovnytsia* (female co-founder) of the preschool educational institution "Sad Mozhlyvostei ShchastiaKids".

No feminine nominals with the suffix **-es(a)** were recorded in the analysed texts, apparently due to its ability to give newly created units a stylistically reduced colouring.

Our summary of reflections on the language of educational resources aligns with the idea that today 'it is semi-official language practice that is the sphere of generation and use of grammatical variants of the names of professions and positions to refer to women'.

5 Discussion

The study (Kostusiak et al., 2020) outlines the latest feminine nouns for professions, job titles, and other activities and their use in media texts. A gender-linguistic balance is created based on the usage of feminatives, which contributes to the liberalisation and modernisation of the contemporary Ukrainian language. It is noted that in the new Ukrainian orthography, feminatives have been codified. The functional-cognitive category of femininity is developing and regularly supplemented with these units' lexicosemantic classification. The main method of studying the means of expressing feminine gender was chosen as the analysis of suffixes and case forms of feminine personal nouns and their codified use (Xiang et al., 2021).

In analysing the spread of feminatives in literary language, a comparative analysis of the process of creating feminine nouns becomes necessary (Iakymenko-Laumont, 2022). Because the development of feminatives has intensified in recent decades, there is a need to analyse the ways of word formation of feminine forms. From the perspective of the official business and semi-official style of the Ukrainian language, suffixal word formation is the most productive.

An essential role in maintaining the activity of feminative-forming processes is also played by language fashion and individual speakers' beliefs, under the influence of which the naming of women with masculine nouns is perceived as discrimination, a violation of the strongly promoted principles of gender tolerance, gender-sensitive communication, and gender-correct language behaviour (Villar-Mayuntupa, 2020).

The evolution of language is significantly related to external factors such as the political situation, economic conditions, and diplomatic relations. It is also influenced by purely linguistic factors, including structural-semantic transformations and changes in the stylistic affiliation of words. However, researchers (Ahmedova & Ibadov, 2023) identify several trends when applying official business and diplomatic styles. It is noted that during the 18th–19th centuries, the official business style moved away from foreign borrowings, while in the 20th century, new formations related to the establishment of the socialist regime – abbreviations, neologisms, and linguistic clichés – appeared. Regarding the contemporary period (late 20th – early 21st century), there has been an increase in the use of neologisms, linguistic clichés, and feminatives.

The formation of norms for business correspondence is accompanied by standard and commonly used address formulas, which are stereotypical elements of the addresser's speech behaviour and correspond to the linguistic and ethical norms of written communication, following the principle: address + first name +

patronymic (Kuvarova & Budilova, 2024). During the prolongation of the official business style and the transition to the fine line of the semi-formal style, individual features of vocative models manifest, varying depending on social status and individual factors.

6 Conclusion

The functional styles of literary language and the genres that develop within these styles respond differently to the challenges of feminisation. One of the least receptive to these challenges is the official business style (especially its administrative-clerical variety, which serves the needs of administrative and managerial communication). According to the current stylistic norm, masculine forms for naming professions, specialities, and positions still dominate in the corresponding texts. The semi-official language practice, particularly in the language of educational platforms and online resources, has proven to be more sensitive to feminisation innovations, reflecting educators' tolerant attitude toward using feminatives and, thus, becoming a tool for spreading them into the official language domain.

It is necessary to consider that official business language is quite hermetic by nature; it slowly adopts feminine innovations, and the mechanisms and strategies for gender standardisation of language are still in active development. As a result, in the official business practices of various spheres of public activity, feminatives have not yet been codified as a unified grammatical norm but remain a recommended option.

Literature:

- Adhikari, A., & Mukherjee, A.: Citation convergence of academic conference papers. In *2020 IEEE Calcutta Conference (CALCON)*, pp. 85-88. Kolkata, India, 2020. <https://doi.org/10.1109/CALCON49167.2020.9106534>
- Ahmedova, Sh., & Ibadov, N.: Diplomatic Language Evolution in the Texts of International Agreements (Based on Karabakh Conflict Settlement Documents). *Bulletin of the Alfred Nobel University. Series: Philological sciences*, 2023, 1(25), 144-165. <https://doi.org/10.32342/2523-4463-2023-1-25-11>
- Arkhangelska, A.: *Femina cognita. Ukrainian woman in the word and dictionary. Series "Studies in Ukrainian Linguistics"*. Kyiv: Dmytro Burago Publishing House, 2019. 444 p. ISBN 978-966-489-480-4
- Brus, M.: Dictionary of feminatives as attempt of forming the language of Les Martovich. *Precarpatian Bulletin of the Shevchenko Scientific Society Word*, 2019, 2, 50-61. [https://doi.org/10.31471/2304-7402-2019-2\(54\)-50-61](https://doi.org/10.31471/2304-7402-2019-2(54)-50-61)
- Dai, J., & Chen, C.: Text classification system of academic papers based on hybrid Bert-BiGRU model. In *2020 12th International Conference on Intelligent Human-Machine Systems and Cybernetics (IHMSC)*, pp. 40-44. Hangzhou, China, 2020. <https://doi.org/10.1109/IHMSC49165.2020.10088>
- Davydov, M., & Lozynska, O.: Linguistic models of assistive computer technologies for cognition and communication. In *2016 XIth International Scientific and Technical Conference Computer Sciences and Information Technologies (CSIT)*, pp. 171-174. Lviv, Ukraine, 2016. <https://doi.org/10.1109/STC-CSIT.2016.7589898>
- Dotsenko, N. A., Gorbenko, O. A., & Haleeva, A. P.: Technology of creating educational content for open digital resources in general technical disciplines. *Journal of Physics: Conference Series*, 2611. *XV International Conference on Mathematics, Science and Technology Education (ICoMaSTEd, 2023)*, 2023, 012019. <https://doi.org/10.1088/1742-6596/2611/1/012019>
- Elaraby, M., Tawfik, A. Y., Khaled, M., Hassan, H., & Osama, A.: Gender aware spoken language translation applied to English-Arabic. In *2018 2nd International Conference on Natural Language and Speech Processing (ICNLSP)*, 2018, pp. 1-6. Algiers, Algeria. <https://doi.org/10.1109/ICNLSP.2018.8374387>
- Gamboa, L. C. L., & Estuar, M. R. J. E.: Characterising Bias in Word Embeddings Towards Analysing Gender Associations in Philippine Texts. In *2023 IEEE World Conference on Applied Intelligence and Computing (AIC)*, pp. 254-259. Sonbhadra, India, 2023. <https://doi.org/10.1109/AIC57670.2023.10263949>
- Iakymenko-Laumont, O.: Tradition of using and creating feminatives in Ukrainian and French languages. *Scientific Notes of Ostroh Academy National University: Philology Series*, 2022, 13(81), 58-60. [https://doi.org/10.25264/2519-2558-2022-13\(81\)-58-60](https://doi.org/10.25264/2519-2558-2022-13(81)-58-60)
- Kostusiak, N., Navalna, M., & Mezhev, O.: The Functional-Cognitive Category of Femininity in Modern Ukrainian. *Cognitive Studies - Études cognitives*, 2020, 20, art. no. 2310. <https://doi.org/10.11649/cs.2310>
- Kuvarova, O., Budilova, O.: Correlation of Stereotypical and Irregular in Epistolary Text Addressee-Oriented. *Alfred Nobel University Journal of Philology*, 2024, 1(27), 190-205. <https://doi.org/10.32342/2523-4463-2024-1-27-13>
- Liu, M., Zhang, L. J., & Biebricher, Ch.: Investigating students' cognitive processes in generative AI-assisted digital multimodal composing and traditional writing. *Computers & Education*, 2024, 211, art. no. 104977. <https://doi.org/10.1016/j.compedu.2023.104977>
- Manca, S.: Snapping, pinning, liking or texting: Investigating social media in higher education beyond Facebook. *The Internet and Higher Education*, 2020, 44, art. no. 100707. <https://doi.org/10.1016/j.iheduc.2019.100707>
- Moser, M.: The Ukrainian Language in the Temporarily Occupied Territories (2014–October 2022). *Kyiv-Mohyla Humanities Journal*, 2023, 10, 1-48. <https://doi.org/10.18523/kmhj270983.2023-10.2-48>
- Pienimäki, M., Kinnula, M., & Iivari, N.: Finding fun in non-formal technology education. *International Journal of Child-Computer Interaction*, 2021, 29, art. no. 100283. <https://doi.org/10.1016/j.ijcci.2021.100283>
- Riezina, O. V.: Methodological aspects of teaching students to create digital frequency dictionaries. *Information Technologies and Learning Tools*, 2019, 72(4), 214-225. <https://doi.org/10.33407/itlt.v72i4.2498>
- Rohova, P. I., & Varaksina, N. V.: Informative space of Ukraine: the role of educative libraries in its formation. *Information Technologies and Learning Tools*, 2010, 7(3). <https://doi.org/10.33407/itlt.v7i3.120>
- Sheremet, A. V.: Topical trends of feminine lexis' functioning in Ukrainian officialese (The 20s of XXI century). *Scientific Bulletin of Kherson State University. Series: Germanic studies and intercultural communication*, 2021, 2, 72-76. <https://doi.org/10.32999/ksu2663-3426/2021-2-11>
- Siuta, G. M.: Military feminatives: asymmetry of usage in official and media practice. *Scholarly notes of TNU named after V. I. Vernadskyi. Series: Philology. Journalism*, 2024, 35(74), 1, 266-272. <https://doi.org/10.32782/2710-4656/2024.1.2/42>
- Stezhko, Yu.: Feminatives in the Ukrainian Language: the Linguistic and Social context. *Philological treatises*, 2020, 12, 104-113. [https://doi.org/10.21272/Ftrk.2020.12\(2\)-12](https://doi.org/10.21272/Ftrk.2020.12(2)-12)
- Ukrainian Spelling. Approved: Cabinet of Ministers of Ukraine: Resolution No. 437 of May 22, 2019. <https://mon.gov.ua/static-objects/mon/sites/1/zagalna%20serednya/05062019-onovl-pravo.pdf>
- Villar-Mayuntupa, G.: On the relationship between the understanding of scientific texts and the use of metacognitive strategies among Peruvian systems engineering students. In *2020 IEEE World Conference on Engineering Education (EDUNINE)*, pp. 1-3. Bogota, Colombia, 2020. <https://doi.org/10.1109/EDUNINE48860.2020.9149499>
- Wu, Y., Dong, Y., Qin, J., & Pedrycz, W.: Linguistic distribution and priority-based approximation to linguistic preference relations with flexible linguistic expressions in decision making. *IEEE Transactions on Cybernetics*, 2021, 51, 2, 649-659. <https://doi.org/10.1109/TCYB.2019.2953307>
- Xiang, L., Ou, C., & Zeng, D.: Linguistic steganography: hiding information in syntax space. *IEEE Signal Processing Letters*, 2024, 31, 261-265. <https://doi.org/10.1109/LSP.2023.33347153>
- Yan, L., Pei, Z., & Ren, F.: Constructing and managing multi-granular linguistic values based on linguistic terms and their fuzzy sets. *IEEE Access*, 2019, 7, 152928-152943. <https://doi.org/10.1109/ACCESS.2019.2948847>

Primary Paper Section: A

Secondary Paper Section: AI, AJ

FINANCIAL MECHANISM FOR MANAGING THE SOCIAL AND HUMANITARIAN SPHERE IN UKRAINE: A REVIEW OF SCIENTIFIC SOURCES

^aANATOLII SHUNDA, ^bVASYL KUPRIICHUK,
^cSVITLANA VOVK

^{a,b}*Zhytomyr Ivan Franko State University, Zhytomyr, Ukraine.*
^c*Shupyk National Healthcare University of Ukraine, Kyiv, Ukraine.*
email: ^{a,b,c}nayka2024@ukr.net

Abstract: The article reviews scientific sources on the components of the socio-humanitarian sphere's financial mechanism of public administration. It proposes a comprehensive consideration of theoretical approaches to forming this mechanism. In addition, potential areas for further scientific research to improve the financial mechanism of public administration of the socio-humanitarian sphere of Ukraine to facilitate post-war reconstruction are identified.

Keywords: Financial mechanism, Public administration, Social and humanitarian sphere, Research theory.

1 Introduction

Studying the scientific and theoretical foundations of socio-humanitarian development in Ukraine has been going on for over three decades. Despite this, there are still specific issues of concern for the academic community and society. This is because a balanced state policy influences the stability of the social and humanitarian sphere, scientifically sound public administration mechanisms, and instruments of influence and implementation both inside and outside the country. They should consider the state's development's peculiarities and ensure the society's socio-economic protection and well-being.

The gaps and contradictions in social relations and financial management in Ukraine's social and humanitarian sphere became most pronounced during the war. Therefore, they represent a significant research potential and the need to find new conceptual approaches to their solution in modern changes and the processes of post-war recovery (Restoring Ukraine, n.d.).

The social and humanitarian sphere of the state serves as an indicator of the country's development and its formation on the path to comprehensive well-being. It is an impetus for the innovative development of all components of public administration. The existing body of scientific literature shows that public administration's terminology and conceptual framework in social and humanitarian services is highly uncertain. Therefore, conducting a comprehensive study of several fundamental categories is essential, contributing to a more nuanced and informed understanding of the subject matter.

2 Literature review

The diversity of approaches to the definition of "governance" and "management of the social and humanitarian spheres" is due to the large number of them in various scientific and educational publications. They do not contradict each other but rather prove different opinions depending on the priority of certain aspects the authors consider.

The studies of Larin (2019), Sergienko (2019, p. 163), and Stelmashchuk (2016, p. 94) highlight the evolutionary formation of financial public administration of social and humanitarian management from the declaration of Ukraine's independence to the present, a long period of optimisation reflecting the changing administrative and political landscape of the country.

Borodin et al. (2015, pp. 65–75) and Belashova (2014, p. 99) believe that the lack of a clear division of functional responsibilities in the funding mechanisms between public authorities responsible for implementing social and humanitarian policy, as well as an extensive system of information transfer for making and implementing management decisions, is a

significant obstacle to the development of the sectors of this sphere.

In their works, Tkachova (2013, pp. 32–33), Pylypshyn (2011, p. 12), and Radchenko (2009, pp. 65–66) consider the evolution of the organisational and functional structure of financial public administration of the social and humanitarian sphere in Ukraine. By examining the main factors that influenced the development, they demonstrate a significant disparity in social and economic resources, which significantly impacts citizens' future productivity, reliability and security.

As a full-scale war continues in Ukraine, financial management in the socio-humanitarian sector is becoming more complex. Therefore, there is a growing interest in analysing existing financial mechanisms and finding new forms of their use. However, the literature review and theoretical approaches that analyse and combine a critical mass of recent studies of financial mechanisms for managing the socio-humanitarian sector in Ukraine are not very extensive.

The study aimed to conduct a systematic review and analysis of scientific sources (domestic and foreign) to determine what research results have been obtained on the financial mechanisms of public administration in the social and humanitarian sphere.

3 Research methods

The financial mechanism of public administration in the social and humanitarian sphere was studied using several analytical approaches, including general, functional, procedural, subject-object, and object-subject perspectives.

4 Research results

The review of scientific sources on financial mechanisms of public administration in the social and humanitarian sphere is conceptual, synthesising previous studies and identifying future directions of scientific research (Deacon et al., 1997). In recent years, our study has merged works from open sources such as Google Scholar, Web of Science, and Scopus.

Our methodology is based on the literature review analysis model proposed by Kitchenham (2004), which we used as a methodological framework for identifying sources for analysis. It consists of three distinct stages. The first involves formulating specific search terms and establishing explicit inclusion and exclusion criteria. The second stage involves carefully selecting and synthesising previously published studies, while the third stage is devoted to a comprehensive description of the data obtained. Per the principles, the fundamental concepts of the search were defined, and a conceptual approach was created to facilitate the literature review.

To facilitate the analysis, we identified the key search words "financial mechanism" and "social and humanitarian sphere" in the title of the publications and/or in the abstracts of the research studies. These criteria, which relate to both inclusion and exclusion, were established to increase the overall reliability of the review. In addition, the study included peer-reviewed English-language articles that present empirical data and documents related to financial mechanisms in the social and humanitarian sectors. Other articles were not included in the analysis.

In total, we processed 356 scientific papers using keywords in the search queries, 187 papers where the abstract met the criteria for inclusion or exclusion from the study and 48 scientific studies for different periods remained for analysis. All papers were categorised by type of study, year, research context, and research methods. In addition, we identified the subject of research in each article.

Analysing the internal content of the papers on the main topic for each article helped to summarise the material and compare it between the documents. This allowed us to identify recurring themes and specific patterns in scientific papers, which led to conclusions and areas for further research.

We have noted the work of domestic scholars investigating various approaches to managing and organising activities in the socio-humanitarian sphere. Researchers of the general and functional approaches to organising activities in Ukraine's socio-humanitarian sphere highlight that the general approach fully corresponds to the objective laws of general management. This approach combines both objective and individual factors by organising the economic, humanitarian, and social components, and enabling them to implement targeted influences for the fulfilment of societal interests (individual, social, collective) through management mechanisms (economic, organisational, political, legal, motivational) (Sergienko, 2019, p.164). At the same time, the functional approach includes all the components of classical management (planning, motivation, organisation, and control) concerning the coordination of activities in societal reproduction (Borodin & Tarasenko, 2015, pp. 65–75).

For the development of the social and humanitarian spheres, a procedural approach is becoming an essential component of management, which affects the process of activity, making and implementing management decisions that have a targeted impact on the object of management to change its state or behaviour by changing circumstances (Larin, 2019; Stelmashchuk, 2016, p. 94; Belashova, 2014, p. 99; Tkachova, 2013, pp. 32–33; Pylypyshyn, 2011, p. 12; Radchenko, 2009, pp. 65–66).

Most studies emphasise that Ukraine's social and humanitarian sphere is subject to a standard financial system consisting of interconnected elements with homogeneous features. The financial sector and financial management mechanisms play a vital role in the country's socio-economic landscape, covering many complex processes and systems. The efficiency of the socio-economic system and society's development depends on creating this basic structure.

According to Khomutenko (2017), in the study of financial management mechanisms, it is essential to define definitions such as public finances reflecting clearly "...all economic relations of the country, which result in the movement of part of the financial resources aimed at satisfying both public and individual interests"; public finances are mandatory, resulting in the formation of centralised funds of money, state and local extra-budgetary trust funds, as well as funds of state and municipal entities. The part of public finances that does not include meso-level finances (local budgets and finances of municipal enterprises) is defined as public finances (Khomutenko, 2017, p. 114).

The literature has identified mechanisms of influence on the current state of Ukraine's social and humanitarian system's financial mechanisms. Scientists draw attention to the factor of ongoing military aggression by the Russian Federation (the aggressor state). As a result, national and international expert institutions predict that Ukraine's GDP losses during the war may range from 30% to 50% (Kornivska, 2022, p. 23; Kurnosenko, 2022, p. 255).

Thus, the most expressive areas of studying the mechanisms of financing the social and humanitarian spheres within the framework of public administration are the subject-object and object-subject approaches, which essentially perform a purposeful interaction between the object and the subject or, on the contrary, create order and regulation of the socio-humanitarian sphere by changing its internal environment.

An integrated (comprehensive) strategy for developing civil society will be required during the war and the post-war period. For example, social protection considers the specific circumstances related to the unique legal status of certain categories of people, such as veterans, people affected by the

Chornobyl disaster, and internally displaced persons. A coordinated approach involving interagency and interdisciplinary cooperation is required to achieve this goal. Thus, a critical assessment of the existing components of the social system is needed to ensure that people can live whole and autonomous lives. It is essential to define transparent, objective criteria for determining social services and social benefits eligibility.

Most studies show that the socio-humanitarian sphere, as a social phenomenon, has a multifaceted management system consisting of many components, elements, and interrelationships.

The works of Popper et al. (1992), Jaspers (2014), and other researchers of philosophical thought in management analyse it as a manifestation of society's essential self-managing properties, which combine the dialectical laws of nature, society, and thinking. This creates a methodological and ideological basis for scientific knowledge and practical improvement of both management mechanisms and management of the social and humanitarian sphere as a whole.

To understand the financial management of the socio-humanitarian sphere, the mechanisms of financial public administration, and their practical significance for the socio-humanitarian sphere, we turned our attention to economic research. In this approach, the works of Tomac et al. (2019), Taylor (1914), Emerson et al. (2022) and other scientists who have laid the synthesis of economic and theoretical knowledge and proved that both general management and financial management of the social and humanitarian sphere of the state are a mandatory integrating function (ideas, models of cooperation, programmes).

That is, managing the financial components of the country's social and humanitarian spheres should be considered using a systematic approach, which includes: object, subject, organisational structure, functional mechanisms and resource base to ensure their components. It is the balance of all components of the social and humanitarian spheres of the country and the effectiveness of state mechanisms of management and policy implementation that affect the timeliness and quality of decision-making on the distribution and use of state budget funds.

We share the opinions of Shtyrov and Dereha (2020, p. 75), Gladun (2012, p. 117), Zdiork (Ed.) (2006, p. 118) who consider the socio-humanitarian sphere to be the most critical area of public administration, an organic part of the country's economic system aimed at ensuring the well-being and comprehensive development of its citizens and society as a whole. A well-balanced social and humanitarian state policy reduces economic losses and improves the population's welfare, especially in modern conditions.

However, the state's financial policy is much broader in scope and is not limited to providing material support to those in need. It also consists of ensuring favourable conditions for entrepreneurship and employment for all non-disabled members of society (deregulation of business, encouragement of small businesses, maintaining high employment levels, regulation of labour relations), as well as ensuring social protection for society (guaranteeing a certain standard of well-being) for all members of society (social security, social insurance, a mandatory minimum wage, and income indexation) (Vovk, 2017, p. 50).

Financial management can also be viewed from two perspectives. The first is based on the general management functions sufficiently covered in the classical management approaches (planning, organisation, coordination, motivation, and control) (Gladun, 2012, p. 77). The second considers the mechanisms for creating specific management functions in the socio-humanitarian sphere as a subject and object of management (Shtyrov & Dereha, 2020, p. 45).

According to Brechko (2005, p. 62), depending on the spheres of societal activity in which state financial management is carried out, the following are distinguished: financial mechanisms for

managing society as a whole (economic management, social management, political management, spiritual-ideological management); according to the structure of social relations: financial mechanisms for managing economic development, and correspondingly, the management of social, political, and spiritual development of society; according to the objects of management: economic management mechanisms, socio-political management mechanisms, and mechanisms for managing spiritual life.

Scholars have established that the specific characteristics of managerial activity depend on the mechanisms of public administration within a particular industry (or sector) (Santis et al., 2018, p. 231; Brooks et al., 2005, pp. 155–157; Pierson, 1998, pp. 423–424). In their research, scientists have come to a consensus that the mechanisms and instruments of public administration in the socio-humanitarian sphere can significantly impact the dynamism of the development of society as a whole. Therefore, first of all, it is necessary to clarify the content of the concept of “financial mechanisms of public administration” and identify the most important ones for the socio-humanitarian sphere.

The financial mechanisms of public administration can be divided into general and specific ones according to their content, impact, and nature. The general ones affect the internal and external functions of the country's governance, an essential reflection of public administration and its central, objectively necessary interrelationships (Bandy, 2023).

Specific financial mechanisms of public administration are more inherent in public influence, where there is a diversity of many interacting elements in the overall governance (Bandy, 2023). That is, they have intersection points in specific sectors, areas or parts of public administration, primarily responding to the needs of the objects of management.

We agree with O. Fedorchak's opinion that all existing mechanisms of public administration should be divided into mechanisms-implements (tools), mechanisms-systems (a set of interconnected elements), and mechanisms-processes (a sequence of certain transformations) (Fedorchak, 2008).

Thus, the specific functions inherent in the financial mechanisms of public administration can be divided by object type. For example, the social sphere may be subject to some of the mechanisms of public administration, which differ from the management of humanitarian and/or economic objects. Functions such as financing, labour regulation, and lending are present in each sphere (social and humanitarian), and each has its specific manifestation.

The functions of the financial mechanisms of public administration in the economy are constantly being revised. There are significant differences between developed and developing economies.

According to Brechko (2005, pp. 62–63), “...in a developed market, public administration of the economy is not an intervention of the state in the market mechanism, but in the preconditions and side effects of its functioning. In the first case, the state should not change the laws of the market but should influence the economic environment where these laws operate to direct the economy by certain goals and priorities. In the second case, the state, taking into account the limited capabilities of the market mechanism and its ability to generate negative side effects, can neutralise them with the help of a non-market mechanism (for example, social protection policy for the poor)”.

At the same time, other scholars interpret this as a redistribution of financial resources, noting that an additional source is necessarily additional financial resources, reserve funds, humanitarian organisations, and socio-humanitarian projects (Horbatiuk, 2017, p. 110; Vovk & Lobas, 2015, pp. 9–10; Razputenko & Moskalenko, 2014, p. 105; Zdioruk (Ed.) (2006, p. 208). We support this approach when considering the

financial mechanisms of public administration of the social and humanitarian sphere as the subject of our study.

However, there is no consensus among modern public administration scholars on defining the financial mechanism of public administration. Some scholars believe that the financial mechanisms of public administration are a system consisting of a set of different methods, forms, levers and instruments that affect the social and economic development of the country and society in the process of distributive and redistributive financial relations (Metelenko & Shulga, 2016, p. 173; Balytska, 2007, p. 9). Or they consider the financial mechanisms of public administration exclusively as a system of levers of financial influence on the planning, organisation and stimulation of the use of financial resources (Dabbicco & Mattei, 2021, p. 129).

Others believe that the financial mechanisms of public administration are an integral part of the economic mechanism in regulating economic processes and relations in society and the state. They have a structure of taxes, duties, benefits, subsidies, prices, sanctions, tariffs, subsidies, and fines (Alekseeva, 2006, p. 123; Tulenkov, 2007, p. 21; Kovalyuk, 2002, p. 93).

Thus, Metelenko and Shulha (2016) believe that the financial mechanism is an integral part of the economic mechanism, a single instrument for the entire country's financial system. In the financial resources management system, the financial mechanism is a separate subsystem that directly implements managerial influence.

Balitska (2007) approaches the definition of the financial management mechanism as a set of different forms, methods and levers of managing financial relations in the country, which is the planned formation, distribution and use of cash income, the creation of funds and the system of expenditures.

Dabbicco and Mattei (2021) and co-authors define the financial management mechanism as a particular system of public financial management in which a critical lever is the organisation of interaction between the country's internal and external (industries, areas of management of organisations) financial relations and funds of funds in order to optimise their impact on the final results of production.

Kovalyuk (2002, p. 22; p. 56), in his monograph “Financial mechanism of organisation of the economy of Ukraine (problems of theory and practice)”, supplementing the structure of the mechanism, defines: “...financial mechanism as a system of financial forms, methods, levers and instruments used in the financial activities of the state and enterprise with appropriate regulatory, legal and informational support, as well as with appropriate financial policy at the micro and macro levels”. In our opinion, he most accurately outlined the structure of the financial mechanism of public administration as part of the overall financial system of the state. However, the definition lacks a reflection of regulatory levers.

Summarising all these scientific works, it can be concluded that the financial mechanism of public administration is always presented as a practical scheme for using all economic levers of the state, which are directed at emerging processes in society and objects of the public administration system at different levels for the development of the economic system and social guarantees of the population.

However, a significant drawback is that, in many cases, the emphasis on the financial mechanisms of public administration of the social and humanitarian sphere is too weak. This concept is inseparable from the country's financial policy, which defines the functions of the financial management mechanism and organically links it to the public administration of the economy.

From the point of view of financial mechanisms of public administration of the socio-humanitarian sphere, the opinion of Vasylyk and Pavliuka (2002, pp. 37–39) detailing the structure of the financial management mechanism, present it as a set of

interrelated elements, which are a combination of forms and methods (formation, distribution, use) and components (financial mechanism of enterprises, organisations, institutions; budget mechanism; insurance mechanism. This is an inevitable reflection of the social and humanitarian sphere financing, which involves all components of the country's financing system.

However, in our opinion, the most successful description of the financial mechanism of management of the social and humanitarian sphere was given by Yurii et al. (2013). He defined it as "...a set of specific financial forms, methods and levers by which the process of social reproduction is ensured, i.e. distribution and redistribution relations are carried out, incomes of economic entities and funds of money are formed" (Yurii et al., 2013, pp. 237–239). He distinguishes the following elements of the mechanism: regulatory and legal (normative and administrative documents produced by governing bodies); methods of financial management (operational management, financial planning, provision, regulation and control); financial levers, incentives and sanctions (taxes, mandatory fees, interest on loans, financing standards)

In the current crisis, the financial system of the state is an object of state regulation and management, consisting of the budget and banking system, as well as funds of institutions, enterprises and organisations of all forms of ownership and citizens, which is an organisational and legal entity aimed at meeting financial needs (Marshuk et al., 2022; Ustynova et al., 2022, pp. 100–105; Kravchuk, 2017, p. 82). It affects the financial support and financial management subsystems of the social and humanitarian spheres, which are inextricably linked.

The system of financial support for Ukraine's social and humanitarian sphere, which has been formed over a certain period of time, requires appropriate financial management that simultaneously performs its functions since it still performs the functions of financial support.

The impact of the financial system on the socio-humanitarian sphere determines the order of organisation and creates the structure of the financial mechanism of the socio-humanitarian sphere. The financial support system for the country's socio-humanitarian sphere is carried out through the existing financing system, which is based on investment, public financing, self-financing, lending and intergovernmental transfers. Self-financing instruments affect the financial security of the social and humanitarian sphere by using lending mechanisms and principles that involve the temporary use of resources and are based on self-sufficiency. For example, a non-governmental organisation, private investor, bank or state with expenses can fully cover them with income from selling services, works and goods. The difference between self-sufficiency and self-financing is that the former ensures simple reproduction, while the latter is expanded at the expense of borrowed and own finances.

The current level of financial resources available to the socio-humanitarian sector in the country is perceived by a wide range of scholars as unreliable (Shcherban et al., 2024, pp. 180–181; Nebrat & Korniaika, 2022, p. 33; Moskalenko & Slyusarchuk, 2014, pp. 121–122). Recently, their attention has been focused on methods of mobilising additional revenues to it. They have identified increasing public contributions as an essential option for financing the social and humanitarian sector. However, to date, there is little systematic documentation or analysis of the experience of different funding methods.

Saving social capital is achieved through lending and using the same financial resources by different business entities, accelerating financial circulation and stimulating economic efficiency in the country. At the same time, the state establishes the conditions for granting loans, guarantees, and conditions for their repayment, amortisation, and efficiency of loans.

It should be noted that the socio-humanitarian sphere is a part of the public sphere, so it requires state funding, self-financing, and

lending, but most often in the form of inter-budgetary transfers (subventions, grants).

For the development of the social and humanitarian sphere, investments are also significant, which in the structure of the financial mechanism are considered a financial method of implementing programmes, projects, and assistance through investments. There are different types of investments: public, social, and human capital, by the object of investment (Khoma, 2022, p. 53). However, providing financial resources for the socio-humanitarian sphere also manifests in other aspects of its implementation. Therefore, it is evident that financing of the relevant state programmes or measures for their implementation is impossible without the existence of established and legally enshrined forms of financial resource mobilisation, such as tax payments, fees from certain types of activities and other payments (Vovk, 2017, p. 50). This component of the financial mechanism is a relatively autonomous link in the economic process, forming the tax mechanism. However, it can be argued that the tax mechanism cannot be completely independent, given its place in the budgetary mechanism, which, in turn, is part of the financial mechanism. The principles of its functioning determine these two structural elements of the latter.

The financial mechanism of public administration in the socio-humanitarian sphere is based on regulating distributional relations in social reproduction, where distributional relations play a unique role (Lobas & Petryaeva, 2020). The distribution method significantly impacts the volume of aggregate demand, the structure of consumption, the beginning of a new production cycle, and the distribution of wealth and income creating the social character of the state. The distribution process profoundly impacts socialisation, trust, direction, and focus in society's social orientation.

Public finance is essentially a system of distribution and redistribution relations (Ustynova et al., 2022; Marshuk et al., 2022). Therefore, the content of financial mechanisms and regulation methods in Ukraine's social and humanitarian sphere can be defined as distribution methods.

The study of distributional relations in the socio-humanitarian sphere, as well as in other areas, is approached from two different perspectives. Firstly, distributional issues are considered, focusing on income distribution and its proportionality and, thus, the problems of inequality and social justice. This leads to recommendations and actual policies aimed at optimising income redistribution.

Another aspect of distributional research concerns allocation mechanisms, i.e., the processes by which resources or goods are physically distributed. These processes determine the proportions of the new production cycle and the flows of resources between industries and producers, which affect the efficiency of the production process. It is essential to recognise that any allocation mechanism has distributional implications.

The distributional relations of the socio-humanitarian sphere are based on two main mechanisms: market and administrative. The proportion in which these mechanisms are combined determines the type of economic system of the emerging country, which can vary considerably: from a market system with a high degree of liberalisation to a highly centralised, administrative system. The distinctive characteristics of different types of economic organisations in the social and humanitarian sphere extend to their approaches to the redistribution of finance and their distribution and allocation mechanisms.

Choosing the appropriate method of distribution relations in the social and humanitarian sphere is a crucial step in creating a functional subsystem of its financial regulation and creating an integrated financial mechanism of public administration. However, they should not be viewed as mutually exclusive, as the choice of the distribution method is only one aspect of the broader question of the structure of distribution relations.

5 Discussion

In addition to the methods mentioned above of financial regulation, the financial mechanism of public administration itself is determined by various monetary, price, investment and currency regulation methods, which are closely related to the first ones and significantly affect the very nature of these methods. The financial mechanism of public administration in the socio-humanitarian sphere is also influenced by various economic variables, such as gross domestic product (GDP), national income, income distribution, investment, and profit levels. These variables largely determine the structure of the financial base and the primary flow of financial resources but are not directly related to the methods of financial regulation.

Due to the complexity of the financial aspects of managerial decision-making in the social and humanitarian sphere, insufficient attention is paid to them. However, using stochastic decision-making methods invariably leads to the redistribution, study and modification of quantitative and qualitative parameters underlying financial processes. At the same time, financial regulation of the social and humanitarian sector depends on financial processes in the economy and political influence, which are shaped by it. In our opinion, this political practice of influencing financial decisions has nothing to do with using economic methods in the social and humanitarian sectors.

6 Conclusions

Summarising scientific views, we can conclude that the financial mechanism of public administration of the social and humanitarian sphere is a set of methodological, organisational, regulatory, and information forms, tools, methods, provisions and levers involved in the development of measures for the social and humanitarian protection of the country's population, the practical direction of which is aimed at achieving the defined goals and objectives of the social and humanitarian sphere. The metadata analysis has determined the scope of our further research, which should be aimed at mechanisms for the consistent allocation of resources in Ukraine's social and humanitarian sphere. The results of this review of scientific sources can also serve as a basis for further research by other researchers to orientate and position their work.

Literature:

- Alekseeva, A. Yu.: The general principles of the formation of distribution relations in Ukraine at the macroeconomic level. *Science and Transport Progress*, 2006, 10(10), 123–125. <https://doi.org/10.15802/stp2006/19703>
- Balytska, A. A.: Financial mechanism: scientific and practical aspect. *Science and science studies*, 2007, 2, 7–12.
- Bandy, G.: *Financial Management and Accounting in the Public Sector*. 3rd ed. Routledge, 2023. <https://doi.org/10.4324/9781003250838>
- Belashova, N. V.: Public administration of the humanitarian sphere in Ukraine in the light of modern scientific research. *Scientific Notes of the Institute of Legislation of the Verkhovna Rada of Ukraine*, 2014, (3), 98–107.
- Borodin, E. I., Khozhylo, I. I., & Tarasenko, T. M.: Management of the social and humanitarian sphere in the process of voluntary amalgamation of territorial communities: theoretical and practical aspects. *Aspects of public administration*, 2015, (5-6), 65–75.
- Brechko, O. V.: Tax regulation: stabilising and stimulating instruments of economic processes. *World of Finance*, 2005, 2(3), 61–72.
- Brooks, N., Adger, W. N., & Kelly, P. M.: The determinants of vulnerability and adaptive capacity at the national level and the implications for adaptation. *Global Environmental Change. Part A*, 2005, 15(2), 151–163. <https://doi.org/10.1016/j.gloenvcha.2004.12.006>
- Dabbicco, G., & Mattei, G.: The reconciliation of budgeting with financial reporting: A comparative study of Italy and the UK. *Public Money & Management*, 2021, 41(2), 127–137. <https://doi.org/10.1080/09540962.2019.1708059>
- Deacon, B., Hulse, M., & Stubbs, P.: *Global Social Policy: International Organisations and the Future of Social Welfare*. Translated from English, 1997. 346 p.
- Emerson, S., Van Ness, K., Streeter, G., Sundstrom, L. M., & Emerson, P. G.: *The public administrator's companion: A practical guide*. Waveland Press, 2022.
- Fedorchak, O.: Classification of mechanisms of public administration. *Democratic governance: Scientific Bulletin*, 2008, 1. http://www.nbuv.gov.ua/e-journals/DeVr/200801/O_Fedorchak.pdf
- Gladun, Z. S.: *State health policy in Ukraine (administrative and legal problems of formation and implementation): monograph*. Ternopil: Economic thought, 2012, 460 p.
- Horbatiuk, S. E.: International non-governmental organisations as subjects of ensuring socio-human security. *Bulletin of the National Academy for Public Administration under the President of Ukraine. Series: Public Administration*, 2017, (4), 107–114.
- Humanitarian Policy of the Ukrainian State in the Modern Period: monograph / Edited by S. I. Zdiuruk. Kyiv: NISS, 2006, 403 p.
- Jaspers, K.: *The Origin and Purpose of History (Routledge Revivals)*. Routledge, 2014. <https://doi.org/10.4324/9781315823683>
- Khoma, N. M.: Co-financing in the system of peacebuilding technologies: on the example of assistance to Ukraine during the Russian military aggression. *Politikus*, 2022, 3, 52–58. <https://doi.org/10.24195/2414-9616.2022-3-8>
- Khomutenko, A. V.: Pragmatics and semantics of the terms of financial science “public finance”, “public finance” and “state finance”. *Finance of Ukraine*, 2017, (1), 111–126.
- Kitchenham, B.: Procedures for performing systematic reviews. *Keele University Technical Report*, UK, TR/SE-0401, 2004, pp. 1–26.
- Kornivska, V. O.: The Ukrainian military crisis as part of a deep global transformation process: financial mechanisms of stabilisation and recovery. *Economic problems*, 2022, (2), 22–31. <https://doi.org/10.32983/2222-0712-2022-2-22-31>
- Kovalyuk, O. M.: *Financial Mechanism of Organisation of the Ukrainian Economy (Problems of Theory and Practice): monograph*. Lviv: Publishing Centre of Ivan Franko National University of Lviv, 2002, 420 p.
- Kravchuk, N. Ya.: The financial system of the state: theoretical conceptualisation and structuring problems. *The world of finance*, 2017, 3(8), 80–94.
- Kurnosenko, L.: Problems and peculiarities of international financial support for Ukraine in times of war. *Public administration and regional development*, 2022, (15), 255–274. <https://doi.org/10.34132/pard2022.15.13>
- Larin, O.: Stages of formation of the organisational and functional structure of public administration of the humanitarian sphere in Ukraine. *Public administration: theory and practice*, 2019. <https://doi.org/10.36030/2311-6722-2019-1-13-20>
- Lobas, V. M., & Petryaeva, O. B.: Prerequisites for the formation of a mechanism for state regulation of social guarantees in the region. *International scientific journal “Internauka”. Series: “Economic Sciences”*, 2020, 9. <https://doi.org/10.25313/2520-2294-2020-9-6287>
- Marshuk, L., Diana, M., & Pokoinyi, O.: Features of the financial system under martial law. *Economy and Society*, 2022, (37).
- Metelenko, N. G., & Shulga, O. P.: Conceptualisation of the concept of “financial mechanism”. *Black Sea Economic Studies*, 2016, 10, 171–179.
- Moskalenko, S. O., & Slyusarchuk, O. P.: State budget policy as a tool for the formation and development of the socio-humanitarian space of Ukraine. *Investments: practice and experience*, 2014, (8), 120–124.
- Nebrat, V., & Korniyaka, O.: Peculiarities of capital formation and investment mechanisms in Ukraine as a factor of financial risks in the conditions of war and the post-war period. *Grail of Science*, 2022, (16), 31–34.
- Pierson, C.: Bob Deacon with Michelle Hulse and Paul Stubbs, *Global Social Policy*, London, Sage, 1997, 252 pp. £14.99 paper. *Journal of Social Policy*, 1998, 27(3), 421–445. <https://doi.org/10.1017/S0047279498235355>

30. Popper, K., Lorenz, K., & Kreuzer, F.: El porvenir está abierto: conversación de Altenberg y textos del simposio sobre Popper celebrado en Viena. In *El porvenir está abierto: conversación de Altenberg y textos del simposio sobre Popper celebrado en Viena*, 1992, (pp. 201-p).
31. Pylypshyn, V. P.: The concept and main features of public administration. *Legal science and practice*, 2011, (2), 10–14.
32. Radchenko, O. V.: The category of 'mechanism' in the system of public administration. *State and Regions*, 2009, (3), 64–69.
33. Razputenko, I., & Moskalenko, S.: Socio-humanitarian expenditures in the budgeting system: public administration aspect. *Actual problems of public administration*, 2014, (1), 105–108.
34. Restoring Ukraine (n.d.). *Ukraine's recovery plan*. <https://recovery.gov.ua/>
35. Santis, S., Grossi, G., & Bisogno, M.: Public sector consolidated financial statements: a structured literature review. *Journal of Public Budgeting, Accounting & Financial Management*, 2018, 30(2), 230–251. <https://doi.org/10.1108/JPBAFM-02-2018-0017>
36. Sergienko, L. V.: Humanitarian policy of Ukraine: identification of components, objects, subjects and priorities. *Vestnik ZhDTU: Economics, Management and Administration*, 2019, 2(88), 162–173. [https://doi.org/10.26642/jen-2019-2\(88\)-162-173](https://doi.org/10.26642/jen-2019-2(88)-162-173)
37. Shcherban, O. Y., Malik, L. O., & Senyshyn, S. Y.: Peculiarities of managing financial resources of territorial communities under martial law in Ukraine. *The actual problems of regional economy development*, 2024, 2(20), 178–187.
38. Shtyrov, O. M., & Dereha, V. V.: *Social and Humanitarian Policy: a textbook*. Mykolaiv: Publisher Emelianova T. V., 2020, 204 p.
39. Stelmashchuk, Y. I.: State regulation of the development of the social and humanitarian sphere: terminological tools. *Investments: practice and experience*, 2016, (20), 93–97.
40. Taylor, F. W.: Scientific management: Reply from Mr. F. W. Taylor. *The Sociological Review*, 1914, a7(3), 266–269. <https://doi.org/10.1111/j.1467-954X.1914.tb02387.x>
41. Tkachova, O.: Efficiency of public administration: concepts and approaches to evaluation. *Bulletin of the National Academy for Public Administration under the President of Ukraine*, 2013, (2), 30–37.
42. Tulenkov, M. V.: Social policy in Ukraine: ways of formation and implementation: Educational methodological development. Kyiv: IPK DSZU, 2007. 34 p.
43. Ustynova, I., Savliva, N., & Bardachevska, A.: Problems in the development of Ukraine's financial system. *Scientific works of National Aviation University. Series: Law Journal "Air and Space Law"*, 2022, 2(63), 100–105.
44. Vasylyk, O. D., & Pavliuk, K. V.: *Public finances of Ukraine: a textbook*. K.: NIOS, 2002. 595 p.
45. Vovk, S. M.: Activation of innovative healthcare management. *Manager*, 2017, (1), 49–55.
46. Vovk, S. M., & Lobas, V. M.: Organisation of a modern mechanism of healthcare financing in the conditions of the country's transformation period. *Economics and law of health care*, 2015, (2), 8–12.
47. Yurii, S., Demianyshyn, V., & Kyrylenko, A.: *Budget system: textbook*. Ternopil: TNEU, 2013, 624 p.

Primary Paper Section: A

Secondary Paper Section: AG, AO

HETMAN IVAN MAZEPA AND THE UNIFICATION OF UKRAINIAN LANDS IN THE EARLY 20TH CENTURY UKRAINIAN PRESS

“SNIZHANA ATAMANCHUK-BABII

M. S. Hrushevsky Institute of Ukrainian Archeography and Source Studies of the National Academy of Sciences of Ukraine, Kyiv, Ukraine

email: *snizhana18borshchiv@gmail.com*

Abstract: For several centuries, Ivan Mazepa, a statesman, philanthropist, diplomat, military leader, and Hetman of Ukraine from 1687 to 1709, has been interpreted almost exclusively in the Russian imperial historiographical and political paradigm. The prominent Ukrainian statesman and politician was portrayed as a “traitor,” “anathematised,” a political adventurer, and “the second Judas” (in the words of Peter the Great). In Ukraine, it was only after 1991 that researchers could study Ivan Mazepa, his activities, and his influence on politics in his time and the long term, without political contexts and ideological layers. Instrumental were the works of Ukrainian diaspora scholars and the opportunity to join archival collections outside Ukraine. Our study aims to highlight aspects of Ivan Mazepa’s problem of unifying Ukrainian lands and their interpretation in Ukrainian periodicals of the first half of the twentieth century. We focus on scientific research and discussions that took place in the pages of these publications. The article focuses on the publications of Andrusiak, Hrushevsky and Ohloblyn. The research methodology is based on the principles of historicism, critical analysis of sources, and a discriminating review of materials related to the article’s subject matter. Ivan Mazepa’s state-building activities during the years of his political biography were subject to influences and transformations. It is related to the historical and political context of the time and the personal qualities of the hetman, a talented, multifaceted, and strategically minded person. The main focus is on the publications of Mykola Andrusiak’s “Mazepa’s Relations with Stanislaw Leszczynski and Charles XII” (1933) and Mykhailo Hrushevsky’s “On Ukrainian Topics. Mazepism and Bohdanism” (1912).

Keywords: Notes of the Shevchenko Scientific Society, Ivan Mazepa, Literary and Scientific Herald, Mykola Andrusiak, Mykhailo Hrushevsky.

1 Introduction

In the context of the Russian-Ukrainian war, the information component plays a leading role; the information space “becomes the main medium of interpersonal, group and international contacts and the main place of collision of national interests, information sovereignty and the field of information wars” (Kryshtal, 2023; Korolchuk et al., 2023; Primush et al., 2023). History, historical past, and historical heritage are also subject to manipulation, creation, and dissemination of fakes in information warfare. In particular, one such historical figure that has been the focus of Russian imperial, then Soviet, and again Russian propagandists for several centuries is Ivan Mazepa. The imperial myth of the Battle of Poltava was among the first to be created in the Russian Empire to assert its dominance over Ukrainian territories. A misleading version of the events was spread during the fighting and long after it ended. Fabricated clichés about the “victory of Russian weapons”, “Mazepa’s betrayal”, “Mazepa’s anathema”, etc. became severe manipulation constructs in Russian and Soviet historiography and propaganda (Sukholit, 2013; Yatsenko, 2014). The creation of such a historical myth was necessary for the Russian Empire to level and devalue the Ukrainian national movement and aspirations for its own statehood and independent development. Ivan Mazepa and his participation in the Northern War were interpreted as an internal struggle in the Russian Empire. From the point of view of the Russian imperialists, the word “mazepynec” became one of the most derogatory epithets for Ukrainian patriots. This was followed later by “petyurivtsi” and “banderivtsi” (Zabolotnyi & Mieliekiestsev, 2023; Yefimenko, 2022). The image of Ivan Mazepa, his life, and his activities remain one of the bugbears of Russian anti-Ukrainian propaganda today. His intentions to unite Ukrainian lands, his activities as a patron of the arts and a ktetor were stigmatised, devalued, and physically destroyed (Stenko, 2021). The hetman’s words: “I have no descendants, <...> therefore, I am not involved in the interests of succession and seek nothing but happiness for the people who honoured me with the hetman’s dignity and entrusted me with their fate” (Freedom Factor exhibition, 2019) are a kind of manifesto of his political intentions and aspirations. Let us remember that “dispute resolution and conflict resolution are fundamentally different methods used in alternative dispute resolution” (Zarosylo et al., 2022). Therefore, the study of Ivan Mazepa, his state-building intentions and actions remains a topical issue for national

historiography, as well as an essential aspect of the struggle of Ukrainians against Russian aggression to assert their historical identity and subjectivity, without propaganda distortions and pseudo-patriotic layers; as “the need to ensure the development of the rule of law or to protect and restore the rights of citizens violated as a result of military aggression” (Antoshkina et al., 2023). It is worth carefully studying history lessons to avoid repeating some of them. The annexation of Crimea followed the failures of 1708-1709, “the Cossacks ceased to act as a buffer against the Tatars and Turks”, and soon “the historical distinction between Russia and Ruthenia was officially abolished. <...> The generous Ukrainian land became the object of intense Russification and colonisation” (Deivis, 2020).

2 Literature review

Studies related to the figure of Ivan Mazepa, his activities and influence on his time and the further course of history are counted in thousands of works (Chukhlib, 2011). His personality, views, and worldview were shaped by the political culture of the late Baroque (Popovych, 1998).

Matskiv T. focused his research on the Cossack period of Ukrainian history. In particular, his works included biography. He focused his research on the hetmanship of Bohdan Khmelnytsky and Ivan Mazepa, the search for new sources and their involvement in scientific circulation, and the refutation of historical stereotypes and myths. When studying the figure of Ivan Mazepa, to whom the scholar devoted several decades of his life, Matskiv used archival materials from Austria, Great Britain, Germany, France, and Sweden. He studied the European society’s perception of Mazepa’s political divisions and, in general, of the events on the Ukrainian lands, which were divided between the Polish-Lithuanian Commonwealth, Moscow, and the Ottoman Empire (Matskiv, 1966; 1983; 1988; 2000; Yushchuk, 2021).

Tairova-Yakovleva T. has compiled a collection of correspondence between Pylyp Orlyk and Ivan Mazepa with political and state figures of Europe. Thanks to this, we can learn the historical context and Hetman Mazepa’s thoughts and views on the attempts to form a European coalition against Moscow. Information about the political and everyday life of the Hetmanate at that time is also valuable (Tairova-Yakovleva, 2022). The researcher also authorises large-scale studies of Ivan Mazepa as an extraordinary and talented personality, a patriotic and far-sighted political and statesman (Tairova-Yakovleva, 2012, 2018).

Kutashov I. analysed the state-building concept and political activities of Ivan Mazepa, arguing that his election as Hetman of the Left Bank of Ukraine was the starting point of his vision of Ukraine as an independent state within the framework of political ideas about sovereignty of the time (Kutashov, 2006). The state-building policy of Mazepa through the prism of relations between Ukraine and Russia in the late seventeenth and early eighteenth centuries was studied by Kamina Kh., emphasising the critical aspect - the desire to unite the Left Bank, Right Bank, Slobozhanshchyna and Zaporizhzhia into a single Ukraine, “which was imagined by the newly elected hetman as a Western European state with the preservation of the traditional Cossack system” (Kamina, 139).

Various aspects of his political and state-building activities, transformation of his political outlook, diplomatic, military, ascetic work, distorted pages of his biography were studied by Apanovych O., Babinskyi H., Kovalevska O., Menninh K., Ohloblyn O., Subtelnyi O., Chukhlib T., Yatsenko V. (Apanovych, 1993; Babinsky, 1974; Kovalevska, 2009; Kovalevska, 2012; Manning, 1957; Ohloblyn, 1960; Ohloblyn, 2008; Ohloblyn, 1989; Ohloblyn, 1990; Ohloblyn, 2001; Sublelny, 1975; Sublelny, 1981; Chukhlib, 2003; Chukhlib, 2008; Chukhlib, 2009; Chukhlib, 20011a; Chukhlib, 2011b; Chukhlib, 2013; Yatsenko, 2012; Yatsenko, 2014).

3 Methods

The analytical, synthetic, systemic, and structural scientific research methods were applied following the tasks set. Also, when considering the activities of Ivan Mazepa as a state and political figure, the biographical method and the method of critical analysis of sources were used. The article analyses the publications of Ukrainian scholars, primarily historians, which are devoted to the problem of Ivan Mazepa's state-building activities in the unfavourable conditions of political and military operations on the Ukrainian territory and the interests of other states towards Ukraine, which had a real impact during the years of Hetman Mazepa's life and activities. At the same time, the principles of historicism and the desire for objectivity are applied to cover the complex lace of historical perturbations and their political and ideological assessments.

4 Study results

Ivan Mazepa faced considerable challenges as a political figure. At that time, the election of the Hetman was controlled by Moscow. In addition, the treaty with Moscow (in fact, Moscow's ultimatum) was a prerequisite for the election of the hetman. Moreover, the Cossacks themselves were massively involved in the construction of St Petersburg, where working conditions were exhausting and dangerous due to climatic and living conditions. Since 1686, church affairs were under the complete control of Moscow. At the same time, the tsarist government actively pursued a policy of "removing" capable and talented people from Ukraine to the metropolis (Feofan Prokopovych, Dmytro Tuptalo, Stefan Yavorsky, Fedir Dubiansky, Oleksiy Rozumovsky, Marko Poltoratsky, and others) (Popovych, 1998: 258-260). Economic pressure was also increasing: natural taxes and maintenance of troops at the posts forced Ukrainian merchants to transport goods via inconvenient Russian routes, which disrupted long-standing proven and established logistical ties. In addition, there were also significant restrictions in the field of foreign policy (Universals of Ukrainian Hetmans from Ivan Vyhovskyi to Ivan Samoylovych (1657-1687) (2004); Smolii & Stepankov, 1997).

On 25 July 1687, Ivan Mazepa was elected Hetman of the Left Bank of Ukraine at the Cossack military council on the banks of the Kolomak River. Hetman Mazepa came from a noble family. His father Stepan was the Bila Tserkva ataman in Bohdan Khmelnytskyi's army. His mother, Maria, came from the noble family of Mokievsky and was a well-known political and religious figure and philanthropist. Ivan Mazepa received a good education (Kyiv-Mohyla College, Jesuit College in Polotsk, studied at universities in Italy, Germany, and France, and studied artillery in the Netherlands) and spoke several foreign languages. Moreover, this broad outlook and cultural and political environment gave him "a sense of that Europeanness that forever protected him, a man of the European East, from the influences of eastern Moscovness" (Vintoniak, 1990).

Studies of the Mazepa era in the history of Ukraine (and Europe more broadly) cover various topics: political and military-political components, socio-economic relations, religious and church life, cultural and educational life, the state and development of culture, diplomacy, and international relations. For a long time, the historiography of the problem was presented in the paradigm of "Mazepa and Moscow" (Ohloblyn, 1989: 7).

In fact, relations between Ukraine and Moscow in those years were extremely tense. In particular, this resulted in conflicts between the Hetman and Moscow governments. This concerned everyday, mundane matters and political, territorial, military and administrative issues: "<...>. In 1690, the case of Slobozhanshchyna, the Sloboda Ukrainian regiments, arose. Hetman Mazepa, as well as Hetman Samoylovych, insisted that Sloboda Ukraine be transferred to the authority of the Ukrainian hetman so that the Sloboda-Ukrainian regiments would become part of the Hetmanate. The Moscow government believed that Sloboda Ukraine was a part of the Moscow state and territory that was only later populated by Ukrainian people from the Hetmanate and from the Right Bank Ukraine and that the Ukrainian government had no reason to seek the accession of these regiments to the Hetmanate, the extension of the Hetman's jurisdiction over Slobozhanshchyna <...>" (Ohloblyn, 1990: 50). As can be seen from the above example, the claims of Muscovy (already in the format of the Russian Federation, headed by the criminal dictator Vladimir Putin) are only growing over time and taking on even more sinister and dangerous forms. Therefore, the study of the political and state-building activities of Hetman Ivan Mazepa, in particular, the coverage of this issue in the Ukrainian periodicals of the first half of the twentieth century, requires further scientific attention in order to understand the historical context of the state-building aspirations of the Ukrainian people and its intellectual elite. The assessment of Mazepa and contribution to the history of Ukraine as a political and statesman among the representatives of the Ukrainian political and scientific elite of the early twentieth century was ambiguous. In particular, M.Hrushevski stated: "A man undoubtedly more intelligent, a politician much more subtle, Mazepa did not reach such gross tactics as Brukhovetskyi, but he earned only extreme unpopularity during his hetmanate, just the hatred of the people, as a "Moscow soul", a traitor and a Moscow footstool" (Hrushevskyi, 1912: 95). Of course, from the height of the present, such an assessment by M. Hrushevsky of Mazepa's actions may seem controversial, but it, in our opinion, well illustrates the complex and turbulent times in the history of Ukraine, which were the years of social activity and professional activity of the Ukrainian historian. Thus, by studying the works of Ukrainian figures of the first half of the twentieth century, both in Ukraine and in the diaspora, we can more thoroughly analyse both Mazepa's political activity and our perception of his ideas and views in the context of revolutionary and military events in Ukraine and the activities of Ukrainian diaspora figures.

Ivan Mazepa was a multifaceted, inquisitive, and talented man. He played the bandura, wrote poetry, collected weapons, and was fond of art. Several buildings, including the Kyiv Cave Monastery and the Church of the Ascension in Pereiaslav, were built thanks to his generous financial and material support. However, he is best known as a political figure. Therefore, let us briefly outline the milestones of his political biography (Table 1).

To demonstrate the views of the representatives of the Ukrainian intellectual cohort, we present in the form of a table a summary of these from the publications of Mykola Andrusiak and Mykhailo Hrushevsky (Table 2).

Table 1: Ivan Mazepa's Political Biography. Main Accents.

Date	Event	Historical context
Since 1659	He served at the court of King John II Casimir of Poland, where he continued his education in Germany, France, and Italy under the king's patronage.	Wars between the Polish-Lithuanian Commonwealth and the combined forces of the Hetmanate and Moscow. Swedish occupation of part of Polish lands ("The Flood", 1655). King John II Casimir flees to Silesia. The Swedes are driven out of Pomerania. Prussia secedes from the Polish-Lithuanian Commonwealth. The end of the Moscow-Polish conflict with the Treaty of Andrusovo in 1667.
1662-1669	Familiarisation with Ukrainian issues, mainly through lobbyists of Ukrainian interests in the Sejm of the Commonwealth.	Black Council in Nizhyn, 1663. The execution of Ivan Vyhovsky, 27 March 1664. Establishment of the Little Russian Order, 10 January 1663 - for the Moscow government to control the political and administrative activities of the Hetman's administration and tsarist voivodes.

1669-1674	He returned to Ukraine, inheriting the position of the father of the Chernihiv sub-chaplain. Joined the service of Hetman Petro Doroshenko	The War of the Ottoman Empire and the Polish-Lithuanian Commonwealth, 1683-1699; the defeat of the Ottoman Empire and the loss of many territories, the beginning of the empire's demise. The Cossack state was at the epicentre of a complex struggle between the Polish-Lithuanian Commonwealth, the Muscovy, and the Ottoman Empire. Doroshenko opposed the Andrusiv Armistice of 1667, recognising the protection of the Ottoman Empire.
June 1674	Mazepa headed the embassy with a diplomatic mission to the Crimean Khanate and letters to the Turkish Sultan. On the way, he was taken prisoner by the Zaporozhian Cossacks - the Sich were hostile to Hetman Doroshenko. Mazepa was ransomed from captivity by the Left Bank Hetman Ivan Samoylovych. He began his service with Hetman Samoylovych of the Left Bank of Ukraine - for eight years, he was a "military comrade", a clerk, and a diplomat	17 March 1674 - Hetman of the Left Bank Ivan Samoylovych was proclaimed hetman of "both banks of the Dnipro" (Pereyaslav).
1682-1687	Appointed to the post of General Esaul (Hetman's inner circle)	Samoilovich's main task is to return the Right Bank Ukraine, a battlefield for Warsaw, Moscow and Istanbul, under the mace. Mazepa was involved in the negotiations between Warsaw and Moscow on the conclusion of an "eternal peace". I. Samoylovych's right-wing policy was an essential factor in his removal from the post of Hetman of the Left Bank of Ukraine, his arrest, and his exile to Siberia.
1669-1687	Participation in numerous military campaigns, battles and skirmishes	1669 - Treaty of Korsun, recognition of the Ottoman protectorate by the Right-Bank Hetmanate. 1677-1678 - The first and second Chyhyryn campaigns of the Ottoman Empire. 1678-1679 - The Great Convoy. 1681 - Treaty of Bakhchisarai. 1687 - V. Golitsyn's first Crimean campaign.
1687	Election of Ivan Mazepa as hetman.	The signing of the Kolomata Articles.
1704-1709	Mazepa united the Left Bank and Right Bank Ukraine under his rule	Revival of Kyiv as the spiritual capital of Ukraine
1708	Ukrainian-Swedish Union	2 (13) November 1708 - punitive actions of the Moscow army to destroy Mazepa's capital - the destruction of the city of Baturyn and the genocide of its inhabitants.
1709	The Battle of Poltava	The destruction of the Chortomlyk Sich by the Muscovites.

Source: Compiled based on (Buket, 2021; Sikora, 2013; Kostenko & Khalupa, 2021; Chukhlib, 2013).

Table 2: A summary of theses from the publications of Mykola Andrusiak and Mykhailo Hrushevsky.

Surname, name of the author of the publication	Title of the publication	Periodicals	Main theses
Andrusiak Mykola	"Mazepa's Relations with Stanislaw Leszczynski and Charles XII"	Notes of the Shevchenko Scientific Society: Works of the Historical and Philosophical Section. 152, 35-61.	1. "Hetman Ivan Samoylovych wanted to return the Right Bank to the Hetmanate, prevent a war with Turkey and Crimea, or at least ensure Ukraine's neutrality. He paid for his policy by losing his government. His successor, Ivan Mazepa, was also distrustful of the Moscow-Polish coalition but still could not pull away from it under Moscow's dictates.) And then, for many years of his hetmanship, he followed the line of Moscow's policy. This was due to a variety of reasons. First and foremost, the military weakness of the Hetmanate was a factor. The Cossack army under Mazepa's rule was small compared to the size of the Moscow army at the time.) The Hetman could not rely on the territorial regiments with any certainty, as colonels had the right to recall to the Moscow government), which fundamentally undermined the authority of the Hetman's government. Mazepa, just like his predecessors, tried to form mercenary hunting regiments, which numbered eight and were under the direct authority and support of the Hetman). In addition, there were Moscow outposts in all the most important cities of Ukraine - at the time of Mazepa's uprising, there were up to 7,000 Muscovites in Ukraine - which greatly restricted the freedom of movement of the Ukrainian government. Relations between Mazepa and Zaporizhzhia were very tense. The Cossacks considered Mazepa to be a Moscow servant, accused the hetman of allowing Moscow to build border fortresses, and did not want to recognise the boundaries of the Tsarist peace; Petro Ivanenko's speech found strong support in the opposition-minded Sich, and some Cossacks submitted to the protectorate of Crimea. Mazepa threatened that he would destroy the Cossack 'cursed nest', the Sich, and was glad to get rid of the 'cursed dog', Hordienko)" - pp. 35-36. 2. "Looking at this crucial page in the history of Ukraine, full of the tragic struggle of the Ukrainian people in defence of their state system and freedom, I note that this is only an attempt to highlight Mazepa's connections with Leszczynski and Charles XII. Filling in the gaps in this essay and clarifying Mazepa's hitherto obscured political activity is possible only by searching for hitherto unknown manuscript material. It is not in Ukrainian manuscript collections that we should look for sources for Mazepa's policy; the destruction of his residence in Baturyn and the 'hidden thoughts and secret intentions' of our Hetman before his closest collaborators warn us that it would be futile to work in this direction. Many sources for Mazepa's policy may still be in Moscow and Polish archival collections" - pp. 60-61.
Mykhailo Hrushevsky	"On Ukrainian Topics. "Mazepaism and Bohdanism"	Literary and Scientific Bulletin, 1912. 94-102.	1. "Mazepa was not really a bright representative of Ukrainian autonomy. In our history, we have representatives of the Ukrainian state idea, Ukrainian independence and separateness who are much more distinct and powerfully expressed. Mazepa had neither the tragic zeal of Doroshenko nor the immense endurance of Orlyk, and he simply did not have time to show us this side of himself in his long life! What he hid

		<p>in the secret recesses of his soul remained closed to us. On the surface, he sailed with the current of Moscow's centralism on the tugboat of Moscow's politics. His abrupt break with it from this side resembles a trick of Bruchowiecki, who, having seen how impossible his servility to Moscow's centralism had made it in Ukraine, decided to break with it." pp. 94-95.</p> <p>2. "Mazepa was made a Ukrainian hero, a representative of Ukrainian patriotism only by the government's insults to his name and memory, contrary to the facts and the real views and moods of Ukrainian society, and by all further measures to disgrace this name, to cover it with shame and horror, as a symbol of Ukrainian "change"-only invariably will they continue to assert and spread pietism towards him, the cult of him as a representative of everything that the unreasonable saviours of Russian unity have been and are pulling under the concept of "change". pp. 96-97.</p>
--	--	--

Source: Compiled based on (Andrusiak, 1933; Hrushevsky, 1912).

5 Discussion

The first daily newspaper, Rada in Naddniproshchyna, appeared in 1906 and had 2-3 thousand subscribers. The Literary and Scientific Bulletin was in a slightly better position, which had the status of an all-Ukrainian publication (sub-Russian and sub-Austrian). This is, in fact, a tiny number. After all, 30 million Ukrainians lived in the Dnipro region. Between 1905 and 1914, 40 Ukrainian-language periodicals were published in Naddniproshchyna. Only about a dozen of them survived for about a year. The rest usually ceased to exist after a few issues. The main reason for this state of affairs was the pressure exerted by the imperial authorities on subscribers to periodicals in Ukrainian. After the cancellation of the Ems Decree of 1876 and the revolutionary events of 1905-1907, Yevhen Chykalenko became the patron of Ukrainian periodicals. Before that, Vasyl Symyrenko carried out this mission. However, in the first half of 1906, the publication "Hromadska Dumka" had only 4093 subscribers; by the end of the year, there were 1509 subscribers. In the western Ukrainian regions, a daily newspaper called Dilo was published in 1880 and had 3,000 subscribers (Hyrych, 2013).

The intellectual history of Ukraine is closely linked to the activities of the Shevchenko Scientific Society (SSS). The organisation was founded in Lviv in 1873. The idea of the Society was to unite the intellectual and creative power of the revivalists of Ukraine, which at that time was divided between two empires - the Russian and Austro-Hungarian (Kushnir & Feloniuk, 2019: 64). In 1892, the members of the Society began publishing a periodical, the journal "Notes of the Shevchenko Scientific Society" (Luchka, 2023). The journal became the main serial periodical of the Society for all the years of its activity both in Ukraine and in the diaspora (New York, Munich, Rome, Paris, Sydney, Toronto), and then after the restoration of state independence in Ukraine (even earlier - printing was resumed in 1990) (Doroshenko, 1951; Kupchynskyi, 2013; Moroz, 1998). "Notes of the Shevchenko Scientific Society" published historical and political studies devoted to the scientific understanding of the state's history, the formation of relevant institutions, and practical considerations in this regard. For example, the article by Volodymyr Starosolskyi, "On the Question of Forms of the State", reflects on the need to distinguish between the study of the "state" from the point of view of different scientific disciplines and approaches: history, economics, sociology, jurisprudence, geography, and focuses on the classification and interpretation of the concepts of "monarchy" and "republic": "Monarchy and republic are two powerful slogans of practical politics"; "The division of states into monarchies and republics as the main division is the result, in the first place, of historical development and this practical significance, which is connected with the struggle for both state forms" (Starosolskyi, 1925). The topic of the Cossacks was particularly interesting to Ukrainian historians in the early twentieth century. It occupied a prominent place among humanitarian studies of the history of Ukraine, archaeology, folklore, ethnography, and the history of Ukrainian literature (publications by Vovk A., Herasymchuk, V., Hrushevsky M., Dzhydzhora I., Domanytskyi V., Kolessa F., Lypynskyi V., Sumtsov M., Terletskyi O., Tomashivskyi S., Franko I., Tselevych O.). In keeping with the times, much attention was paid to historical and economic studies, which were popular in European countries at the time (Zaitseva, 2007; Hora et al., 2023).

The historian Ohloblyn O. described Hetman Ivan Mazepa as one of the most prominent and outstanding Ukrainian statesmen and politicians: "There is no doubt that Hetman Ivan Mazepa

was committed to the idea of Ukrainian statehood and, thus, to the idea of the unity of Ukraine. He *inherited* these ideas from his predecessors, the Ukrainian hetmans, from Khmelnytsky to Samoylovich. These ideas were the main ones for him in his state, political and cultural activities, and he bequeathed them to future Ukrainian generations" (Ohloblyn, 2001). Summarising the review of Ivan Mazepa's life and activities from birth to the Hetman's mace, as well as providing a description of his family and environment, Ohloblyn O. notes: "And the thirty years of Mazepa's pre-Hetman life were not only an ordinary human school and an unusually successful career as a foreman. It was a school for forming the Ukrainian state's and Ukrainian nation's ruler" (Ohloblyn, 2001). O. Ohloblyn's research on Ivan Mazepa and his activities was once published in Ukrainian Soviet periodicals. In particular, in the journal "Communist Education" (this was the name of the journal in 1931-1941, which is now known as "Ridna Shkola" (Yefimova, 2022)). O. Ohloblyn's scientific and journalistic works on Mazepa were published in the Collection of the Historical and Philological Department of the Ukrainian Academy of Sciences, Pioneer, and Communist:

- 1929 — Mazepa and the Uprising of Petro Ivanenko (Petryk).
- 1938 — "The defeat of the Swedish occupiers near Poltava"; "A heroic page in the history of the two fraternal peoples" (Bibliography of works by O. Ohloblyn about I. Mazepa).

Such a prominent historical figure as Ivan Mazepa could not be ignored by an equally prominent personality - historian and politician Mykhailo Hrushevsky. If Ivan Mazepa was a representative of the independence sentiments of the Cossack era, Mykhailo Hrushevsky represents the modern era of Ukrainian state-building and the formation of its historical paradigm. At that time, most Ukrainian scholars assessed Mazepa's political activities through his actions related to severing relations with Moscow and the alliance with Sweden. Instead, M.Hrushevsky was more critical of Mazepa's hetman period. The historian positively assessed Mazepa's contribution to developing culture and patronage. However, according to the researcher, his political actions require a balanced and unbiased view, considering the historical context of the time and the overall European political situation and culture of political affairs (Zhukovskiy, 1998: 134-135).

To understand the perception of Mazepa's political and state-building activities, his influence on the worldview and ideas of Ukrainian state-building in the early twentieth century, it is essential to read M. Hrushevsky's article "Mazepaism and Bohdanism", which was first published in the Literary and Scientific Bulletin in 1912. In an abridged form, under the title "The New Banner of Nationalists," it was published in the second issue of the Ukrainian Life magazine in 1912. A few years later, in 1917, M. Hrushevsky included this article in the collection "From the Political Life of Old Ukraine: Studies, Articles, Speeches". Already in Ukraine, the article was published in the journal "Kyivska Starina" in 1995 on the occasion of the 400th anniversary of Bohdan Khmelnytsky's birth (Hrushevsky Mykhailo Sergiyovych; Hrushevsky, 1912).

Professor of the Ukrainian Free University, full member of the Shevchenko Scientific Society, historian, and writer Mykola Andrusiak collaborated with periodicals of Galicia in the 1930s: the newspapers Dilo, Nova Zorya, magazines Novi Shlyakhy, Zhyttia i Znannia. He also had publications in the "Notes of the Shevchenko

Scientific Society” (Yas, 316). His research interests included the Cossack era, particularly the political and diplomatic activities of Ivan Mazepa. One of the results of his scientific work is his research “Ivan Mazepa and Ivan Skoropadskyi” (Andrusiak, 1933) and “Mazepa’s Relations with Stanisław Leszczyński and Charles XII” (1933).

6 Conclusion

Ukrainian periodicals of the first half of the twentieth century are a rather broad and voluminous concept. We focused on the most conceptual publications covering this article’s subject. In this way, we sought to demonstrate the general research paradigm of the Ukrainian intellectual elite, which published their scientific findings related to Ivan Mazepa in various publications.

Given the strict prohibitions and restrictions on Ukrainian periodicals related to the Russian Empire’s policy towards Ukrainians (primarily the Ems Decree), the full development of Ukrainian periodicals was not possible for a long time. In addition, the lack of financial and material resources also did not contribute to the development of the cause. The situation was somewhat better in the Ukrainian regions of Austria-Hungary.

Ivan Mazepa’s political activities and state-building project to unite the Left Bank, Right Bank, Slobozhanshchyna and Zaporizhzhia were long taboo in Ukrainian studies. They were interpreted exclusively through the prism of Mazepa’s vision of a “traitor” and political adventurer. Nevertheless, the Ukrainian intellectual elite of the first half of the twentieth century, especially during the years of the Ukrainian state-building struggle and the diaspora period, developed severe scientific research and analysis of Ivan Mazepa’s political biography, which did not coincide with the official imperial and later Soviet point of view on Hetman Ivan Mazepa. In particular, the topic of the Cossack era in the history of Ukraine was one of the most popular among Ukrainian scholars. Particular attention was paid to the search for and study of archival materials and comparative analysis of the activities of various hetmans. In such studies, Ivan Mazepa, Bohdan Khmelnytsky, and Pylyp Orlyk were among the leading figures. About Mazepa, we can observe, on the example of publications by M. Andrusiak, M. Hrushevsky, and O. Ohloblyn, the desire to give an unbiased assessment of the Hetman’s activities, especially when it comes to his cooperation with political figures from other countries, in particular Muscovy. Internal Ukrainian affairs during the life of Ivan Mazepa, the external political situation, and the era’s overall historical and political context were analysed.

Literature:

1. Antoshkina, V., Shevchenko, A., Skryl, S., Sadovyi, S., Kuznichenko, O.: Problems of legal education development in Ukraine. *International Journal of the Legal Profession*, 2023. 31(21), 175-185. <https://doi.org/10.1080/09695958.2023.2279758>
2. Babinsky, H. F.: *The Mazepa legend in European romanticism*. N.Y.: Ind., Columbia Univ. Press, 1974. 164 p.
3. Luchka, L.: Publications of the Taras Shevchenko Scientific Society as Historical Sources of Research on the Book Heritage of Ukraine. *University Library at a New Stage of Social Communications Development. Conference Proceedings*, 2023. 8. <https://unilibnsd.u.st.edu.ua/article/view/293141/291548>
4. Mackiw T.: *English Reports on Mazepa 1687-1709*. New York: Ukrainian Historical Ass’n, 1983. 177 p.
5. Mackiw, T.: *Prince Mazepa: Hetman of Ukraine in contemporary English publications 1687-1709*. Chicago: Ukrainian research and information institute, 1967. 126 p.
6. Mackiw, T.: *Hetman der Ukraine Fürst des Heiligen Römischen reiches in zeitgenössischen Deutschen Quellen (1639-1709)*. München: Ukrainische freie universität, 2000. 114 p.
7. Manning, C. *Hetman of Ukraine Ivan Mazepa*. New York: Bookman Associates, Publishers, 1957. 234 p.
8. Ohloblyn, O.: *The Year 1709. Ivan Mazepa: Hetman of Ukraine*. New York: The Ukrainian Congress Committee of America, 1960. p. 47-56.
9. Ohloblyn, O.: *Western Europe and the Ukrainian baroque: an aspect of cultural influences at the time of hetman Ivan Mazepa. Baturyn antiquity. Collection of scientific papers dedicated to the 300th anniversary of the Baturyn tragedy*. Kyiv: Olena Teliha Publishing House, 2008. pp. 278-285.
10. Primush, R., Chmyr, Y., Kravtsov, M., Perehuda, Y., Koniushkov, A.: Information Wars: Historical and Comparative Analysis, Specifics and Factors of Actualisation in the Modern World. In: Radchenko, O., Kovach, V., Semenets-Orlova, I., Zaporozhets, A. *National Security Drivers of Ukraine. Contributions to Political Science* 2023. 259-272. https://doi.org/10.1007/978-3-031-33724-6_15
11. Subtelny, O.: *On the Eve of Poltava: The letters of Ivan Mazepa to Adam Seniawski 1704-1708*. N.Y., 1975. 159 p.
12. Subtelny, O.: *The Mazepists: Ukrainian separatism in the Early Eighteenth Century*. Boulder, CO: East European Quarterly, 1981. 280 p.
13. Zarosylo, V., Kaplya, O., Muraviov, K., Myniuk, D., Myniuk, O.: Application of forms of alternative dispute resolution in Ukraine. *Revista Brasileira de Alternative Dispute Resolution*, 2022. 4(7), 231-240. <https://doi.org/10.52028/rb.adr.v4i7.14>
14. Andrusiak, M.: Mazepa’s relations with Stanisław Leszczyński and Charles XII. *Notes of the Scientific and Technical School: Works of the Historical and Philosophical Section*, 1933. 152, 35-61. https://shron1.chtyvo.org.ua/Andrusiak_Mykola/Zviazky_Mazepy_z_Stanyslavom_Lieschynskym_i_Karlom_XII.pdf
15. Andrusiak, M.: Ivan Mazepa and Ivan Skoropadskyi. *Chronicle of Chervona Kalyna*, 1933. 1, 17-20. https://chtyvo.org.ua/authors/Andrusiak_Mykola/Ivan_Mazepa_t_a_Ivan_Skoropadskyi/
16. Apanovych, O.: *Hetmans of Ukraine and Kosh Atamans of the Zaporozhian Sich*. Kyiv: Lybid, 1993. 288 p.
17. Ogloblyn, O.: *Bibliography of works about I. Mazepa*. <http://litopys.org.ua/coss3/ohl04.htm>
18. Buket, Ye.: Petro Doroshenko’s Ottoman Ukraine. *Army Inform*, 2021, 8 November. <https://armyinform.com.ua/2021/11/09/osmanska-ukrayina-petra-doroshenka/>
19. Exhibition “Freedom Factor”, 2019: *Ukrainian Institute of National Memory*. <https://uinp.gov.ua/vystavkovi-proekty/vystavka-faktor-svobody>
20. Vintoniak, O.: Anathema on Hetman Mazepa. *Ukrainian historian. Journal of the Ukrainian Historical Society*, 1990. 1-4(104-107), 64-70.
21. Hyrych, I.: Mirror of consciousness. Ukrainian press in the early twentieth century. *Ukrainian Week*, 2013. 2 March. <https://tyzhden.ua/dzerkalo-svidomosti-ukrainska-presa-na-pochatku-khkh-stolittia/>
22. Hrushevsky, M. S.: *E-archive of Mykhailo Hrushevsky*. <http://hrushevsky.history.org.ua/item/0000131>
23. Hrushevskyi M.: On Ukrainian topics. “Mazepinstvo” and “Bohdanism”. *Literary and scientific bulletin*, 1912. 12(1), 94-102. https://shron2.chtyvo.org.ua/Hrushevskiyi/Na_ukrainski_temy_Mazepynstvo_i_Bohdanivstvo.pdf
24. Deivis, N.: *Europe. History*. Kyiv: Osnovy, 2020. 1463 p.
25. Doroshenko, V.: *The hearth of Ukrainian science. Taras Shevchenko Scientific Society*. New York, Philadelphia, 1951. 116 p. <https://diasporiana.org.ua/wp-content/uploads/books/15401/file.pdf>
26. Yefimenko, H.: “Petliurists”, “Petliurists”, “Petliurists”, and “Petliurists’ movement” in time and space. *Historical truth*, 2022, 3 October. <https://www.istpravda.com.ua/articles/2022/10/3/161859/>
27. Zhukovskiy, A.: Hetman Ivan Mazepa in the assessment of Mykhailo Hrushevsky. *Ukrainian Historical Journal*, 1998. 6, 134-145. <http://hrushevsky.history.org.ua/item/0000815>
28. Zabolotnyi, Ye., Mieliekiestev, K.: Mazepa, Petliura, Bandera: from propaganda clichés to a synonym for the concept of “Ukrainians”. *Bulletin of the Student Scientific Society of Vasyl’ Stus Donetsk National University*, 2023. 15(2), 31-34.
29. Zaitseva, Z.: *Institutionalisation of Ukrainian science in the late nineteenth and early twentieth centuries. Dissertation for the degree of Doctor of Historical Sciences*. Kyiv: National Academy of Sciences of Ukraine, Institute of History of Ukraine, 2007. 470 p.

- https://shron1.chtyvo.org.ua/Zaitseva_Zinaida/Instytutsionalizatsiia_uk_rainskoi_nauky_naprykintsi_KhKh_-na_pochatku_KhKh_st.pdf
30. Kamina, Kh.: State-building policy of Ivan Mazepa in the late seventeenth and early eighteenth centuries (through the prism of relations between Ukraine and Russia). *Scientific journal of the Drahomanov National Pedagogical University. Series No. 6. Historical sciences: Collection of scientific papers*, 2010. 6, 138-142. <https://enpuir.npu.edu.ua/handle/123456789/1821?show=full>
31. Kovalevska, O.: *The Legend of Mazepa: Origins, Essence, Consequences Hetman. Understanding*. In: O. Kovalevska. Kyiv: Tempora, 2009. pp. 226-227.
32. Kovalevska, O.: *The image of Hetman Ivan Mazepa in Ukrainian historiography. Academic and pre-academic images of Ukrainian historiography: a collective monograph*. Kyiv: Institute of History of Ukraine of the National Academy of Sciences of Ukraine, 2012. pp. 589-651.
33. Kostenko, I., Khalupa, I.: Hetman Ivan Mazepa — the builder of Ukraine's independence and the enemy of the empire. *Radio Liberty*, 2021. 1 August. <https://www.radiosvoboda.org/a/hetman-ivan-mazepa-voroh-imperiya/31387388.html>
34. Kupchynskiy, O.: 140 To the Shevchenko Scientific Society. *Bulletin of the Scientific Society*, 2013. 46, 1-8. <https://ena.lpnu.ua/items/d120cdd-b7df-4f9e-963c-932f3922a367>
35. Kutashov, I. State-building concept and political activity of Ivan Mazepa. *Scientific Notes of I. F. Kuras Institute of Political and Ethnic Studies of the National Academy of Sciences of Ukraine*, 2006. 32, 26-36. https://ipiend.gov.ua/wp-content/uploads/2018/07/kutashov_derzhavotvorcha.pdf
36. Kushnir, R., Feloniuk, A.: Shevchenko Scientific Society: history, present, future. *Bulletin of the National Academy of Sciences of Ukraine*, 2019. 1, 64-84. <https://visnyk-nanu.org.ua/ojs/index.php/v/article/view/690>
37. Matskiv, T.: Hetman Ivan Mazepa — Prince of the Holy Roman Empire. *Ukrainian historian*, 1966. 3-4, 33-40.
38. Matskiv, T.: Prince Ivan Mazepa — Hetman of Ukraine. *Ukrainian historian*, 1979. 1-4, 55-68.
39. Matskiv, T.: Hetman Ivan Mazepa in Western European sources 1687-1709. Munich, 1988. <http://litopys.org.ua/coss4/mazk16.htm>
40. Moroz, M.: Materials for the chronology of the activities of the NTSh (1873-1944). From the history of the Shevchenko Scientific Society. *Collection of reports and communications of scientific sessions and conferences of the Scientific Society in Lviv*, 1998. pp. 260-319.
41. Ohloblyn, O.: Hetman Ivan Mazepa and Moscow. *Ukrainian historian. Journal of the Ukrainian Historical Society*, 1989. 4(104), 7-16.
42. Ohloblyn, O.: Hetman Ivan Mazepa and Moscow (Continued). *Ukrainian historian. Journal of the Ukrainian Historical Society*, 1990. 1-4(104-107), 45-54.
43. Ohloblyn, O.: *Hetman Ivan Mazepa and his time*. New York – Kyiv – Lviv – Paris – Toronto, 2001. p.464. <http://litopys.org.ua/coss3/ohl.htm>
44. Popovych, M.: *Essay on the history of culture of Ukraine*. Kyiv: ArtEk, 1998. 728 p.
45. Sikora, R.: *The Winged Hussars of Jan Sobieski*. Kyiv: Dukh i Litera, 2013. 104 p.
46. Smolii, V., Stepankov, V.: *The Ukrainian state idea in the seventeenth and eighteenth centuries: problems of origin, formation, and implementation*. Kyiv: Alternatives, 1997. 367 p.
47. Starosolskyi, V.: *Notes of the Shevchenko Scientific Society. Vol. XXXVIII-XXL. Works of the historical and philosophical section edited by Ivan Krypiakievych*. Lviv: Printing house of the Shevchenko Scientific Society, 1925. 311-335 pp.. https://chtyvo.org.ua/authors/Naukove_tovarystvo_imeni_Shevchenka/Zapysky_Tom_138-140/
48. Stenko, O.: What the myths of Russian propaganda hide. The truth about Ivan Mazepa. *Spiritual Front of Ukraine*, 2021, 21 May. <https://df.news/2021/03/21/shcho-prykhovuiut-mify-rosijskoi-propahandy-pravda-pro-ivana-mazepu/>
49. Sukholit, N.: Russian historiography of the “Mazepa's betrayal” and Ukrainian-Russian relations during the Northern War of 1700-1721. *Scientific works of Kamianets-Podilskiy Ivan Ohienko National University. Historical Sciences*, 2013. 23, 179-198.
50. Tairova-Yakovleva, T.: *Ivan Mazepa*. Kharkiv: Folio, 2018. 315 p.
51. Tairova-Yakovleva, T.: *Ivan Mazepa and the Russian Empire. The history of “betrayal”*. Kyiv: Clío, 2012. 403 p.
52. Tairova-Yakovleva, T.: *Pylyp Orlyk and the mazepynecs*. Sources. Kyiv: Clío, 2022. 216 p.
53. *Universals of Ukrainian Hetmans from Ivan Vyhovsky to Ivan Samoilovych (1657-1687)*. Lviv: Shevchenko Scientific Society, 2004. 1118 p.
54. Chukhlib, T.: *Hetmans and monarchs: The Ukrainian State in International Relations 1648-1714*. Kyiv: Institute of History of Ukraine of the National Academy of Sciences of Ukraine, 2003. 518 p. <http://resource.history.org.ua/item/0001715>
55. Chukhlib, T.: *The Ukrainian Hetmanate in the Great Northern War of 1700-1721: Problems of International and Military-Political Situation. Hetman Ivan Mazepa: figure, environment, epoch. Collection of works*. Kyiv: Institute of History of Ukraine of the National Academy of Sciences of Ukraine, 2008. 7-42 pp.
56. Chukhlib, T.: Mazepa's Ukraine between the Russian and Swedish Crowns: The Dilemma of Choosing Protection. *Ukrainian Historical Journal*, 2009. 2, 16-39.
57. Chukhlib, T.: Review: Tairova-Yakovleva T.G. Ivan Mazepa and the Russian Empire. The history of “betrayal” *Ukrainian Historical Journal*, 2011a. 5, 190-204.
58. Chukhlib, T.: *The secrets of Ukrainian political vassalage. Khmelnitsky — Doroshenko — Mazepa*. Kyiv: Kyiv-Mohyla Academy Publishing House, 2011b. 328 p.
59. Chukhlib, T.: *Ivan Mazepa*. Kyiv: Arius, 2013. 375 p.
60. Yushchuk, T.: The Figure of I. Mazepa in the Monographic Studies of Theodore Matskiv. *Scientific Notes of the National University of Ostroh Academy. Series: Historical Sciences*, 2021. 32, 106-111.
61. Yas, O.: Mykola Andrusiak and his scientific heritage (materials for bibliography). *Special historical disciplines: issues of theory and methodology*, 2006. 13, 313-342. http://resource.history.org.ua/publ/sid_2006_13_1_313
62. Yatsenko, V.: Hetman Ivan Mazepa and the Naryshkins' “palace coup” of 1689 in modern historiography. *New studies of monuments of the Cossack era in Ukraine: a collection of scientific articles*, 2012. 21(2), 168-176. <http://dspace.nbu.v.gov.ua/handle/123456789/40575>
63. Yatsenko, V.: Features of the image of Hetman Ivan Mazepa in modern Russian historiography: the main trends. *Ukrainian historical collection*, 2014. 17, 257-278. <http://dspace.nbu.v.gov.ua/handle/123456789/101987>
64. Kryshchal, H. O.: The Role of Logistics in the Development of Agriculture of Ukraine in the War Conditions. *Science and Innovation*, 2023. 19(2), 73-82. <https://doi.org/10.15407/scin.e19.02.073>
65. Korolchuk, O., Zyma, I., Khrapatyi, S., Vikhliayev, M., Zavalko, K.: Current issues of state regulation of psycho-social support in the conditions of war in Ukraine. *Neuropsychiatry i Neuropsychologia*, 2023. 18(1-2), 76-84.
66. Hora, A., Kalinin, A., Lebedev, O.: Economic legal and psychological aspects of the introduction of social entrepreneurship in Ukraine. *Social and Legal Studies*, 2023. 6(1), 17-24.

Primary Paper Section: A**Secondary Paper Section: AB**

HOW DIGITALISATION OF BUSINESS PROCESSES DRIVES ECONOMIC GROWTH

^aTETIANA SHESTAKOVSKA, ^bOKSANA LIASHENKO,
^cOLEKSANDR DLUHOPOLSKYI, ^dANASTASIIA DUKA,
^eOLENA MYKHAILOVSKA, ^fNATALIIA FILIPOVA

^{a,d,e,f}Higher Educational Institution "University of Future Transformation", Chernihiv, Ukraine.

^bUniversity of Seville, Seville, Spain.

^cWSEI University, Lublin, Poland.

email: ^ashestakovska27@gmail.com, ^boliashenko@us.es,
^cdlugopolsky77@gmail.com, ^d2549apd@gmail.com, ^em-olena@ukr.net, ^fnataliia-@ukr.net

Abstract: Digitalisation is adjusting the economies of entire countries by affecting society's private life and modifying business, the labour market, logistics, and government policies. Therefore, this study aims to analyse the impact of digitalisation on companies' economic processes and its effects on the labour market and business models. We seek to identify positive trends in this area and outline possible areas for their implementation in the current national reality. Our task is to analyse the digitalisation process and find those issues that would help us improve it in the future, taking into account the specifics of the Ukrainian organisation of economic processes. The development of digitalisation and its spread in the economy are driving a qualitative increase in the availability of goods and services and equal opportunities for all population segments. Digitalisation changes business models, simplifies processes, and reduces costs, thus stimulating economic development and ensuring sustainable progress. Thus, the study of digitalisation is critical to ensuring society's sustainable and uniform development, increasing its competitiveness, and adapting to a rapidly changing technological environment (Pankratova, 2021). The methodology included analysis and synthesis of statistical data, research of market trends, reports of analytical agencies, legislative framework and scientific literature, and comparison of companies' performance indicators before and after the introduction of digitalisation. In particular, the applied methods of case studies, SWOT analysis, risk assessment and trend forecasting allowed us to study in detail the changes in the efficiency of business processes. The study results confirm the importance of integrating digital technologies to ensure economic growth and social progress.

Keywords: Digitalisation, Business process, Digital transformation, Business model, Strategy

1 Introduction

Today, digitalisation is one of the primary megatrends in the development of society. Digital technologies are actively reforming all types of human activity (from the impact on the professional sphere to leisure, communication and socialisation). This annexation is developing rapidly and is becoming a significant factor in the progress of technology. Digital technologies change how we interact with information, shape new business models, transform labour markets and influence economic development. As the defining driver of the 21st century, digitalisation remains the most effective engine of progress. In the context of the Fourth Industrial Revolution, it is becoming the basis for new management priorities and strategies for the development of society (Nochvina, 2021).

It is simply impossible to ignore such a powerful influence. Research on digitalisation in general and its contribution to the economy's evolution is becoming critical. The progress that digitalisation has triggered by its existence should become the subject of research by many scholars, as the highest stage of development is the realisation of the manageability of this progress.

Characterising the impact of digitalisation on the constituent elements of the economy and society is essential for developing effective policies and strategies aimed at maximising the benefits of technological innovation. This research allows us to better understand how digitalisation is changing business processes, the labour market, socio-economic conditions, and public administration and helps formulate strategies to ensure sustainable development and competitiveness in the face of rapid technological change.

There are many positive examples among global leaders in the digitalisation of the economy that are worth paying attention to. Among them is the United States, a leader in this area. By adopting the experience of introducing digitalisation into the daily life of society, Ukraine has a chance to improve its economic performance and become more productive and open to its population (Hrazhevska & Chyhyrnskyi, 2021; Zahorodna et al., 2022). In today's challenging environment, it can take advantage of the potential of digitalisation and ensure the quality of administrative services (which is already being practised at the state level). We initiated this theoretical study to analyse positive trends in the digitalisation of business processes.

2 Literature review

The issue of digitalisation, or digitalisation in scientific terms, is of interest to the following researchers: S. Tulchynska, T. Yanchuk, O. Boienko, D. Pilevych, N. Andriiv. The problem of the formation of the digital economy and its impact on business was raised in the works of such scientists and practitioners as A. Heidor, L. Lazebnyk, A. Liezina, S. Lehominova, O. Husieva A. Natorina, M. Ustenko, K. Bahatska. V. Tkachuk, S. Obikhod, N. Trushkina and N. Rynkevych study the theoretical and practical aspects of digital transformation of business processes of enterprises, consider digital transformation as a radical change in all aspects of business processes of enterprises, from product development to customer service, as well as the introduction of the latest digital technologies in the process of business organisation. I. Shkodina and T. Serdiuk studied the specifics of introducing digital technologies by international business in the context of the COVID-19 pandemic.

3 Research methods

Methods used in the preparation of this research paper: analysis and synthesis of statistical data (collection, processing and evaluation of numerical data, financial results and operating activities of companies before and after the introduction of digital technologies), research of market trends and reports of analytical agencies (study of reports of analytical agencies and consulting companies such as Gartner or McKinsey to determine current trends and forecasts in the field of digitalisation, review of public reports, specialised articles and market reviews), legislative framework.

4 Results

Digitalisation (digitalisation) is converting information in all its forms into a digital format, which involves computer technology (Chuienko & Tazetdinov, 2024). In domestic enterprises, digitalisation is mainly manifested through the widespread introduction of digital enterprise management systems, the development of big data technologies, e-commerce, robotics and artificial intelligence (On approval of the Concept of Artificial Intelligence Development in Ukraine, 2020; Tulchynska et al., 2021).

The main advantages of integrating digital management systems are the optimisation of production processes, reduced time and material resources, increased speed of information dissemination, the ability to process large amounts of data, and automation of document flow (Yurchenko, 2024).

The main aspects of business process digitalisation that have the most significant impact on economic development include constituent elements, which should be presented in a table (Table 1) for ease of review.

Table 1. Business process digitalisation aspects

Digitalisation aspect	Characteristics	Impact on economic development
Process automation and optimisation	Integration of automated systems into business processes, reduction of manual labour, and increased efficiency.	Reduce costs, increase productivity, and reduce errors.
Data analytics and big data	Use of analytical tools to process large amounts of data and obtain insights.	Informed decisions, adaptation of strategies, and forecasting trends.
Digital platforms and e-commerce	Development of online platforms and online stores for global trade.	Expanding markets, reducing physical infrastructure costs, and increasing sales.
Innovative business models	Developing new business models, such as subscriptions, sharing economy platforms, and SaaS.	Creating new sources of income and increasing competitiveness.
Improving the level of customer service	Use of digital tools for communication with customers, such as chatbots and CRM systems.	Improving customer service and increasing customer satisfaction.
Globalisation and market expansion	Facilitating access to new markets and international trade through digital technologies.	Expansion of operations and competitive advantage at the global level.
Innovation and development of new technologies	Investing in the latest technologies, such as artificial intelligence, blockchain, and IoT.	Stimulating innovation, developing new products and services, and increasing economic potential.

Source: compiled by the authors based on Timinsky et al. (2021)

Digitalisation aims to transform both existing and newly created sectors of the economy and transform the spheres of life into more efficient and modern ones (Savchenko, 2022). This goal can only be achieved if ideas, actions, initiatives and programmes related to digitalisation are integrated into national, regional and sectoral development strategies and programmes (Yefremova et al., 2022). Moreover, like every process, digitalisation has its strengths and weaknesses, which we have presented in Figure 1 and Figure 2.

The term digitalisation can be viewed at different levels. At the first level, it should be understood as digitisation. This refers to using available tools to obtain, process, own, and use information resources. In the context of digital transformation, this involves forming and developing both internal and external digital environments. The first stage is at least about creating electronic documents, and at a more advanced level, it is about organising a multi-level information support system using digital tools. These tools provide a robust information base for planning and organisational design processes (Shatilova & Shyshuk, 2020).

As for the second level, digitalisation is actively integrated into the business process. In this aspect, a business process should be interpreted as a system of interconnected and interdependent actions that result in the production of products, provision of services or performance of works that are of value to external and internal customers. At the second level of digital transformation, the focus is on business process automation, which goes beyond the simple introduction of robots and their integration into the industrial Internet. Modern technologies, such as artificial intelligence, make it possible to create automated systems for monitoring and analysing an enterprise's internal and external processes. These systems collect data, generate analytical reports and identify potential threats, which helps in strategic management and customer interaction. Due to the ability to process large amounts of information and maintain communication between different departments, automation drives quality and reduces business risks (Garafonova, 2023).

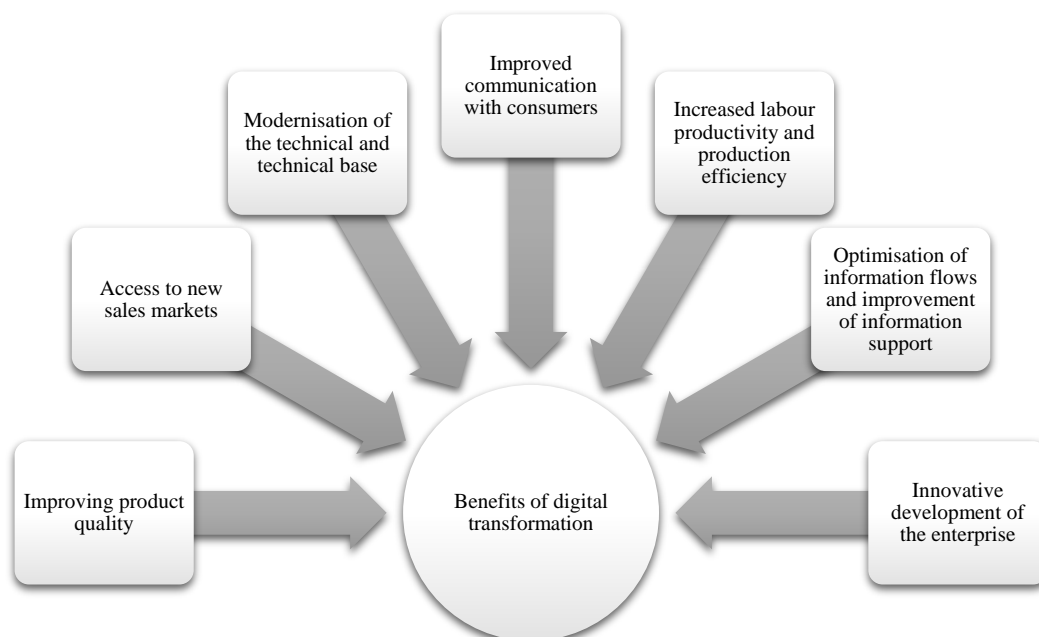


Figure 1. Benefits of Digital Transformation
Source: compiled by the authors based on Andriyiv (2022)

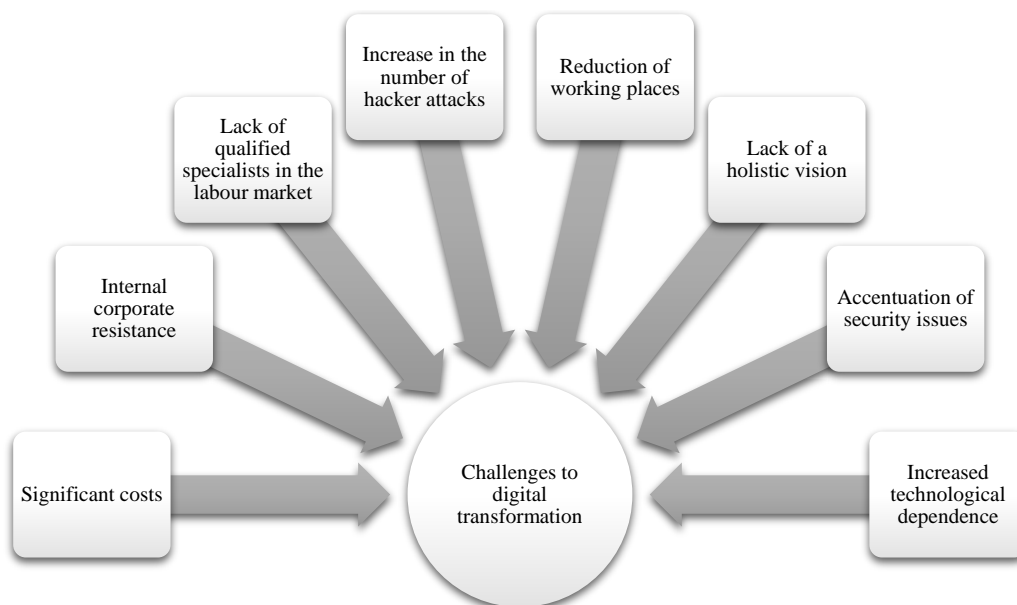


Figure 2. Challenges to Digital Transformation
Source: compiled by the authors based on Andriyiv (2022)

The third level also demonstrates digitalisation as a process element. However, here we are talking about a “business model”, a logically structured scheme with a clearly defined goal and ways to achieve it. Digital transformation in such a business model should aim to develop a process that includes elements of a virtual or entirely virtual enterprise.

By developing, transforming, and improving in the field of digitalisation, organisations and companies are becoming more powerful and more robust competitors in their industries. By implementing new business models, they use new strategies to interact with customers (Obidenova & Vasiliev, 2023). For example, the Subscription-based model has proved to be a positive one. According to this model, a company offers products or services by subscription. This strategy allows for building ongoing cooperation with the client for a specific period. This regularity allows us to calculate the value of the company's profits in the future. As a result, it provides a stable income and reduces dependence on one-off sales. One of the most striking examples of this strategy is the American company Netflix (USA, Los Angeles). The company provides access to a huge library of films and TV shows for a monthly fee. In 2020, this company's customers were more than 203 million subscribers worldwide.

Another development strategy is the creation of Sharing economy platforms, which are based on exchanging resources or services between users through digital platforms. Examples include car and accommodation-sharing platforms. In particular, Airbnb (San Francisco, USA) allows users to rent out their homes or rent homes from other people through an online platform. In 2020, it gained more than 150 million users as it reduced consumer costs while monetising unused resources. Another example is Uber, a well-known company in Ukraine (San Francisco, USA). The specificity of its business lies in the fact that it connects drivers and passengers through a mobile application. In 2020, its customers were over 100 million monthly active users. The analogue of this company in Ukraine is the company with the Bla-Bla-Car app.

The following strategy is Data-driven models. Businesses use big data and analytical tools to develop new products, optimise operations and create personalised customer offers. This helps to improve decision-making efficiency and enables them to predict

market trends and possible customer behaviour. A large international company uses this model.

Amazon (USA, Seattle). Amazon uses big data to personalise offers, manage inventory, and optimise logistics. That's why, as of 2020, its customer base was about 300 million active users. The company constantly monitors the demand for goods, which helps it to optimise supply chains and thus increase the efficiency of business processes. Another well-known company in this market is Google (USA, Mountain View). It constantly improves advertising offers for its customers using search data analytics. As of 2020, the company served more than 4.3 billion customers worldwide. The company collects and analyses large amounts of data to accurately target advertising and develop new technologies.

Freemium models. This model is characterised by the provision of free services in the field of creating digital products and applications. Essential services or products are provided free of charge, while paid features are available for an additional fee. LinkedIn (USA, Silicon Valley) is a prime example. LinkedIn offers essential services for free, while paid features include additional opportunities for professional networking and recruitment. The company's customer base was over 722 million in 2020. The company's speciality is attracting many users, with the possibility of converting some of them into paying customers through the advanced features offered by subscriptions.

Looking at these models, we see active support from users. After all, demand shapes supply. By affecting such a large number of customers, digitalisation is transforming the service market and entire industries, providing new opportunities for efficiency, innovation, and competitiveness. Table 2. Impact of Digitalisation on Key Sectors of the Economy shows specific examples of successful digitalisation in the financial sector, retail, and manufacturing.

As we can see, the digitalisation of business processes has a significant positive impact on the economy. It helps reduce costs and increase efficiency in various business areas, making businesses grow and organisations more prosperous (Fernandez Rea, 2022). This process can be described using data from large companies at the stage of their creation (during the first five years of the company's activity on the market) and over the past five years (during 2019-2024). We have presented them in the Table 3 below.

Table 2. Impact of digitalisation on key sectors of the economy

Sector of	Company	Characteristics of the activity	Economic impact
-----------	---------	---------------------------------	-----------------

economy			
Financial sector	Revolut (UK, London)	Revolut is a financial startup that offers digital banking services through a mobile application. The company allows users to make international transfers, exchange currencies without commission, invest in cryptocurrencies, and access other financial services.	Reducing the cost of traditional banking services, providing fast and convenient access to financial instruments and improving the user experience.
	Square (USA, San Francisco)	Square provides mobile payment solutions for small and medium-sized businesses, including POS systems, card payment processing tools and accounting services.	Access to innovative payment solutions for small businesses simplified sales and accounting processes and increased financial transparency.
Retail	Amazon (USA, Seattle)	Amazon uses advanced digital technologies to manage supply chains, personalise shopping, and automate warehouses. For example, robots manage stock in warehouses, and algorithms recommend products.	Reduced delivery time, more efficient inventory management, and improved user experience through personalised recommendations.
	Walmart (USA, Bentonville)	Walmart is integrating digital technologies, including artificial intelligence, into inventory management and shopping personalisation to forecast demand and automate distribution centres.	Reduced inventory management costs, increased order processing speed, and more accurate demand forecasting allow us to better meet customer needs.
Production	General Electric (USA, Boston)	General Electric (GE) is using the Internet of Things (IoT) and analytics to monitor and optimise the performance of industrial equipment. GE's Predix platform, for example, collects sensor data and analyses it to improve the efficiency of production processes.	Increase equipment efficiency and reliability, reduce maintenance costs and reduce downtime.
	Siemens (Germany, Munich)	Siemens is introducing digital technologies into production by creating digital twins, standardisation and robotics. This allows for the virtual simulation of processes and equipment to optimise production.	Optimisation of production processes, reduction of testing and prototyping costs, improvement of quality and speed of production.

Source: compiled by the authors based on Shmatkovska et al. (2021)

Table 3. Business development dynamics

Company name	Year of establishment/Number of clients in the first five years of operation	Number of clients over the last five years of operation
Amazon	1994/1 million customers	2020/300 million customers
Square	2009/ 1 million transactions	2020/ 100 million transactions
Revolut	2015/ 15 million customers	2024/ 30 million customers

Source: compiled by the authors based on Garafonova (2023)

While generating revenue for companies and corporations, digitalisation significantly impacts employment and the labour market. It leads to changes in professions and skills requirements for future professionals and shapes the structure of jobs. The impact of digitalisation on the labour market can be either driving (creation of new jobs) or detrimental (disappearance of some professions, radical transformation of existing roles). For example, the automation of processes in supermarkets and shops, such as the use of self-service checkouts, has reduced the need for traditional cashiers, cut jobs, and put the responsibility for the product registration process on the customer (Walmart (USA, Bentonville) and Tesco (UK, Chesham) use self-service checkouts to optimise the shopping process). Not only supermarkets have introduced self-service systems. Today, online banking and automated ATMs have become popular, reducing the need for traditional bank tellers (N26 (Germany, Berlin) to offer digital banking services without physical branches) (Reverchuk & Tvorydlo, 2023). Automation and big data create new needs for data analysts and automation specialists to optimise business processes. Thus, there is a growing demand for professionals in data analysis, business process automation, and IT infrastructure management (Amazon (USA, Seattle) uses data analytics to manage inventory and personalise purchases). Increasing cybersecurity threats drive demand for specialists who can protect companies from cyberattacks. This creates a demand for expanding cybersecurity roles, including threat detection and response, as well as risk management (IBM (US, Armonk) and Palo Alto Networks (US, Santa Clara) are actively hiring cybersecurity specialists) (Rea Christian Elias, 2023). The need for new software solutions and technologies is driving demand for software developers, IT architects and engineers, which in turn is favourable for specialists in software development, cloud technologies and artificial intelligence (Google (Mountain View, USA) and Microsoft (Redmond, USA) are actively expanding their

development and IT engineering teams). The expanded use of the Internet of Things (IoT) in industry and everyday life creates new roles for specialists who can integrate various IoT devices and systems. This is leading to a growing demand for professionals specialising in the integration and maintenance of IoT solutions (Siemens (Germany, Munich) and General Electric (USA, Boston) use IoT to monitor and optimise industrial processes).

Digitalisation significantly impacts the socio-economic landscape of small and medium-sized enterprises (SMEs), creating challenges and new opportunities (Melnychuk & Marchenko, 2021). Here is a detailed overview of the socio-economic impacts and processes of SMEs adapting to digital change:

1. Socio-economic impact of digitalisation on SMEs:

- 1.1. Increased competitiveness (digitalisation allows SMEs to optimise business processes, reduce costs and increase efficiency) (Gorokhova et al., 2024);
- 1.2. Changes in business models (digitalisation is leading to the emergence of new business models, such as subscription models or SaaS (software as a service));
- 1.3. Reducing barriers to entry into new markets (digital technologies allow SMEs to enter new markets that were previously inaccessible due to high costs or geographical restrictions);
- 1.4. Changing employment structure (digitalisation may reduce the need for some traditional roles, but at the same time create new jobs in areas related to IT, data analytics and digital marketing);
- 1.5. Improved access to finance (digital funding platforms such as crowdfunding can help SMEs obtain the capital they need to develop and adopt new technologies) (Dyuk, 2024).

2. Adapting SMEs to digital change:

- 2.1. Investments in digital technologies (including the purchase of modern technologies such as CRM systems, ERP systems and e-commerce platforms);
- 2.2. Staff training and development (training employees to use new technologies and tools);
- 2.3 Improvement of business processes (automation of operations, improvement of logistics and increase in the efficiency of marketing campaigns);
- 2.4. Development of digital strategies (creation of a digital marketing plan, product development strategy or digital transformation plan, SEO (search engine optimisation) or PPC (pay per click)).

Digitalisation, while affecting economic performance directly, also affects political processes indirectly. Government policymakers and regulators play a vital role in digitalising business processes (Kalach, 2020; Zub & Kalach, 2021). They can support or hinder this process through various laws, regulations, and initiatives. The positive impact of policies on digitalisation can be characterised as follows:

1. Data protection and privacy legislation (e.g., the General Data Protection Regulation (GDPR) in the European Union. The GDPR protects highly personal data, encouraging companies to invest in data management and security systems. It also increases consumer confidence in digital services and products);
2. Investments in infrastructure and innovation (e.g., the Digital Transformation Fund in Ukraine, which provides funding for digital projects and innovations. State support for infrastructure and innovation helps reduce barriers to entry and accelerates the digitalisation process);
3. Creating a favourable regulatory environment (e.g., the Electronic Commerce Act in the United States, which regulates transactions and protects consumers in the online environment).

Transparent and fair regulations support the development of digital businesses and contribute to economic growth. A favourable regulatory environment for e-commerce stimulates online business development by reducing legal barriers for businesses operating in digital channels).

The digitalisation impediment is manifested in the following ways:

1. Restrictions on access to technology and infrastructure (for example, in North Korea, access to high-speed Internet and new technologies is restricted, which hinders the development of digital business processes and reduces the competitiveness of enterprises);
2. Regulations that impede the introduction of new technologies (e.g., strict regulatory requirements for cryptocurrencies and blockchain technologies in China, which leads to a slowdown in innovation in rapidly developing areas and, as a result, a decrease in investment in innovative projects);
3. Prohibitions and restrictions on the use of data (e.g., restrictions on data transfers between countries, such as the Privacy Shield Framework between the US and the European Union, which was replaced by the EU-U.S. Data Privacy Framework, which increases costs for companies operating globally and creates additional barriers to international business).

Global trends in digitalisation affect not only advanced countries but also other countries that are actively developing. Thus, global processes are driving Ukraine's development and positive transformation. Therefore, over the past five years, Ukraine has taken significant steps towards digitalisation and developing the digital economy. In particular, in 2018, Ukraine adopted the National Strategy for Digital Development "Digital Ukraine

2020" to develop digital infrastructure, e-governance and innovative technologies. In 2021, this strategy was updated in the National Strategy for Digital Transformation "Digital Ukraine 2030", which includes ambitious plans to digitise public services, expand access to digital technologies and support innovation (National Economic Strategy, 2030). Ukraine is actively implementing e-governance through platforms such as Diia, which allows citizens to receive public services online, including business registration, obtaining documents and checking social services. By mid-2023, more than 15 million users had registered on the Diia platform, and online services had increased significantly. In addition, Ukraine has created IT clusters in cities such as Kyiv, Lviv, and Kharkiv and is investing in incubators and accelerators for startups, even during the war. Updated regulations for electronic document management have facilitated the introduction of digital signatures and electronic documents. This has reduced administrative barriers to business and improved the efficiency of business operations (Khatser & Polusmiak, 2024). The introduction of the Digital Literacy Programme by the Ministry of Digital Transformation, which teaches citizens the basics of digital technologies, is also worth noting. More than 1 million people have benefited from it.

Thus, Ukraine is actively implementing digitalisation in business processes and providing administrative services, educational and business incubators, and even virtual assets.

5 Discussion

Digitalisation, as an active process that is developing rapidly and covers almost the entire planet, is attractive to modern scientists. As we can see from the previous question, researchers already have considerable data related to this issue. However, the new answers raise even more questions that would help to adapt the global experience to improve domestic realities. Can digitalisation help Ukraine support small and medium-sized businesses in the current environment? What is the best way to adapt the digitalisation process to doing business in a state of war? How can an employer ensure staff development when a siren warns of an enemy air attack? How can a specialist care for their emotional state, mental stability and healthy activity in such conditions? These questions reveal new aspects of the digitalisation process, which, like any activity, requires human resources (Kostetskyi & Ivantsov, 2023).

In addition to personnel issues, socio-economic issues are also present. What are the socio-economic consequences of digitalisation for different regions of Ukraine? How does digitalisation affect the economic development of regions, districts and amalgamated communities, including their remote and less developed representatives? What programmes or initiatives can contribute to a more even distribution of digital technologies nationwide?

The issue of cybersecurity has become a topical one, especially in the context of constant cyberattacks by Russia. And it is not only about the security of the state but also about the security of each of its agencies, each company, organisation, and every Ukrainian. What are the main cyber threats and risks associated with digitalisation in Ukraine, and how can they be minimised? This critical question should be asked and answered as a matter of priority. What are the primary cybersecurity challenges for Ukrainian companies and organisations? What strategies and technologies are used to protect data and infrastructure in the face of growing cyber threats? Having found the answers to these questions, it is advisable to ask the following. What regulatory and policy strategies in Ukraine facilitate or hinder the digitalisation process? How do legislative initiatives and government policies affect the pace and quality of digitalisation in Ukraine (Gyrevich et al., 2022)? What are the regulatory barriers, and what changes in legislation could support the development of digital technologies?

These questions will help us better understand how digitalisation affects the economy and society in Ukraine and identify critical

areas for further development and improvement of digital initiatives. Therefore, they can serve as a basis for further research in this area and encourage scholars to initiate applied research to provide a vision of the future and prevent policymakers from taking unproductive actions.

6 Conclusion

As an innovative process of economic disruption, digitalisation creates new business models, such as subscription-based models, sharing economy platforms, data and analytics-based models, and frictionless models, which significantly impact competitiveness and the market. Examples from companies like Netflix, Airbnb, Uber, Amazon, Google and LinkedIn demonstrate how digital innovation drives sustainable revenues, expands access to new markets, optimises internal processes, and increases overall competitiveness.

Digitalisation has significantly impacted the development of companies in various industries, driving significant growth and transforming business models. Companies such as Revolut, Square, Amazon, Walmart, General Electric and Siemens demonstrate how digital technologies can drive success and innovation in a changing market. A comparison of the first and last five years of development shows how quickly and radically the business landscape has changed due to the introduction of new technologies. In particular, digitalisation is changing the labour market by making traditional professions disappear, transforming existing roles and creating new opportunities. The decline in demand for traditional professions is accompanied by a growing need for IT specialists, data analysts, cybersecurity specialists and IoT integrators. This shows that digitalisation creates new opportunities and requires employees and employers to adapt.

Digitalisation significantly impacts the socio-economic space for small and medium-sized enterprises. SMEs can use digital technologies by investing in modern solutions, training staff and improving business processes. This allows them to increase competitiveness, reduce employment costs, and expand their markets. In addition, government policies and regulatory bodies are being influenced by digitalisation, although they significantly impact its processes. Government support through investment, favourable regulations and infrastructure can accelerate digital transformation and promote economic development. At the same time, strict regulations and limited access to technology and infrastructure can hinder this process and negatively affect competitiveness. The balance between supporting innovation and the need for regulation is critical for the successful development of the digital economy.

As a global trend, digitalisation is influencing technological change around the world. Ukraine has also made significant progress in digitalisation over the past five years (Savenko, 2023). Government initiatives, infrastructure development, regulatory changes, and innovation support have contributed to accelerating digital processes and improving the business environment. At the same time, there is still a need to modernise infrastructure further and improve regulatory frameworks to support the sustainable development of the digital economy. However, these issues are impossible without ensuring a secure environment, restoring peace in all border areas, and creating conditions for development.

By analysing the digitalisation process, we can identify positive trends and aspects that should be avoided. This knowledge is the basis for making informed decisions about Ukraine's future development, including developing business support strategies, educational initiatives, security policies, and regulatory reforms in a rapidly changing global environment.

Literature:

1. Andriyiv, N.: Digital transformation of the enterprise: theoretical basis. *Effective economy*, 2022, 4. <https://doi.org/10.32702/2307-2105-2022.4.79>

2. Chuienko, V., & Tazetdinov, V.: Classification of digitalisation of production and business processes. *Herald of Khmelnytskyi National University. Technical Sciences*, 2024, 335, 3(1), 307–313. <https://doi.org/10.31891/2307-5732-2024-335-3-41>
3. Dyuk, R.: Theoretical principles and main trends of digitalisation of the financial sector. *Collection of scientific papers of the State Tax University*, 2024, (1), 24–33. <https://doi.org/10.32782/2617-5940.1.2024.4>
4. Fernandez Rea, C. E.: The specifics of digitalisation of business and technological processes of agricultural enterprises in Ukraine. *Scientific Notes of Lviv University of Business and Law*, 2022, (35), 508–517. <https://nzlubp.org.ua/index.php/journal/article/view/1105>
5. Garafonova, O., & Zhosan, H.: Digitalisation and automation of business processes: difference in definitions and place in enterprise management. *Taurida Scientific Herald. Series: Economics*, 2023, (15), 161–166. <https://doi.org/10.32782/2708-0366/2023.15.19>
6. Gorokhova, T., Kravchenko, M., Muterko, H., Korostova, I., & Lukash, M.: Exploring the integration of circular economy and digitalisation: current research progress and trends. *Amazonia Investiga*, 2024, 13(73), 297–306. <https://doi.org/10.34069/AI/2024.73.01.25>
7. Gyrevich, R., Konoshevskiy, L., & Opushko, N.: Digitalisation of education in the modern society: problems, experience, prospects. *Ecological Discourse*, 2022, 3-4(38-39), 22–46. <https://doi.org/10.28925/2312-5829.2022.342>
8. Hrazhevska, N., & Chyhyrnskyi, A.: Digital transformation of the economy under conditions of amplification of global risks and threats. *Economy and the state*, 2021, 8, 53–57. <https://doi.org/10.32702/2306-6806.2021.8.53>
9. Kalach, H. M.: Models of brand galvanisation in the context of business digitalisation. *Entrepreneurship and labour: a collection of scientific papers*, 2020, 27, 26–30.
10. Khatser, M., & Polusmiak, L.: Digitalisation as a component of anti-crisis management at the macro-, meso-, and micro-levels of the economic systems functioning. *Management and Entrepreneurship: Trends of Development*, 2024, 2(28), 76–85. <https://doi.org/10.26661/2522-1566/2024-2/28-06>
11. Kostetsky, P., & Ivantsov, S.: Digitalisation of society: current trends and prospects for the development of scientific research. *Scientific Notes of Lviv University of Business and Law*, 2023, (36), 496–504. <https://nzlubp.org.ua/index.php/journal/article/view/1000>
12. Melnichuk, A., & Marchenko, O.: Certain aspects of digitalisation of business processes of the enterprise in modern conditions. *Collection of scientific works of the State Tax University*, 2021, (1), 169–185. <https://doi.org/10.33244/2617-5940.1.2021.169-185>
13. National Economic Strategy 2030. <https://nes2030.org.ua/> (accessed 26.08.2024)
14. Nochvina, I.: Digitalisation of the economy: opportunities and main threats. *Collection of scientific works of HNPU named after H. S. Skovoroda "Economics"*, 2021, (19), 90–97. <http://journals.hnpu.edu.ua/index.php/economics/article/view/3678>
15. Obidenova, T., & Vasiliev, V.: Digital technologies in enterprise management: theoretical aspect. *Adaptive Management: Theory and Practice. Series Economics*, 2023, 15(30). [https://doi.org/10.33296/2707-0654-15\(30\)-12](https://doi.org/10.33296/2707-0654-15(30)-12)
16. On approval of the Concept of Artificial Intelligence Development in Ukraine: Order of the Cabinet of Ministers of Ukraine dated 02.12.2020 No. 1556-p. <https://zakon.rada.gov.ua/laws/show/1556-2020-%D1%80#Text>
17. Pankratova, O.: Digitalisation as a modern trend of management development. *Economy and Society*, 2021, (33). <https://doi.org/10.32782/2524-0072/2021-33-55>
18. Rea Christian Elias, F.: Digitalisation of business-processes of agricultural enterprises: advantages and disadvantages. *Entrepreneurship and Innovation*, 2023, (29), 153–157. <https://doi.org/10.32782/2415-3583/29.23>
19. Reverchuk, S., & Tvorydlo, O.: Digitisation of banking business: challenges and opportunities for government regulation. *Economy and Society*, 2023, (55). <https://doi.org/10.32782/2524-0072/2023-55-45>

20. Savchenko, O.: Systematisation of scientific approaches to the concept of "Digitalisation in public administration". *State and regions: Public management and administration*, 2022, 2(76). <https://doi.org/10.32840/1813-3401.2022.2.12>
21. Savenko, D.: Digitalisation in the system of factors for building the capacity of financial market institutional support. *Collection of scientific papers of the State Tax University*, 2023, (1), 155–182. <https://doi.org/10.33244/2617-5940.1.2023.155-182>
22. Shatilova, O. V., & Shyshuk, N. O.: Digital tools for innovative development of a business organisation. *Problems of economy*, 2020, 4(46), 249–255. <https://doi.org/10.32983/2222-0712-2020-4-249-255>
23. Shmatkovska, T., Dziamulych, M., & Stashchuk, O.: Features of the business process modelling in the conditions of digital economy formation. *Economy and Society*, 2021, (26). <https://doi.org/10.32782/2524-0072/2021-26-66>
24. Timinsky, A., Voitenko, O., & Raichuk, I.: Analysis of models and methods of business processes digitalisation. *Management of Development of Complex Systems*, 2021, (46), 38–47. <https://doi.org/10.32347/2412-9933.2021.46.38-47>
25. Tulchynska, S, Solosich, O., & Chornii, V.: The influence of digitalisation of management processes on the system of ensuring the economic security of the enterprise. *Investments: practice and experience*, 2021, 9, 54–58. <https://doi.org/10.32702/2306-6814.2021.9.54>
26. Yefremova, K. V., Shapovalova, O. V., & Khaustova, M. H.: Ways of implementing the European policy of digitalisation: a monograph. Kharkiv: Research Institute of Legal Support of Innovative Development of the National Academy of Sciences of Ukraine, 2022. 272 p.
27. Yurchenko, O.: Digitalisation of business processes at enterprises: benefits and prospective directions of acceleration. *Digital Economy and Economic Security*, 2024, 1(10), 141–145. <https://doi.org/10.32782/dees.10-25>
28. Zahorodna, O., Saienko, V., Tolchieva, H., Tymoshchuk, N., Kulinich, T., & Shvets, N.: Developing communicative professional competence in future economic specialists in the conditions of postmodernism. *Postmodern Openings*, 2022, 13(2), 77–96. <https://doi.org/10.18662/po/13.2/444>
29. Zub, P., & Kalach, H.: Digitalisation of business processes of industrial enterprises. *Economy and Society*, 2021, (26). <https://doi.org/10.32782/2524-0072/2021-26-52>

Primary Paper Section: A**Secondary Paper Section: AH, AO**

INTERMEDIALITY AND THE RECEPTION OF LITERATURE: HOW MODERN MEDIA SHAPES LITERARY PERCEPTION

^aNATALIIA HRYTSYAK, ^bSVITLANA BARTISH,
^cNATALIIA KUCHMA, ^dMARIIA LIUBINETSKA,
^eSVITLANA NEHODIAIEVA

^{a,b,c,d}*Terнопil Volodymyr Hnatiuk National Pedagogical University, Ternopil, Ukraine.*

^e*Luhansk Taras Shevchenko National University, Poltava, Ukraine.*

email: ^a*grycak78@ukr.net*, ^b*svbartish.new@gmail.com*,
^c*kmz060763@tntpu.edu.ua*, ^d*liubinetska@tntpu.edu.ua*,
^e*rovqueen@gmail.com*

Abstract: The study of trends in the development of literary perception in the context of intermediality is relevant due to the rapid development of globalisation and digitalisation phenomena that transform traditional mechanisms of reception of works of art and, as a result, integrate new media formats with their multimedia interactivity. Therefore, there is a need for a fundamental rethinking of the ways of perceiving art, mainly through adaptation to changes in cultural practices and using the latest tools for interpreting artistic meanings. This research article aims to study the theoretical aspects of the reception of a work of fiction in the context of intermediality and to identify the impact of the popularisation of modern media formats on literary perception. The research methods include analysing literary sources, systematising and generalising, using statistical methods, surveying respondents, and using the χ^2 -square criterion to determine the relationship between respondents' age, level of education, and literary perception in intermediality. The results of the study outline the relationship between the age characteristics of respondents and their perception of literary works through modern media formats ($\chi^2 = 16,91101321$; $df = 12$), with the younger generation being more likely to use audiovisual media ($\chi^2 = 26,753926$; $df = 16$). In addition to the age category, the level of education also influences the reception of literature: respondents with higher education are capable of more profound analysis of literary texts ($\chi^2 = 22,9970956$; $df = 2$) and conscious choice of media platforms ($\chi^2 = 26,16517714$; $df = 4$). Thus, intermediality determines the perception of literary works by the new generation to the greatest extent, depending on the educational level and cognitive skills. Currently, the main task of contemporary cultural criticism is to identify and prevent the negative impact of the simplification of artistic works on the cultural development of society due to the popularisation of new (fast and accessible) media formats. The destructive phenomena are mainly the commercialisation of art, the possible reduction or loss of creative freedom of artists, and the decline in recipients' interest in classical literary genres. In this context, it is essential to avoid a large-scale rethinking of traditional methods of perception and to focus scientific discourse on the possibility of enriching recipients' experiences through interactivity and multimedia presentation of the text in new media formats.

Keywords: Intertextuality, Intermediality, Literary dialogue, Reader's competence, Key competences, Artistic discourse, Reception of a work of art

1 Introduction

Today, the growing role of digital technologies in society is leading to transforming and adapting artistic works in appropriate formats for modern media. In this context, intermediality, which implies the interpenetration of different types of art and media, significantly expands the boundaries of a work of art, offering new forms of its reception. In particular, literary works often take on new forms through film adaptations, audiobooks, comics, or even video games. The most famous works for film adaptation are prose and poetry by E.A. Poe, which have been used as the basis for 212 films. The number of film adaptations based on O. Henry's works reaches 184, and J. London's works have become the basis for 124 films. Among the most popular authors of adaptation are also H. P. Lovecraft (109), M. Twain (105), F. Baum (105), G. James (70), and F. S. Fitzgerald (40). Instead, in terms of the number of video games created, the first place is occupied by J. K. Rowling's Harry Potter series. In the context of expanding classical artistic genres to meet the requirements of the digital environment, the study of intermediality becomes an opportunity to reveal complex communication processes, focusing on the recipients and the mechanisms of their interaction with artistic works. The reception of a work of art in the context of intermediality is both the result of the recipient's personal experience and the consequence of the multifaceted influence of contemporary media, given the new integration of textual, visual and audio elements. In this context, there is a need for a comprehensive study of the impact of modern media formats on literary perception and how traditional texts adapt to new formats, creating new interpretive possibilities for the reader.

This research article aims to identify the theoretical aspects of the reception of a work of fiction in the context of intermediality and the impact of modern media on literary perception. The article aims to analyse existing approaches to defining the concept and essence of reception, its impact on literary perception, theoretical aspects of intermediality, and its manifestations in contemporary literary art. The empirical study conducted to substantiate the impact of modern media on the perception of literary works is aimed at identifying changes in the reception of literary works adapted to modern media formats, reader competencies and communication mechanisms in the context of intermediality.

2 Literature review

In today's conditions, where media and information technologies are rapidly developing and integrating into all spheres of society, the interaction of literature with new means of communication is becoming an integral part of the cultural process. In a long-standing context, the interaction between different types of art and their digital analogues is a central topic of contemporary literary dialogue and a pressing problem of art criticism. The classification of art into separate types, such as literature, painting, music, film, sculpture, and architecture, as well as the formation of new creative trends (games, comics, advertising), is mainly the result of historical development and does not reflect the profound nature of art (Honour & Fleming, 2005; Horbolis, 2021; Petrovska, 2024; Veleni, 2024). Given that art forms are always in close interaction and synthesis, regardless of their external separation, this leads to the creation of new, interdisciplinary expressive means (Shkliarenko, 2021). The primary conceptual approach to studying this phenomenon is the theory of intermediality, which is currently undergoing active development. In general terms, the definition of intermediality is the creation of an integrated (holistic) polyartistic space in the cultural system (Pieshkova, 2015). However, there is a narrower definition of this concept, presented in more recent research by Pieshkova (2018), which is that intermediality is a particular type of intra-textual relations in a work of art where different types of art interact. Instead, according to Urmina et al. (2022), intermediality is a theoretical construct that implies the systematic interaction and interpenetration of different art forms within a single work of art. To summarise, it is important to highlight the definition of Hnatiuk (2013), according to which the reception of an artwork is an act of active interpretation of art by the recipient, where the reader is a participant in the aesthetic experience that shapes his or her understanding and emotional reaction to the result of interaction with a particular work. In studying the interaction of the arts, contemporary scholars are gaining relevance to the principle of intertextuality, which is determined by the intertextual relationship of literary works (Hempfer, 2024; Yildiz, 2024). That is, according to Prihodko et al. (2024), intertextuality is a phenomenon of correlation of literary works using textual means (for example, quotation, centon, reminiscence, allusion, parody, plagiarism, stylisation, pastiche, paraphrase). Instead, Abu Sakour (2024) sees intertextuality as a new opportunity to expand the boundaries of communication and strengthen the links between different discourses within literary works, which allows for a deeper analysis of socio-political contexts and cultural identity. In her research paper, Popova (2017) proposes a distinction between intertextuality as the interaction of verbal texts and intermediality as the correlation of different art forms, which she justifies by the characteristics of the components that come into contact. The author emphasises that intermediality is characterised by multichannel perception and consists in representing art in fiction, while intertextuality is a form of interliterary interaction. Another important aspect of intertextuality, as highlighted by Chandrasoma and Ananda (2018), is the stimulation of the reader to actively participate in interpreting a work of fiction, which increases their reading competence. The results of the study conducted by the authors

emphasise that the reception of a work of fiction by the modern generation of readers is directly dependent on their key competences, including knowledge of foreign languages, media literacy and critical thinking, the development of which is a fundamental factor in the depth and diversity of interpretations of literary texts. Instead, Qamar's study (2016) indicates that the reception of a work of fiction involves the ability of readers to analyse, evaluate and use information from various sources. However, in the context of digital transformation, which also causes changes in artistic discourse by reorienting the emphasis from classical art forms to alternative media formats, many scholars have observed a tendency towards the degradation of art (Azcarate, 2024; Balestrini, 2017; Kaun & Fast, 2014; O'Sullivan, 2017). It is manifested primarily in the simplification of artistic concepts, a decrease in the depth of content, and lower aesthetic standards caused by the influence of mass culture and the commercialisation of creative processes. Other studies, such as Lievrouw (2023), point to the possibility of supplementing traditional art forms with new media formats without radically changing their nature, distorting artistic works' content and perception.

3 Applied methods

In the course of the study, the analysis of literary sources was used to define the concept and essence of reception, its impact on literary perception and theoretical aspects of intermediality, and systematisation methods were applied to substantiate the differences between different manifestations of intermediality and generalisation to identify manifestations of intermediality in contemporary literary art. Statistical analysis was used to collect sociological data by distributing a questionnaire to the public (Appendix A) and to determine further the relationship between the respondents' age and level of education and literary perception in intermediality. The general population of the study includes 119 respondents aged 16 to 67, divided into age categories of 15 years and two educational groups: those without higher education and those with bachelor's and master's degrees. To ensure the sample's representativeness, a stratified approach was used to consider the respondents' social characteristics (including age and education). The respondents were divided into groups according to their age category and level of education, which ensured proportional representation of different social strata and, as a result, allowed for objective results that could be generalised to a broader audience. The survey consisted of questions aimed at identifying the frequency of reading literary works, the frequency of using media formats to get acquainted with the plot of literary works, and the interpretation of works of art by respondents. The survey participants were informed about the purpose of the study and were informed about the voluntary nature of their participation, the confidentiality of their answers, and the observance of ethical standards in conducting a sociological study. The empirical study formed the methodological basis for further calculations of the χ^2 -square criterion and auxiliary indicators (expected frequencies and degrees of freedom). The central hypothesis of the study is the null hypothesis (H_0), which states that there is no dependence between the variables of the analysis, i.e. the influence of modern media (film adaptations, audiobooks, social networks) on the perception of literary works does not depend on the age or education of the respondents. Instead, according to the alternative hypothesis (H_A), there is a dependence between the identified variables. A limitation of this study is the lack of representativeness of the sample. Firstly, increasing the number of respondents would allow us to more clearly outline trends in the perception of literature under the influence of modern media formats among different social groups and identify a broader range of approaches to literary reception. Secondly, we propose to include the distribution of respondents by region and gender to consider the socio-cultural environment of the studied groups' functioning and their perception of literary works in the context of intermediality.

4 Research results

Reception is the process of perception of a work of art by the recipient of the reader's active involvement in interpreting the text, in which aesthetic experience becomes an integral component that shapes its understanding and emotional perception. The theory of reception considers the problems of artistic perception, as well as the semantic paradigm "author – text – reader", in which the leading role in the cognition, comprehension, and interpretation of a literary work is assigned to the recipient, who acts as a subject of perception and creates "his work" (Andriashyk, 2017). However, in today's conditions, characterised by the speed of globalisation, digital transformation and the emergence of new media formats, the reception of a work of art is becoming a multidimensional process that involves not only the active participation of the reader in the interpretation of artistic meanings but also a fundamental rethinking of traditional methods of perception against the background of the capabilities of modern media to enrich the experience of recipients through interactivity and multimedia presentation. The contemporary development of the reception of a work of art is closely linked to the spread of the phenomenon of intermediality, which, as a process of interaction between different media formats, helps to expand the aesthetic possibilities of perception, activating the reader's creative potential and forming new contexts for the interpretation of artistic texts.

4.1 Theoretical analysis of intermediality and its manifestations in contemporary literary art

The development of contemporary art forms is primarily associated with the evolution and influence of new media, which are specific sign systems aimed at transmitting information and shaping recipients' perceptions, influencing their consciousness through various cognitive, emotional and sensory mechanisms. In this context, the role of the media is to mediate between the work and its audience, and thus it is a tool of communication and manipulation, changing both the content and the form of artistic experience. As a result, the traditional artistic space is being transformed, leading to new artistic phenomena and trends whose function is to adapt artistic discourse to the requirements of the digital environment. The critical phenomenon of transformation is intermediality, a concept characterised by the interaction of different art forms through the integration of their sign systems. Intermediality creates new opportunities for inter-artistic dialogue, in which the synthesis of visual, sound, textual and other elements forms an innovative, multisensory artistic space. After analysing contemporary concepts and approaches to intermediality, three critical interpretations were formed: conventional, normative and referential intermediality.

Conventional intermediality should be viewed in terms of developing non-traditional art forms that illustrate complex intra-textual relationships (musicality of painting, plasticity of music). Contemporary manifestations of intermediality create a multilayered artistic structure that goes beyond traditional media and forms a new type of media exchange in which different artworks interact, reinforcing each other and opening up new possibilities for perception. This approach allows us to expand traditional ideas about art and create new models of artistic expression, which, in turn, become vital to understanding the contemporary cultural context. An example of conventional intermediality is a series of illustrations for the world-famous book *The Lord of the Rings* by J.R.R. Tolkien, which are represented by visual images of textual quotations from the literary work with elements of fantasy and convey various artistic codes, which deepens the meaning of the author's ontological world, creating a synthesis of visual and textual art forms (Velten, 2024). The interaction between artistic text and architecture is represented by fragments of D. Brown's novel *The Source*, which describes the interior and exterior of the Guggenheim Museum in Bilbao. The creation of three-dimensional analogies between the novel's protagonist and the architectural structure serves as a springboard for understanding the character and personal qualities of the hero (Pieškova,

2018). Thus, conventional intermediality is a fundamental factor in forming new aesthetic paradigms that reflect the complexity and multifacetedness of contemporary artistic discourse.

Normative intermediality is creating a unified polyartistic space by developing the plot of a literary work through its adaptation to different media formats but preserving the fundamental normative principles of the original medium. This intermediality presupposes maintaining the connection between the original literary text and its adapted versions, such as film adaptations, theatre productions, or visual arts. In this process, the original text's key ideas, plots, and images are integrated into new forms of expression, ensuring their multifaceted interpretation and enrichment of the work's content. As an example of normative intermediality, O. Wilde's novel *The Picture of Dorian Gray* has had a large number of film adaptations, including *The Picture of Dorian Gray* (1977), *The Sins of Dorian Gray* (1983), *A Deal with the Devil* (2003), *Dorian Gray* (2009), through which the plot of the novel acquires new meanings and develops the main ideas of the literary work while preserving the critical elements of the original text (Martin-Payre, 2020). Thanks to normative intermediality, adapted versions explore the main themes of the work, such as immorality, sin and the philosophy of hedonism, and, most importantly, preserve the core of the novel - the idea of eternal youth and the moral fall of the hero through his deal with the devil. However, in this case, the plot is interpreted each time, creating new artistic codes, mainly through visual and audio design, affecting the original ideas' perception. Each film adaptation also interprets the story according to cultural and temporal contexts, which allows for a deeper understanding of the work by the contemporary audience. Returning to J.R.R. Tolkien's novel *The Lord of the Rings*, it is worth adding that the creation of a single cultural space of the work through the film adaptations "*The Lord of the Rings: The Fellowship of the Ring*" (2001), "*The Lord of the Rings: The Two Towers*" (2002) and "*The Lord of the Rings: The Return of the King*" (2003), which retain the storyline and key elements of the literary original, while transforming the text into a visual form that meets the requirements of cinema (Thompson, 2007). The trilogy forms an integral poly-artistic space where different forms of media are in direct interaction while maintaining the normativity of the original text. In this context, the successful intermedial transformation of J.K. Rowling's *Harry Potter* series is worth mentioning. Interactive adaptations, including a series of films (*Harry Potter and the Philosopher's Stone* (2001), *Harry Potter and the Chamber of Secrets* (2002), *Harry Potter and the Prisoner of Azkaban* (2004) and video games (those released before the premiere of each film, as well as "*Harry Potter: The Quidditch World Cup*" and the LEGO dilogy "*Lego Harry Potter: Years 1-4*", "*Lego Harry Potter: Years 5-7*"), along with theatrical productions and numerous amateur literary reconstructions, have created an opportunity for the recipient to actively immerse themselves in the fictional world while preserving the critical plot and aesthetic components of the literary source (Tani et al., 2021). In addition to world bestsellers, normative intermediality can be traced in contemporary film adaptations of classic literary works, including the modern adaptation of the bestselling novel of the same name, *The Black Crow*, by Ukrainian writer V. Shklyar. Shklyar; the co-production film *The Price of Truth* (2019) based on the book by American writer A. Halupa; the film adaptation of S. King's book *Pet Cemetery* (2019), which contains certain deviations from the original plot, creating new narrative aspects and reinforcing modern thematic elements. It is also worth mentioning the unique example of adapting the original plot of the novel *The Kaidash Family* by Ukrainian writer Ivan Nechuy-Levytsky to the modern context by creating a new cultural space in the film *To Catch Kaidash* (2020), which allows preserving elements of the original plot while exploring classical themes through the prism of modernity.

Reference intermediality (also known as ekphrasis (Popova, 2017) in the Western European literary tradition) as a cultural

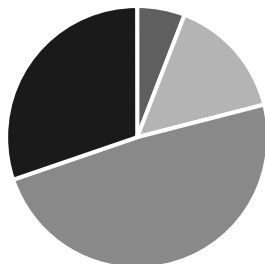
phenomenon is the interaction of different media, and its essence is to act as a referent for another work of art, which forms alternative interpretations through quoting or referring to existing works of art. An example of referential intermediality in the classical sense is the description of Achilles' shield in Homer's epic poem *The Iliad*, which is a kind of text that contains narratives, historical events, and mythological images, creating a complex intertextual network of symbolic meanings. Similarly, the elements of reference intermediality in the previously mentioned novel *The Portrait of Dorian Gray* by O. Wilde are manifested in the integration of aesthetic concepts of painting into the literary narrative. In the context of contemporary cinema, films such as *The Labyrinth of the Faun* (2006), which has a large number of quotations from classical fairy tales to support the main plot of the film, and the film adaptation of the classic novel by L. M. Alcott's classic novel *Little Women* (2019), where elements of the original text are used to interpret the literary work through the characters' dialogues, demonstrates the reference intermediality, which in this case is used to enrich the overall cultural context and deepen the literary perception of classic works of fiction through the prism of modernity. Fundamentally new media products that are gaining popularity on social media also contain examples of reference intermediality, such as the contemporary hit by the Ukrainian band *Pyrig i Batih*, "*Gai Shumlyat*", based on the work of P. Tychyna (the poem "*Gai Shumlyat...*", 1913), which conveys the emotional component and imagery of the original while adapting them to the modern sound. Instead, in the case of A. Pyvovarov and K. Petrivna's single "*Drum*" (2024), based on the poem "*Drum of Sadness*" (1923) by the Ukrainian futurist poet G. Shkurupiy, the referential intermediality is manifested through the use of the text of the original poem as the basis for its musical version, which allows the interpreted work to convey the main idea and emotional colouring of the original and to update the content of the poem to the requirements of a new audience. Thus, referential intermediality serves to deepen the meaning of literary texts, contributing to the development of an interdisciplinary approach to art studies, and is also a tool for expanding the cultural context of a work of art through the interaction of different media formats.

4.2 An empirical study of the influence of modern media on the perception of literary works in the context of intermediality

To conduct our sociological study of the impact of modern media on literary perception in the context of intermediality, we have compiled a questionnaire presented in Appendix A. The questions of the questionnaire are structured in such a way as to reveal public opinion on the frequency of reading literary works, the choice of media formats for getting acquainted with their content, as well as the impact of film adaptations and social networks on the process of interpreting works of art. Particular attention is paid to the educational level of respondents, as the final stage of the analysis is to identify critical aspects of how the level of education correlates with media consumption and perception of literature in the context of the transformation of cultural practices. One hundred nineteen people aged 16 to 67 (distributed with an interval of 15 years) participated in this survey. The results of the survey are shown in Figure 1.

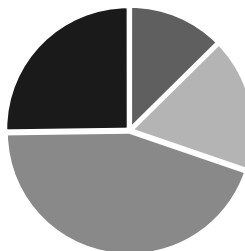
To determine the relationship between the qualitative variables (age and level of education) and the respondents' literary perception in the context of intermediality, the χ^2 -square criterion (χ^2) was used to analyse the contingent tables (Pandis, 2016). First of all, two key research hypotheses were formed, where the null hypothesis (H_0) states that there is no dependence between the variables, i.e. the influence of modern media (film adaptations, audiobooks, social networks) on the perception of literary works does not depend on the age or education of the respondents. Instead, according to the alternative hypothesis (H_A), there is a dependence between the identified variables.

Have you ever not read a book but got to know the story through cinema/social media/audiobooks?



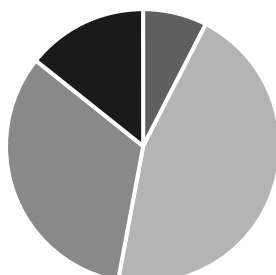
▪ All the time ▪ Often ▪ Sometimes ▪ No

How often do you read literary works?



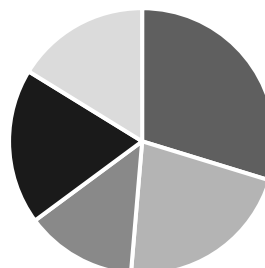
▪ Daily ▪ Several times a week
▪ Several times a month ▪ Rarely

How does the perception of a work change after watching its film adaptation?



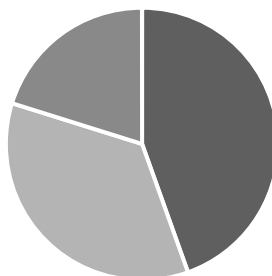
▪ Deepening understanding
▪ Interpretation changes
▪ Loss of interest in reading the original
▪ No effect

What media formats do you use to get acquainted with literary works?



▪ Printed books
▪ E-books
▪ Audiobooks
▪ Films/Serials
▪ Social media (discussions, reviews, blogs)

How do you assess the influence of the media on your interpretation of artworks?



▪ Essential ▪ No impact ▪ No impact

Figure 1. Results of a survey to study the impact of modern media on literary perception in the context of intermediality
Source: compiled by the author

The methodological basis of this study is the formula for calculating the χ^2 -square criterion:

$$E_{ij} = \frac{N_i * N_j}{N} \tag{1}$$

where. E_{ij} - is the expected frequency for the cell of the corresponding row i and column j ;
 N_i - is the sum of frequencies for string i ;
 N_j - is the sum of frequencies for column j ;
 N - is the total number of observations.

However, in order to obtain the initial data for calculating the χ^2 -squared criterion, it is necessary to calculate the expected frequencies:

$$\chi^2 = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \tag{2}$$

where O_{ij} - is the observed frequency for the cell.

To interpret the results, the obtained indicators are compared with the critical value, which involves calculating the degrees of freedom for each value of the χ^2 -square criterion:

$$df = (r - 1) * (c - 1) \quad (3)$$

where r - is the number of lines;
c - number of columns.

Appendices B and C present the process of calculating the indicators for each stage of the analysis. The χ^2 -square criterion was calculated for each study item based on the obtained frequencies.

The calculation of indicators based on the survey results shows that the age category significantly impacts the respondents' perception of literary works influenced by modern media. There is a significant difference between the expected and observed frequencies, in particular, the frequency of reading literary works ($\chi^2 = 34.96262496$; $df = 12$), the use of interpreted works ($\chi^2 = 26.753926$; $df = 16$), the perception of film adaptations of a work ($\chi^2 = 16.91101321$; $df = 12$), interpretation of works of fiction ($\chi^2 = 23.30779107$; $df = 8$), and familiarisation with the plot through other means ($\chi^2 = 697.768612$; $df = 12$), indicates that there is a dependence between the age of the respondents and the perception of literary works through different media formats. It should be emphasised that contemporary intermediality is widespread among the new generation of consumers, who more often perceive art through the prism of audio and visual interpretation and social media due to the tendency to simplify plots and reduce the content of works. The rapid pace of digitalisation is driving modern media to focus on the rapid assimilation of information through social media, audio and video formats, reducing interest in fundamental texts. That is why classical literary works are now giving way to short, informative formats that quickly meet the information needs of the new generation, i.e. Generation Z. Thus, it is possible to justify the rejection of the null hypothesis of the study in favour of the alternative one; therefore, the change in approaches to the perception of literary works by younger consumers in favour of the speed and accessibility of new media indicates that the age category affects the respondents' literary perception in the context of intermediality.

The study also suggests that the focus on the age distribution of respondents is not exhaustive, as the results can be misinterpreted due to the presence of education as a factor that shapes the cultural and intellectual context of the perception of literary works. In addition, the level of education can significantly impact the process of evaluating works and choosing media formats by an individual. The baseline data contains a significant number of responses from respondents who do not have a university degree or are in the process of obtaining one, so we assume that the degree of influence of modern media on the respondents' literary perception may depend on the level of education (regardless of age) and intellectual skills. Nevertheless, the results of the analysis show that the frequency of reading ($\chi^2 = 9.077639854$; $df = 3$), the use of media formats ($\chi^2 = 26.16517714$; $df = 4$), the perception of the work after viewing it from an adapted version ($\chi^2 = 362.986229$; $df = 3$), influence on the interpretation of the work ($\chi^2 = 22.9970956$; $df = 2$), and familiarisation with the plot through media ($\chi^2 = 550.3531409$; $df = 3$) have a similar dependence on the level of education of the respondents as on their age category. Therefore, in this case, the null hypothesis is also rejected in favour of the alternative. The assumption about the tendency to simplify literary works and art, in general, is also confirmed by the results for the two educational groups. Thus, respondents with a university degree can critically evaluate the content of literature, analyse its artistic features and consciously choose media formats for consumption, while those with less education or who are studying are more likely to be satisfied with simpler, quicker forms of perception.

The study results indicate that the younger respondents focused on rapidly consuming information and digital formats are more likely to use modern media that provide instant access to content, such as audio and video adaptations and social networks (discussions, reviews, blogs). This assumption is confirmed by

the fact that the majority of respondents who do not have higher education and belong to the age group under 18 show a preference for modern forms of consumption, as they satisfy their need to receive information quickly, including the content, plot, and characterisation of literary works. This trend among Generation Z significantly impacts the interpretation of literary works, as young consumers, accustomed to the rapid assimilation of information, often perceive works superficially without delving into their context and artistic value. The problem of simplistic perception of literature is harmful to the critical analysis skills of literary works and the further development of art in general. Given the demand of modern consumers for accessible, quick and straightforward information, artists (regardless of their types and genres) need to adapt established creative practices to the conditions defined by digital culture, focusing on the ability to attract the attention of the audience and meet their needs for instant perception of ideas and content of artistic works. Thus, the trend towards forming fundamentally new artistic practices and formats that will meet the requirements of the modern consumer, integrating visual and audio elements that allow for more effective communication of the main idea of the work, is predicted.

5 Conclusion

Foreseeing the destructive consequences of replacing the sustainable emphasis of art with the superficial standards of the digital environment is a primary task of contemporary cultural criticism and research into artistic practices. In this context, the most obvious is the risk of simplifying the content of artistic works, as artists who are forced to adapt to the instant demands of the audience lose the complexity and depth of the content of the final artwork. As a direct consequence of artists' pursuit of the response of the target audience to their works, the commercialisation of art also leads to the commercialisation of art, which will affect, first of all, the level of interest in classical literary works and traditional genres as the basis of cultural heritage and artistic traditions, and will lead to the displacement of artistic experiments and innovative solutions. This displacement indicates the possibility of transforming the artist's role in society, as adapting art to mass trends will limit their creative freedom, turning the artist into a product of the commercial market. It should be noted that in this context, preserving the artist's role as a conductor of cultural values and critic of social reality, as well as the impact of art on cultural discourse and social processes, is a priority task to maintain artistic value and aesthetic experience. However, a possible solution to this problem is to balance the commercial component and the creative reality of art, which involves rethinking the artist's place in the digital society rather than completely transforming their role. Thus, the current changes in literary perception due to the influence of modern media may catalyse artistic practice's evolution in the twenty-first century shortly, which will have a predominantly negative impact on the artistic value of works and the cultural development of society.

Literature:

1. Abu Sakour, M.: *Analysis of Intertextuality in Selected Speeches by Ismael Haniya During Gaza War in 2023–2024*. Hebron University, 2024. 160 p. <http://dspace.hebron.edu:8080/xmlui/handle/123456789/1438>
2. Andriiashyk, O. R.: The peculiarity of the author's receptions in the unknown pages of Roman Andriyashik. *Conference proceedings of the Department of Sociology and Political Science*. (pp. 1-12). Kyiv National University named after T. Shevchenko, 2017. <http://er.nau.edu.ua/handle/NAU/29742>
3. Azcárate, A. L. V.: Intermedial semiotics in the age of artificial intelligence. Challenges and opportunities for the arts. *New Techno Humanities*, 2024, 3(2), 108–116. <https://doi.org/10.1016/j.techum.2024.04.001>
4. Balestrini, N. W.: Intermediality. Handbook of the American Novel of the Twentieth and Twenty-First Centuries. *De Gruyter*, 2017, 4, 1–12. <https://doi.org/10.1515/9783110422429>

5. Chandrasoma, R., & Ananda, L.: Intertextualising interactive texts for critical thinking: A South Korean EFL experience. *Critical Inquiry in Language Studies*, 2018, 15(2), 115–140. <https://doi.org/10.1080/15427587.2017.1357038>
6. Hempfer, K. W.: Intertextuality. In: *Fundamentals of Literary Theory*. (pp. 181–233). Springer International Publishing, 2024. https://doi.org/10.1007/978-3-031-47408-8_4
7. Hnatiuk, M.: Frank's theory of reception of an artistic work and some problems of receptive aesthetics. *Word and Time*, 2013, 7, 37–45. <http://dspace.nbu.gov.ua/bitstream/handle/123456789/147082/08-Hnatiuk.pdf?sequence=1>
8. Honour, H., & Fleming, J.: A world history of art. Laurence King Publishing, 2005. 936 p. <http://surl.li/jwscpx>
9. Horbolis, L. M.: *Interartistic contacts of the Ukrainian text: a monograph*. Publishing House of Sumy State University named after A. S. Makarenko, 2021. 312 p.
10. Kaun, A., & Fast, K.: *Mediatization of culture and everyday life*. Karlstad University Studies, 2014. 104 p. <https://www.diva-portal.org/smash/record.jsf?pid=diva2%3A707466&dsid=573>
11. Lievrouw, L. A.: *Alternative and activist new media*. 2nd edition. John Wiley & Sons, 2023. 368 p. <http://surl.li/mezzum>
12. Martin-Payre, C.: "One of Us": Dorian Gray, Untimeliness, and Penny Dreadful's Contemporary Victoriana. *Polysèmes. Revue d'études intertextuelles et intermédiaires*, 2020, (23). <https://doi.org/10.4000/polysemes.7052>
13. O'Sullivan, J.: Modernist Intermediality: The False Dichotomy between High Modernism and Mass Culture. *English Studies*, 2017, 98(3), 283–309. <https://doi.org/10.1080/0013838X.2016.1246136>
14. Pandis, N.: The chi-square test. *American journal of orthodontics and dentofacial orthopaedics*, 2016, 150(5), 898–899. <https://www.ajodo.org/action/showPdf?pii=S0889-5406%2816%2930449-8>
15. Petrovska, N. M.: *Types of Art: English language study guide for students of the Faculty of Culture and Arts*. Vezha-Druk, 2024. 80 p. <https://evnuir.vnu.edu.ua/handle/123456789/24041>
16. Pieshkova, O. A.: Modern approaches to the interpretation of the concept of intermediality and related terms. *Scientific notes of the National University Ostroh Academy. Series: Philological*, 2015, 59, 151–154. http://nbuv.gov.ua/UJRN/Nznuoaf_2015_59_57
17. Pieshkova, O. A.: The Constituent Elements of the Intermodality in a Literary Text: Cognitive and Narrative Aspects. *Transcarpathian Philological Studies*, 2018, 3(2), 21–25. http://zfs-journal.uzhnu.uz.ua/archive/3/part_2/6.pdf
18. Popova, O. V.: Intermediate studies in modern literature. *Problems of word, sentence and text semantics*, 2017, 38, 163–167. <https://journals.indexcopernicus.com/api/file/viewByFileId/270150.pdf>
19. Prihodko, G., Prykhodchenko, O., & Vasylyna, R.: Intermedial relations in a literary text. *Cognition, Communication, Discourse*, 2024, 28, 91–101. <https://doi.org/10.26565/2218-2926-2024-28-06>
20. Qamar, F.: Effectiveness of critical thinking skills for English literature study with reader response theory: A review of literature. *Journal of Arts and Humanities*, 2016, 5(6), 37–50. <https://doi.org/10.18533/journal.v5i6.961>
21. Shkliarenko, Z.: Performance art: interart, intermediality and interdisciplinarity. *Scientific notes of NaUKMA. History and theory of culture*, 2021, 4, 99–105. <https://doi.org/10.1852/3/2617-8907.2021.4.99-105>
22. Tani, S. B., Berbar, S. B., & Reguig-Mouro, W. H.: Aspects of Intertextuality in Fantasy Adaptation through The Lord of the Rings, Harry Potter and Game of Thrones. *Algerian Scientific Journal Platform*, 2021, 6(1), 167–173. <http://surl.li/zahaxx>
23. Thompson, K.: From Hobbits to Hollywood: Essays on Peter Jackson's "Lord of the Rings", and: The Lord of the Rings: Popular Culture in Global Context. *Tolkien Studies*, 2007, 4(1), 244–254. <https://doi.org/10.1353/tks.2007.0031>
24. Urmina, I. A., Onuchina, K. K., Irza, N. D., Korsakova, I. A., & Chernikov, I. A.: Intermedial Postmodernism in Art: Concepts and Cultural Practices. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, 2022, 14(2), 1–13. <https://doi.org/10.21659/rupkatha.v14n2.02>
25. Veleni, T.: Exploring Intermediality in Art History and its Application in the Educational Sector. *Syn-Thèses*, 2024, 15, 165–187. <https://ejournals.lib.auth.gr/syn-theses/article/view/10112>
26. Velten, H. R.: Introduction: Fantasy between Text and Image. In: *Fantasy Aesthetics*, 2024. pp. 9–22. <https://doi.org/10.1515/9783839470589-002>
27. Yildiz, M.: Intertextuality. In: *Pseudo-retranslation. Palgrave Studies in Translating and Interpreting*. (pp. 7–31). Palgrave Macmillan, Cham, 2024. https://doi.org/10.1007/978-3-031-64514-3_2

Primary Paper Section: A**Secondary Paper Section: AM, AJ**

Appendix A

A questionnaire to study the impact of modern media on the perception of literary works in the context of intermediality

The questionnaire

Your age:

- under 18 years of age
- 18-29 years old
- 30-44 years old
- 45-59 years old
- 60 years and older

Do you have a university degree?

- Yes
- No.

How often do you read literary works? (Choose 1 answer)

- Daily
- Several times a week
- Several times a month
- Rarely

What media formats do you use to get acquainted with literary works? (Choose up to 3 answers)

- Printed books
- E-books
- Audiobooks
- Films/Serials
- Social media (discussions, reviews, blogs)

How does the perception of a work change after watching its film adaptation? (Choose 1 answer)

- Deepening understanding
- Interpretation changes
- Loss of interest in reading the original
- No effect

How do you assess the influence of media on your interpretation of artistic works? (Please select 1 answer)

- Essential
- Minor
- No impact

Have you ever not read a book, but got to know the story through cinema/social media/audiobooks? (Please select 1 answer)

- Constantly
- Often
- Sometimes
- No.

Appendix B

Calculation of the chi-squared test (checking the relationship between age and literary perception of respondents)

Table B1

Age groups	Answers to the questions: How often do you read literary works?				Amount
	Daily	Several times a week	Several times a month	Rarely	
under 18 years of age	2	3	18	19	42
18-29 years old	5	8	17	7	37
30-44 years old	2	4	15	3	24
45-59 years old	4	5	3	1	13
60 years and older	2	1	0	0	3
Amount	15	21	53	30	119
Expected frequencies					
	5,294118	7,411765	18,70588	10,58824	
	4,663866	6,529412	16,47899	9,327731	
	3,02521	4,235294	10,68908	6,05042	
	1,638655	2,294118	5,789916	3,277311	
	0,378151	0,529412	1,336134	0,756303	
Observed frequencies					
	2,049673	2,62605	0,026637	6,68268	
	0,024226	0,331214	0,016472	0,580884	
	0,347432	0,013072	1,738604	1,53792	
	3,402758	3,191554	1,344343	1,582439	
	6,955929	0,418301	1,336134	0,756303	

Table B2

Age groups	Answers to the question: What media formats do you use to get acquainted with literary works?					Amount
	Printed books	E-books	Audiobooks	Films/Serials	Social networks	
under 18 years of age	14	7	12	17	20	70
18-29 years old	21	17	8	8	7	61
30-44 years old	12	10	4	6	2	34
45-59 years old	5	4	1	3	1	14
60 years and older	3	2	0	1	0	6
Amount	55	40	25	35	30	185
Expected frequencies						
	20,81081	15,13514	9,459459	13,24324	11,35135	
	18,13514	13,18919	8,243243	11,54054	9,891892	
	10,10811	7,351351	4,594595	6,432432	5,513514	
	4,162162	3,027027	1,891892	2,648649	2,27027	
	1,783784	1,297297	0,810811	1,135135	0,972973	
Observed frequencies						
	2,228993	4,372635	0,682317	1,065692	6,589447	
	0,452572	1,101074	0,007178	1,086208	0,845444	
	0,354097	0,954293	0,076948	0,029071	2,239004	
	0,168656	0,312741	0,420463	0,046608	0,710746	
	0,829238	0,380631	0,810811	0,016088	0,972973	

Table B3

Age groups	Answers to the questions: How does the perception of a work change after watching its film adaptation?				Amount
	Deepening understanding	Interpretation changes	Loss of interest in reading the original	No effect	
under 18 years of age	5	24	5	8	42
18-29 years old	3	15	14	5	37
30-44 years old	1	9	12	2	24
45-59 years old	0	5	7	1	13
60 years and older	0	1	1	1	3
Amount	9	54	39	17	119
Expected frequencies					
	3,176471	19,05882	13,76471	6	
	2,798319	16,78992	12,12605	5,285714	
	1,815126	10,89076	7,865546	3,428571	
	0,983193	5,89916	4,260504	1,857143	
	0,226891	1,361345	0,983193	0,428571	
Observed frequencies					
	1,046841	1,281046	5,580945	0,666667	
	0,014536	0,190817	0,289599	0,015444	
	0,366052	0,328256	2,173239	0,595238	
	0,983193	0,137051	1,76149	0,395604	
	0,226891	0,095912	0,000287	0,761905	

Table B4

Age groups	Answers to the question: How do you assess the impact of media on your interpretation of artworks?			Amount
	Essential	Minor	No impact	
under 18 years of age	24	11	7	42
18-29 years old	17	15	5	37
30-44 years old	11	9	4	24
45-59 years old	1	7	5	13
60 years and older	0	0	3	3
Amount	53	42	24	119
Expected frequencies				
	18,70588	14,82353	8,470588	
	16,47899	13,05882	7,462185	
	10,68908	8,470588	4,840336	
	5,789916	4,588235	2,621849	
	1,336134	1,058824	0,605042	
Observed frequencies				
	1,498335	0,986228	0,25531	
	0,016472	0,288553	0,81241	
	0,009044	0,033088	0,145892	
	3,96263	1,267722	2,157105	
	1,336134	1,058824	9,480042	

Table B5

Age groups	Answers to the question: Have you ever not read a book, but got to know the story through cinema/social media/audiobooks?				Amount
	Constantly	Often	Sometimes	No.	
under 18 years of age	5	11	23	3	42
18-29 years old	2	4	23	8	37
30-44 years old	0	3	8	13	24
45-59 years old	0	0	4	9	13
60 years and older	0	0	0	3	3
Amount	7	18	58	36	119
	Expected frequencies				
	2,470588	2,470588	2,470588	2,470588	
	2,176471	2,176471	2,176471	2,176471	
	1,411765	1,411765	1,411765	1,411765	
	0,764706	0,764706	0,764706	0,764706	
	0,176471	0,176471	0,176471	0,176471	
	Observed frequencies				
	2,589636	29,44678	170,5896	0,113445	
	0,014308	1,527822	199,2305	15,58188	
	1,411765	1,786765	30,7451	95,1201	
	0,764706	0,764706	13,68778	88,68778	
	0,176471	0,176471	0,176471	45,17647	

Appendix C

Calculation of the chi-squared test (checking the relationship between the level of education and the respondents' literary perception)

Table C1

Educational groups	Answers to the questions: How often do you read literary works?				Amount
	Daily	Several times a week	Several times a month	Rarely	
Have a university degree	10	14	24	9	57
No higher education	5	7	29	21	62
Amount	15	21	53	30	119
	Expected frequencies				
	7,184874	10,05882	25,38655	14,36975	
	7,815126	10,94118	27,61345	15,63025	
	Observed frequencies				
	1,103003	1,544204	0,07573	2,00659	
	1,014051	1,419671	0,069623	1,844768	

Table C2

Educational groups	Answers to the question: What media formats do you use to get acquainted with literary works?					Amount
	Printed books	E-books	Audiobooks	Movies / TV series	Social networks	
Have a university degree	35	26	12	14	12	99
No higher education	20	14	13	21	18	86
Amount	55	40	25	35	30	185
	Expected frequencies					
	29,43243	21,40541	13,37838	29,43243	29,43243	
	25,56757	18,59459	11,62162	25,56757	25,56757	
	Observed frequencies					
	1,053185	0,986213	0,142015	8,091753	10,32499	
	1,212388	1,135292	0,163482	0,815982	2,239872	

Table C3

Educational groups	Answers to the questions: How does the perception of a work change after watching its film adaptation?				Amount
	Deepening understanding	Interpretation changes	Loss of interest in reading the original	No effect	
Have a university degree	1	27	25	4	57
No higher education	8	27	14	13	62
Amount	9	54	39	17	119
	Expected frequencies				
	4,310924	4,310924	4,310924	4,310924	
	4,689076	4,689076	4,689076	4,689076	
	Observed frequencies				
	2,542893	119,4162	99,29143	0,022425	
	2,337821	106,1568	18,48836	14,73029	

Table C4

Educational groups	Answers to the question: How do you assess the impact of media on your interpretation of artworks?			Amount
	Essential	Minor	No impact	
Have a university degree	28	24	5	57
No higher education	25	18	19	62
Amount	53	42	24	119
	Expected frequencies			
	25,38655	25,38655	25,38655	
	27,61345	27,61345	27,61345	
	Observed frequencies			
	0,269044	0,07573	16,37133	
	0,247347	3,34686	2,686787	

Table C5

Educational groups	Answers to the question: Have you ever not read a book, but got to know the story through cinema/social media/audiobooks?				Amount
	Constantly	Often	Sometimes	No.	
Have a university degree	1	13	22	21	57
No higher education	6	5	36	15	62
Amount	7	18	58	36	119
	Expected frequencies				
	3,352941	3,352941	3,352941	3,352941	
	3,647059	3,647059	3,647059	3,647059	
	Observed frequencies				
	1,651187	27,75645	103,7038	92,87926	
	1,518027	0,501898	287,0019	35,34061	

MANAGING CRITICAL DATA FOR NATIONAL SECURITY ASSURANCE

^aNATALIIA VARENIA, ^bOLEKSANDR ROZVADOVSKYI,
^cVITALII KHODANOVYCH, ^dTETIANA DAVYDOVA,
^eTVAN DRALIUK

^{a,b,c,d}*National Academy of Security Service of Ukraine, Kyiv, Ukraine.*

^e*Private researcher, Ukraine.*

e-mail: ^avarenia@ukr.net, ^brozvsa@gmail.com,

^cv.hodanovych@gmail.com, ^dTatada2009@gmail.com,

^eap0091994@gmail.com

Abstract: The article examines the issue of maintaining the state's information sovereignty as a necessary condition for ensuring its national security. It considers the concepts of the research apparatus and provides scientific interpretations of the terms "information security", "information warfare", "destructive propaganda", "information confrontation" and others. It is noted that protecting the country's information space from external harmful influences is a fundamental task of the state, which relates to its national interests. The use of sensitive information to ensure national security is analysed. The study and optimisation of information security as a factor in the fight against propaganda, using the experience of different countries, are explored. The subject of the study is sensitive information, which is a determining factor in the development of information security in various countries worldwide. A retrospective analysis of different strategies for optimising the use of sensitive information was conducted. The issue of overcoming propaganda through a communicative approach was studied. Historical and logical analysis methods, comparison, expert assessments, system analysis, and forecasting were used. The research materials included developments, ideas, and other intangible assets that can help humanity in the fight against propaganda. Available information in the fields of operational search, counterintelligence, and intelligence activities, operational-technical measures, protection of personal data of employees/military personnel, activities of participants in anti-terrorist operations and military actions, international cooperation, internal audit, financial reporting, civil protection, territorial defence, housing, and communal services were analysed. At the same time, a unified approach to defining the categories of information requiring restricted access in these areas is practically absent.

Keywords: Information security, classified information, confidential information, media, destructive propaganda, disinformation, ideological expansion.

1 Introduction

Digitisation and the creation of modern technologies allow for the management of vast data flows, the creation of various types of information weapons, and the execution of manipulative actions in the global media space. This makes the issue of ensuring information security in the world particularly relevant. This phenomenon is especially significant because it is inextricably linked to the fundamental concept in political science known as "national security". Protecting the country's information space and sensitive information from ideological attacks and cyber sabotage and preventing attempts by external forces to exert destructive influence on public opinion are essential tasks for the state and fall within its national interests.

The definition of "sensitive information" can vary depending on the context. However, generally, it can be characterised as information whose access is restricted due to its importance for ensuring national security, protecting privacy, or other critical interests. Sensitive information refers to data or knowledge restricted because of its critical importance in ensuring national security, protecting privacy, or other significant interests. It requires special measures for controlling access, storage, and transmission, as well as regulation at the legislative level to prevent unauthorised disclosure or use that could harm individuals, organisations, or the state. Such a definition emphasises the importance of legislative regulation and transparent criteria for categorising and protecting sensitive information. The status of sensitive information in Ukraine is not clearly defined at present.

The information security strategy is essential in Ukraine's information policy, and its legislative foundations have been established. However, the current strategy is more focused on preventing and averting threats of a technical nature. The main activities of the authorised structures are related to protecting the country's information systems and resources. At the same time, there is no mechanism for countering information-psychological wars, which can inflict material and reputational damage on the state. The lack of coordinated work in this area makes Ukraine vulnerable to modern challenges (such as military aggression

from Russia), including ideological expansion. With the rapid development of the Internet and computer technologies and the virtualisation of the global information space, such favourable conditions require prompt measures to preserve the state's information sovereignty.

2 Literature Review

An attribute of social reality is communication, but there is information whose access is restricted and controlled to prevent unauthorised disclosure that could harm personal, organisational, or state interests (Mikhailova, 2023). Aristotle characterised information and communication as a higher form of human interaction, implying the interaction of individuals (as part of society) with the state (as the societal whole) (Bashuk, 2019). Later, the American researcher Lasswell referred to human communication as an "open forum for the continuous discussion of issues of mutual tolerance and access to the basic values of life" (Lasswell, 1927). The communicative approach to understanding politics is also central in the works of German researchers Arendt and Habermas, who believed that communicative activity creates and sustains a political community (Mikhailova, 2022). All contemporary informational concepts emphasise human beings' informational and communicative nature and social relations (Zaverbnyi, 2022; Turchyna et al., 2023).

The importance of social communication in governance processes called the "nervous system of public administration" is sensitive to changes and involves receiving, selecting, evaluating, and processing information, decision-making, implementation, and feedback (Hurkovskyi, 2004). In the monograph "Public Administration and Administration in the Information Society", it is noted (Usov, 2014; Zaduvalo, 2017) that management communications are a universal system that "reproduces the orderliness of the management social process, organises and actualises the management process in the complex interaction of administrative and political organisations with society" (Vasylenko & Maslak, 2010). The authors (Vasylenko & Maslak, 2019; Vyslotska, 2016; Vyslotska, 2018) described mechanisms for access control, encryption, and special conditions for data storage and processing. The article (Ihnatenko, 2022) describes norms defining sensitive information's status and establishing rules for its protection and use.

3 Aims

Analysing the use and justification of sensitive information in the context of ensuring state security. Research and optimisation of information security as a factor in the fight against propaganda, using the experience of different countries.

4 Materials and methods

The study's subject was sensitive information, a determining factor in developing information security in various countries worldwide. It conducted a retrospective analysis of different strategies for optimising the use of sensitive information. The study addressed the issue of overcoming propaganda through a communicative approach. Historical and logical analysis and comparison methods, expert evaluations, systems analysis, and forecasting were utilised. The research materials included developments, ideas, and other intangible assets that can help humanity in the fight against propaganda.

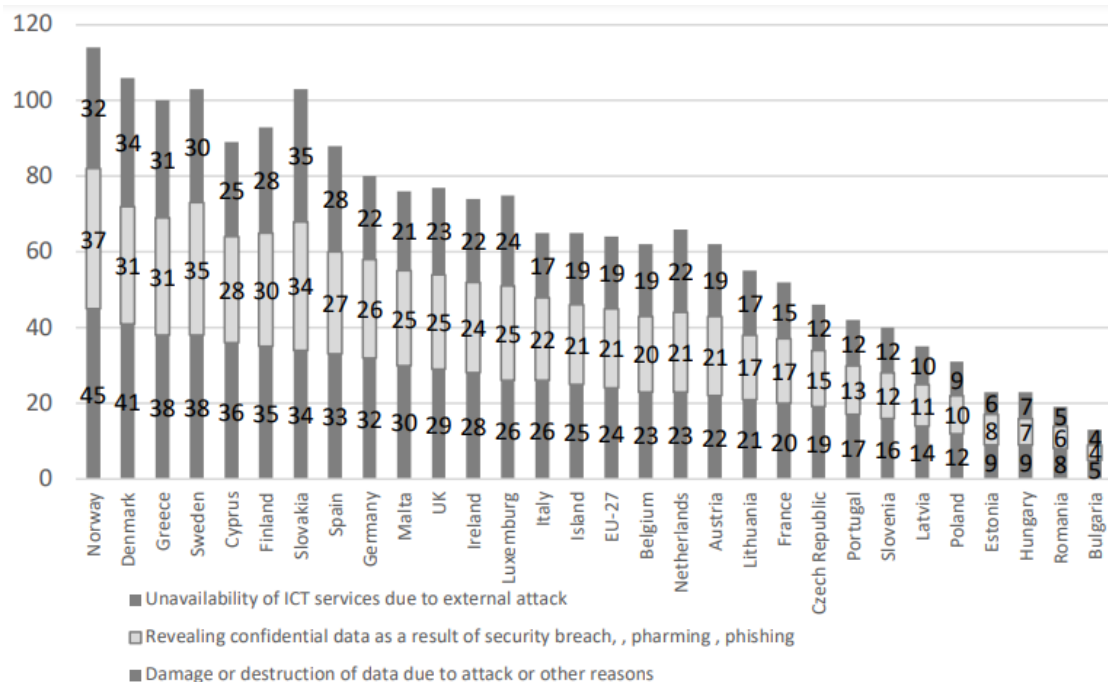
5 Results

The preservation of the sovereignty and territorial integrity of a country is a fundamental task of the state in the current conditions. This provision is closely intertwined with another equally important aspect of state activity — the field of security. The issue of security in modern scientific discourse should primarily be considered in the political realm. This is because ensuring security requires the authorities to make

appropriate decisions and create organisational and legal mechanisms for their implementation. The report on such measures is called state policy in the security field, as shown

in Figure 1, illustrating the risks of sensitive information leaks from institutions.

Figure 1: Percentage of Enterprises in EU Member States by Type of Sensitive Information Leakage Risk



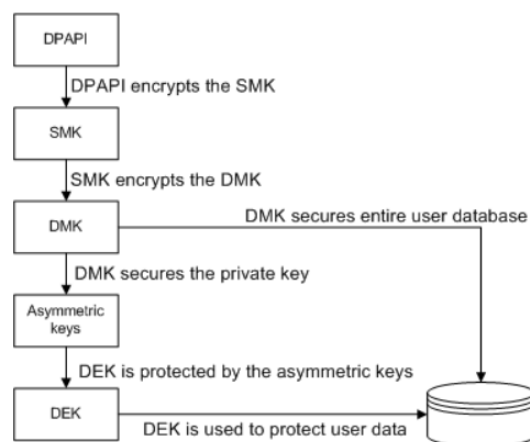
The world in the 21st century is not safe. The conflict in international relations is increasing, leading to heightened tensions across the global space. The geopolitical confrontation between significant power centres today is mainly informational. Traditional military actions, acts of aggression, and sabotage have been shifted to the media field. The endless flow of information generated by social networks on the Internet is increasingly being used as a weapon of mass destruction. Information warfare has already been recognised as an extremely dangerous type of ideological weapon, as it can affect not only human or public consciousness but also the political decision-making system. The widespread use of this modern and most effective propaganda tool has intensified the trend of information warfare on a global scale (Kovalov & Leonov, 2017).

It should be noted that thanks to the development of virtual-communicative technologies, current information wars are becoming increasingly sophisticated (Radchenko et al., 2023). Information warfare is aimed at disrupting the opposing side's information security and creating chaos at the centre of political decision-making in a country. At the same time, information warfare is a set of measures to influence mass consciousness, change people's behaviour, and impose goals that are not in their interest. This involves manipulating public opinion (Chukut, 2021).

Given Ukraine's aspiration to integrate into the Euro-Atlantic and North Atlantic space and, accordingly, into the legislative and legal framework of the EU and NATO, a series of reforms should be carried out. These reforms, particularly regarding the security situation in document circulation, are becoming increasingly relevant and should be discussed in public control institutions over the activities of state institutions in Ukraine (Verbenskiy, 2020).

A decision must be made that will consider the interests of society, individual citizens, and the state in this matter by developing and enshrining in legislation specific approaches — both the definition of sensitive information as a category of information and the preliminary classification of such information as sensitive. There is a need to systematise such a category (type) of information as sensitive (Figure 2).

Figure 2: Transparent Data and Sensitive Information Encryption Hierarchy



Currently, such information circulates (Figure 2) within the security sector (movement of military goods, logistics, temporary deployment (location, movement) of military formations, equipment, issues of securing security institutions, critical infrastructure objects), the disclosure (highlighting, posting) of which could be used to inflict significant harm on state security and, accordingly, would require the adoption of additional measures to eliminate the risks that arise (Korchenko et al., 2008).

Countering such threats and effectively managing information becomes one of the main conditions for ensuring national security (Konchuk, 2019). An encroachment on the country's information security is equivalent to a threat to its national interests. Ukraine's policy in the field of information security is outlined in Article 21 of the Law of Ukraine, "On State Secrets", and Article 9 of the Law of Ukraine, "On Access to Public Information". The approved order of the Central Administration of the Security Service of Ukraine dated 23.12.2020 No. 383 is interpreted as the state of protection of the interests of the individual, society, and the state in the information sphere. From

this, the state protects society and each citizen from destructive information (Vynohradov & Mykhailutsa, 2019).

The balanced interests of the individual, society, and the state form national interests (Shamsutdinov, 2002). This means that the issue of state information security is inextricably linked with the protection of national interests (Halushka & Tikhonov, 2021). Based on the current realities of the global political system, information security must also be considered an essential component of the national security strategy (Chernov, 2017). Destructive information campaigns, which are accompanied by the creation of fake messages, deliberate distortion of media content, and substitution of reliable information, must be addressed.

Ukraine often becomes a target of information attacks by Russia, which destabilise the socio-political situation in the country, incite national hatred, and divide society (Chmyr et al., 2023). To counteract destructive actions promptly, the state must organise its information security. In science, this is referred to as the policy of information counteraction, which is one of the critical elements of information warfare, along with information influence (Primush et al., 2023).

6 Discussion

In Ukraine and worldwide, specific experience has been accumulated in ensuring information security, and this process's legislative, organisational, and institutional foundations have been established. However, the activities of authorised structures are more focused on protecting information systems and networks of strategic importance. At the same time, the issue of countering ideological expansion remains on the periphery of their attention. The authorities of most of the countries discussed in the article do not carry out comprehensive, coordinated work to combat fake news and destructive propaganda, which poses a real threat to national interests. The article examines specific cases of promoting Russian propaganda narratives in the media segment. It highlights the vulnerability of Ukraine's information security system. It provides practical recommendations for addressing them, including creating an early warning system for

information attacks, cyber sabotage, and external manipulative actions, with a built-in mechanism for promptly responding to such threats. The article also discusses and examines the improvement of the relevant legislative framework and the adoption of a comprehensive concept of information security for Ukraine, as well as for global leaders China and the USA, which involves enhancing the capacity of domestic media to counter destructive propaganda.

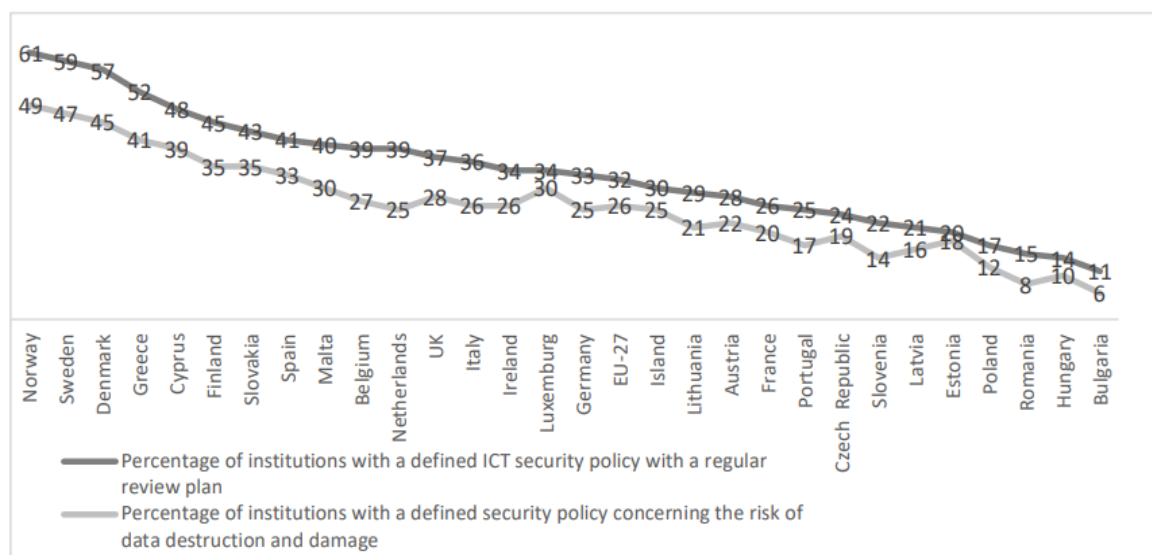
Analysing the described results, the following classification of confidential information can be proposed based on the following criteria (Hren et al., 2023).

1. By ownership rights:
 - a) State;
 - b) Private;
2. By access rights:
 - a) During the performance of official duties by officials;
 - b) By the owner and persons to whom this right has been granted;
3. By field of application:
 - a) Commercial;
 - b) Banking;
 - c) Taxation;
 - d) Legal;
 - e) Judicial.

The processing of sensitive information requires caution. Sometimes, the law prohibits processing such data, even when consent has been given. In other cases, the law requires special measures during processing (for example, it requires encryption before transmission over open networks or mandates its concealment).

Let us analyse the international experience of leading countries (Figure 3). We can see that state secrets in China currently cover various areas—from decision-making by the government and the Communist Party to military and diplomatic activities, as well as economic development, science, and technology. The updated law, which was lobbied for, requires state institutions and working units to protect information “that is not a state secret but may cause certain adverse consequences if leaked”.

Figure 3: Percentage of Institutions in EU Member States with a Formal ICT Security Policy (Eurostat, 2020)



Uzbekistan's policy in the field of information security is outlined in the law "On Principles and Guarantees of Freedom of Information" dated 12 December 2002. In this document, the concept of "information security" is interpreted as the state of protection of the interests of the individual, society, and the state in the information sphere. This implies that the state must protect itself and society from destructive information and each citizen separately. It is worth noting that in US legislation, there is no

single normative legal act on state secrets similar to that in the legislation of other countries, including the corresponding legal system. Executive Order No. 13526, issued by the President of the USA in 2009, established the classification system for classified information currently in force in the USA.

Table 1: Laws or Regulations of Countries Regulating the Use of Sensitive Information for State Security

Country	Laws and regulations
France	The classification of secret and sensitive information is defined in Article 413-9 of the Constitution. In particular, three levels of military classification (secrecy marks) are declared.
Germany	Section 97 contains the concept of a 'criminal offence' for disclosure of sensitive information.
Japan	The country's Constitution, section 13, part 2 of the Code, contains a provision that defines criminal liability for disclosure of secrets, including sensitive information.
China	The Law of the People's Republic of China on the Protection of State Secrets.
EU	In the European Union, there is a Recommendation No. 2 (2002) on access to official documents held by public authorities public authorities.
Ukraine	Articles 328, 329, and 422 of the country's Constitution regulate the use and unlawful dissemination of classified information.
USA	Executive Order 13526 by US President Barack Obama.

Thus, in every sphere of social relations, appropriate procedural requirements for the circulation of information containing personal data must be developed based on the basic legal requirements defined in the particular law and regulations. The identified features of the legislation of the studied countries, as described, will help improve Ukraine's legislation in the field of information protection (Table 1).

7 Conclusion

The available information in the fields of operational search, counterintelligence, and intelligence activities, operational-technical measures, protection of personal data of employees/military personnel, activities of participants in anti-terrorist operations and military actions, international cooperation, internal audit, financial reporting, civil protection, territorial defence, and housing and communal services has been analysed. At the same time, a unified approach to defining categories of information that require access restrictions is practically absent in these areas. The lack of a unified approach to defining categories of information that meet the requirements of Article 6 of the Law of Ukraine "On Access to Public Information" and require access restrictions may lead to situations where the same information has different statuses in different agencies.

In the current conditions of resisting armed aggression by Russia, considering that many of the aggressor's actions take place in the information sphere, the provisions of the Law of Ukraine "On Access to Public Information" do not fully reflect the need to establish restrictions on sensitive information. At the same time, there is an apparent discrepancy between specific departmental lists of information that constitute official information and the current legislation in the information field.

Literature:

- Mikhailova, O.: Communication strategies in public management and administration: state and problems in implementation. *International Science Journal of Management, Economics & Finance*, 2023. 2(2), 93-99. <https://doi.org/10.46299/j.isjmf.20230202.10>
- Bashuk, A. I.: *Communication strategies of state power in the conditions of the information society: a monograph*. Kamianets-Podilskyi: Ruta Printing House LLC, 2019.
- Lasswell H.: *Propaganda Technique in the World War*. USA: MIT Press Classic, 1927.
- Chernov, S. (Ed.): *Public management and administration in the conditions of the information society. Domestic and foreign experience: monograph*. Zaporizhzhia: ZDIA, 2017.
- Mikhailova, O. G.: Modern communication strategies in public management and administration under conditions of uncertainty. *Problems of modern transformations. Series: law,*

- public administration and management*, 2022. 5. <https://doi.org/10.54929/2786-5746-2022-5-02-03>
- Zaverbnyi, A.: Communication strategies: problems and prospects of formation and implementation in the context of European integration. *Innovation and Sustainability*, 2022. 1, 13-19. <https://doi.org/10.31649/ins.2022.1.13.19>
- Turchyna, M. P., Boyko, I. A. and Tur, O. V.: The choice of communication strategy at different stages of brand development as a component of the information flow of the enterprise. *Market economy: modern theory and practice of management*, 2023. 213(52), 249-263. [https://doi.org/10.18524/2413-9998.2022.3\(52\).275808](https://doi.org/10.18524/2413-9998.2022.3(52).275808)
- Chukut, S. A.: Communication strategies in public management and administration: foreign and Ukrainian experience. *Investments: practice and experience*, 2021. 12, 72-79. http://nbuv.gov.ua/UJRN/ipd_2021_12_14
- Usov, D.: Criminal law characteristics of disclosure of state secrets. *Criminal law and criminology, criminal enforcement law*, 2014. 18.
- Zaduvailo, O.: The problem of defining the concept of "Sensitive information" in the context of ensuring the information security of the state. *Scientific Bulletin*, 2017. 116, 280-285. http://nbuv.gov.ua/UJRN/gileya_2017_116%281%29_70
- Shamsutdinov, O. V.: Liability for disclosure of state secrets under the criminal legislation of Ukraine. Kyiv, 2002. p. 245.
- Vasylenko, D. P. and Maslak, V. I.: Legislation of the world's leading countries in the field of information protection. *Visnyk KDU im. M. Ostrovs'koho*, 2010. 2(61), 1, 128-132.
- Verbenskyi, M. H., Kulyk, O. H. and Naumova I. V.: *Criminal situation in Ukraine: main trends. Monograph*. Kyiv: Yurinkom Inter, 2020.
- Vynohradov A. K. and Mykhailutsa M. I.: Political and legal analysis of criminal liability for the disclosure of state secrets and for the disclosure of information of a high nature, constituting a state secret, or the loss of documents or materials containing such information. *South Ukrainian legal journal*, 2019. 46-49. <https://doi.org/10.32850/sulj.2019.3-11>
- Vyslotska, T.: Protection of secrecy in the history of criminal legislation of Ukraine. *Jurnalul juridic național: teorie și practică*, 2016. 2(1), 108-112.
- Vyslotska, T. Yu.: *Criminal law protection of secrets in Ukraine*. Lviv, 2018.
- Perepelytsia, H.: *Ukraine's military security is on the verge of millennia. Monograph*. Kuiv: Stylos, 2002.
- Halushka, V. and Tikhonov, H.: Peculiarities of legal regulation of protection of state secrets in Ukraine and abroad. *Enterprise, economy and law*, 2021. 1, 205-209. <https://doi.org/10.32849/2663-5313/2021.1.36>
- Hurkovskiy, V. I.: *Organizational and legal issues of interaction of state authorities in the field of national information security*. Kyiv, 2004. p 205.
- Ihnatenko, I. V.: *The right to freedom of speech: information as a weapon in the fight against the aggressor. Legal means of combating crimes against the foundations of national security in conditions of military aggression: materials of the round table*. KPI by I. Sikorskyi, Kyiv, 2022. 107-111.
- Kovalov, K. Ye. and Leonov, B. D.: Ensuring the protection of state and official secrets in the field of operational and search activity according to the legislation of individual states: a comparative analysis. *Information and law*, 2017. 1(20), 112-122.
- Konchuk, N. S.: Criminal liability for treason. Abstract. *Criminal law and criminology; criminal executive law*, 2019. 18.
- Korchenko O. H., Arkhypov O. Ye. and Dreis Yu. O.: *Assessment of damage to the national security of Ukraine in case of leakage of state secrets: monograph*. Kyiv: NASB Ukrainy, 2014. p 332.
- Primush, R., Chmyr, Y. and Kravtsov, M.: Information Wars: Historical and Comparative Analysis, Specifics and Factors of Actualization in the Modern World. *Contributions to Political Science*, 2023. 1367, 259-272.
- Hren, L., Karpeko, N., Kopanchuk, O.: Substantive Essence and Components of the Societal Phenomenon "Information Security" in the Age of Information Society. *Contributions to Political Science*, 2023. 1367, 75-91.

27. Chmyr, Y., Deineha, M. and Shchepanskiy, E.: Tools for Counteracting Information Aggression Use of Elements of Information War in Ukraine. *Contributions to Political Science*, 2023. 1367, 285-299.
28. Radchenko, O., Nepomniashchij, O. and Shkurat, I.: Information Weapons: Forms and Technologies of Modern Information Wars. *Contributions to Political Science*, 2023. 1367, 273-284.
29. Eurostat. *ICT security in enterprises 2018 – 2019*, 2020.

Primary Paper Section: A

Secondary Paper Section: AG

MANAGING UNCERTAINTY: THE ROLE OF PROBABILISTIC MODELS IN ENHANCING DECISION ACCURACY AND EFFICIENCY

^aINNA HORDIEIEVA, ^bHALYNA TARASIUK,
^cNADIYA VASYLIEVA, ^dIRYNA KALMYKOVA,
^eIGOR PARYZKYI

^a*Ukrainian State University of Science and Technologies,
 Dnipro, Ukraine.*

^b*Zhytomyr Polytechnic State University, Zhytomyr, Ukraine.*

^c*Lviv Business School, Ukrainian Catholic University, Lviv,
 Ukraine.*

^d*O. O. Preobrazhenskyi Educational and Scientific Institute of
 Hospitality and Travel Industry and Enology, Odesa National
 University of Technology, Odesa, Ukraine.*

^e*National Academy of Management, Kyiv, Ukraine.*

email: ^agordeyevainna@gmail.com, ^bgalinatar@ukr.net,

^cnadiyav@dti.org.ua, ^diragaby@gmail.com,

^ei.paryzkyi@gmail.com

Abstract: The trend of economic process dynamics in the face of instability requires new concepts for implementing the management paradigm. This article aims to analyse the impact of probabilistic models on the accuracy and efficiency of management in conditions of uncertainty. The study applied general scientific methods: analysis, synthesis, generalisation, specification, induction, deduction, and abstraction. During the study, the authors investigated the main aspects of forming a management strategy in times of uncertainty. They analysed the relevance of a systematic approach to business continuity management in adverse conditions. The article highlighted the primary strategy of crisis management in times of uncertainty. The authors have considered the specifics of modern models for levelling the impact of instability. The paper also substantiated the potential for improving the crisis management mechanism in today's unpredictable multifactorial conditions of economic activity. The authors have demonstrated the effectiveness of applying probabilistic models in terms of accuracy and efficiency of management in conditions of uncertainty under the influence of a complex of probabilistic external and internal factors. The article identified the need to improve the mechanism of the effective management system based on probabilistic models during periods of instability. The authors have proposed a model of an anti-crisis strategy for unforeseen conditions, specified local techniques, and a mechanism for its implementation tactics. It is a mutually consistent synergistic system of strategy, methodological support, and practical tools. Furthermore, the practical value of research findings is seen in the possibility of their application when developing or optimising anti-crisis strategies for managing economic activity in the face of uncertainty.

Keywords: Probabilistic nature, Crisis management, Principle of economic feasibility, Risk management, Effective development, State regulatory policy, Civil service, Public administration innovation.

1 Introduction

Developing and selecting optimal management solutions is considered a top issue in researching and modelling complex economic systems. The situation becomes particularly challenging in the face of uncertainty. Limited operational information on the dynamics of economic processes, deterministic crisis phenomena in society and economic activity, the inability to fully formalise them, the multivariance of behavioural reactions of business entities, multicriteria, and an increased level of conflict cause uncertainty over the development of economic phenomena.

Many relevant studies are devoted to the issues of forming and improving management strategies under conditions of instability. Some modern scholars (Levenchuk et al., 2021; Izmailova et al., 2022) study the peculiarities of transforming the management paradigm in the context of global digitalisation. This significantly changes approaches to modelling management decisions. Several scholars (Yankovska et al., 2023; Shchetinina et al., 2021) reflect on the issues of forming company's management strategy to prevent the impact of uncertainty factor in economic activity. Other researchers (Kataieva et al., 2020; Kotsyuba, 2022) note that in times of uncertainty, research on modelling mechanisms becomes extremely important in terms of the impact on the accuracy and efficiency of management.

The general issues of uncertainty of economic conditions and processes that necessitate the development of appropriate management strategies to overcome them are thoroughly studied in the papers of some contemporary scholars (Harmatiy, 2023). Specific issues related to the transformation of the modelling

functionality as a specific tool in economic management systems are reflected in the studies of leading researchers in this field (Levenchuk & Bidyuk, 2020; Koval, 2022). At the same time, according to scholars, the very concept of crisis management is constantly and continuously evolving following the dynamics of external and internal influence factors. It forms the conditions for the effective development of business competitiveness (Halakhova & Kulyk, 2023). According to scientists, public administration science's practical orientation should manifest in an adequate state regulatory policy.

However, scholars have addressed the issue of optimising the management paradigm in the era of economic process uncertainty by applying probabilistic modelling on a selective basis. This relatively new and dynamic concept needs more study and further scientific consideration. Additional attention should also be paid to the development of practical algorithms for formulating appropriate management strategies to offset the impact of instability in the factorisation of influence on the accuracy and efficiency of management decision-making. This article aims to analytically substantiate the impact of probabilistic models on making effective decisions within the management mechanism for overcoming the influence of unforeseen conditions.

2 Literature review

The studies of Ukrainian and foreign scholars form the theoretical and methodological background for developing approaches to management in conditions of uncertainty. Many experts pay attention to the issue of modelling capabilities being involved in the management process in the face of uncertainty and crisis phenomena.

The issues of developing an anti-crisis management paradigm in unstable economic, social, and political conditions have gained significant relevance in the modern scientific community. Most of the studies performed by Ukrainian scholars (Huskova, 2020; Zheldak et al., 2020) are devoted mainly to the methodological and technical aspects of implementing management processes in the face of uncertainty, as well as to the classification of its mechanisms and description of tools. At the same time, the scientific achievements of foreign authors (Boomen et al., 2020; Hensel et al., 2022) are primarily relevant. They offer a comprehensive practical approach involving the capabilities of the modelling process. They cover aspects of analytics and evaluation from the standpoint of maintaining the efficiency of economic activity under conditions of uncertainty. Such processes should occur against active state and administrative innovation activities.

By considering the role of management systems in modern management strategies, many scholars (Zuluaga & Sánchez-Silva, 2020) have shown the power and multifactorial impact of the targeted modelling tools on the stabilisation of business processes and the positioning of companies in the market in terms of accuracy and efficiency of decision-making. The authors (Sun & Ding, 2020) emphasise the relevance of taking into account risk growth in the context of instability not only for the efficiency and effectiveness of economic processes but also for the stability of their implementation, i.e., the factor of their continuity.

Some researchers (Caunhye et al., 2022) analyse the successful experience of modelling management decision-making in crisis conditions and instability of economic systems. The publications of some scholars (Dehshiri et al., 2023) track the idea that modern management strategies in the face of uncertainty provide maximum opportunities for effective involvement of existing potential, while possessing the functionality of preventive protection against negative consequences.

According to some researchers (Pellegrino et al., 2021), the consequences of the global transformation of economic processes have accelerated transformational changes. Nowadays, market participants who ignore the possibilities of modelling the functionality of management decisions are at risk of losing a significant set of opportunities. Some authors (Peñalba-Aguirrezabalaga et al., 2020) have also thoroughly analysed approaches to forming accurate and effective management decisions in the face of external and internal factors instability.

However, without offsetting the scientific importance of contemporary scholars' achievements, it is necessary to note the relevance of the practical implementation of probabilistic modelling tools in practical management strategies to optimise the accuracy and efficiency of management decision-making. There are still several issues regarding forming a universal concept of strategic management in the face of uncertainty. This concept would be able to respond promptly to dynamic market changes. Such circumstances necessitate further scientific research and their deepening and detailing.

3 Materials and methods

This study's methodological framework was based on several general scientific and unique methods of cognition, particularly abstract and logical, functional and structural analysis, synthesis, generalisation, specification, induction, deduction, and theoretical modelling.

The study used a comprehensive systematic approach, which allowed us to study the research object as a system with interconnections and interdependencies.

Various analysis and synthesis methods were used to identify the development factors of the object under study, its defining functional elements, and the transformational capabilities of modern management strategies. The induction method was used during the predictive analysis of the expected effectiveness of probabilistic modelling in terms of accuracy and efficiency of management decisions. We have formed the management paradigm integrity conceptual framework through abstraction as a structural and consequential system of interrelations. The generalisation method was applied at the stage of forming priority directions for optimisation of the management paradigm, including the possibilities of probabilistic modelling in the face of uncertainty and crises.

4 Results

The management paradigm in conditions of uncertainty is currently viewed as a modern management concept aimed at ensuring the effectiveness of economic activity in the era of critical socio-economic phenomena and social environment instability. This approach involves the development of specific technologies and tools that consider both the crisis's problems in terms of management and the opportunities stimulated by it. At the same time, anti-crisis management strategies are based on short-term and long-term solutions aimed primarily at accurate and effective management in conditions of uncertainty. Today, the civil service should be viewed in the context of public administration innovation, which will improve management processes in the economic sector and optimise practical anti-crisis strategies of national and local importance.

Applying the probabilistic modelling approach to the current state of economic development is inherent in considering the complex functioning conditions in the face of uncertainty. These conditions are formed under the influence of challenges and threats. In addition, the role of some of them is gradually intensifying, which requires considering the synergistic impact of their combination. Applying the probabilistic modelling approach within the management system can significantly affect the accuracy and efficiency of management processes in the face of uncertainty.

The analysis of the fundamental trends in updating approaches to ensuring sustainable economic activity in the context of

instability of socio-economic and socio-political processes allows us to assert that, as of today, there is a general tendency of vectoring towards an integrated methodology as the most effective one, taking into account the specifics of management issues in the context of their formation during times of uncertainty.

Potential threats to the sustainability of economic activity have a pronounced probabilistic nature. Therefore, the description of such systems can be based on the postulates of the theory of random processes. Several well-known linearisation methods can be used to select the most acceptable and effective management decisions. The latter can significantly simplify the algorithm of system dynamics analysis.

When forming and improving a management system in an unstable environment, updating the complex of external and internal influencing factors is necessary. This serves as a prerequisite for individually implementing independent analytics for each significant random factor.

In conditions of uncertainty, modelling is seen as a prioritised systematic scientific-practical tool for forecasting, identifying potential consequences of alternative management decisions, and selecting the most optimal ones. The management paradigm deems it necessary to develop the appropriate procedural functionality for making strategic decisions to ensure the rationality of forming non-programmed management concepts.

The initial stage of researching the prerequisites for possible further justification of probabilistic modelling requires comprehensive analysis. The presence of sufficient time resources and the necessary volume of relevant information are the fundamental indicators for selecting the method of forming management decisions based on probabilistic modelling. At the same time, a significant functionality belongs to public administration innovation activity, which has the features of adaptability, flexibility, and openness to the latest opportunities.

Among the main components of the model in terms of formalising the management situation are:

- the descriptive performance of potential alternative decisions;
- identification of the target functionality;
- the formation of an individualised system of constraints.

Solving the developed probabilistic model involves applying mathematical tools, the choice of which is determined by the type and complexity level of the model being studied.

For the practical application of the results of probabilistic modelling, it is necessary to control the model and identify the degree of its correspondence to the actual conditions of economic activity. Even in the case of positive experience with the proposed probabilistic model in the past, its current version mostly requires optimisation due to the dynamics of the operating environment. Based on the probabilistic modelling results, the possibility of selecting the most optimal alternative is formed.

At the current development level of digitalised mathematical functionality, solving linear processes during probabilistic modeling is considered an accessible target tool. After all, approximation methods or similar mathematical tools can be used in case of difficulties obtaining accurate analytical solutions.

It is worth noting that the primary stage in forming a management system in the face of uncertainty includes analysing the identified factors and their impact on the processes critical for economic functioning. Considering these factors, it seems necessary to prioritise the identification of potential threats under conditions of uncertainty. State regulatory activity in a crisis environment of uncertainty should ensure the stability of the

essential components of the management system, which will guarantee its sustainability.

The methodological technique of probabilistic modelling is based on implementing computer algorithms for forming strategic economic development and identifying the specifics of possible consequences of negative impacts. The methodology of individualised development of a simulation probabilistic modelling algorithm is often used to implement the idea of building probabilistic models. This creates the precondition for implementing an experimental study using digital technologies and economic and mathematical modelling tools. In general, the probabilistic modelling process can be represented as an algorithm that allows the formation of a practical probabilistic model step by step (Figure 1).

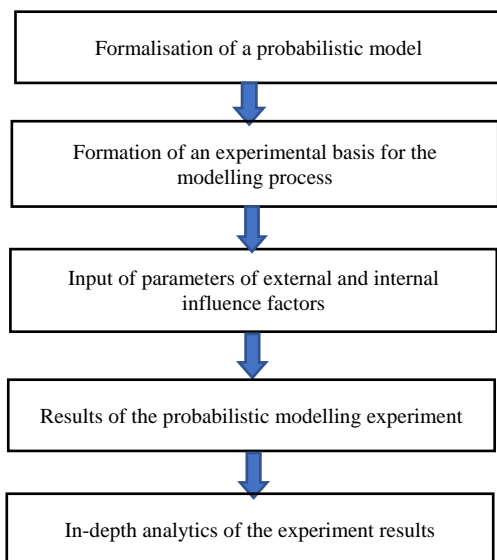


Figure 1. The standard algorithm for implementing probabilistic modelling

Source: author's elaboration based on (Levenchuk et al., 2021)

After analysing Figure 1, it should be noted that the probabilistic model should synergise individual parameters of economic activity. This lets us formally describe the model factors (quantitative indicators of variables' distribution).

According to research results' analytics, economic processes in the face of uncertainty are most effectively described by a normal distribution and fixed values of individual model parameters.

An in-depth analysis of the simulation results is essential in building a probabilistic model. The latter is realised by estimating the probability of the indicator value falling into a specific interval and the possibility of obtaining a particular result with a certain probability. The proposed toolkit can be effectively used to develop a crisis management programme under conditions of uncertainty, to formulate accurate and effective decisions, and to evaluate the effectiveness of the strategic management paradigm. In this context, public administration innovation involves using public authorities' direct administrative and indirect regulatory influence on the relevant management objects. The first group includes legal regulation, persuasion, and coercion methods, while the second group includes education, incentives, democratisation of governance, placement of public orders, and manipulation.

Probabilistic modelling of the decision-making process in an unstable socio-economic environment makes it possible to implement quantitative assessments and quantitative analysis of management decision results. The proposed concept allows the quantification of managerial situations, bringing the decision-making process to a qualitatively new level of accuracy and efficiency. The professional use of probabilistic models of the

decision-making process allows for controlling intuitive reasoning within the management system. It guarantees a high degree of consistency, coherence, and reliability of the management decisions. At the same time, these models create the prerequisites for maximising the potential of intuition in convergence with experience.

The alternative variations of management decisions obtained through probabilistic modelling have a recommendation functionality. They stimulate the adoption of an accurate and effective management concept. Nevertheless, if the potential of their use in complex situations of uncertainty is ignored, the management system's efficiency is significantly reduced. It should be noted that a decision obtained using probabilistic modelling of a situation requires mandatory analytics and performance monitoring.

5 Discussion

The transformation of the market participant's management system in the face of uncertainty requires dynamic approaches to forming management decisions. According to scholars (Moen et al., 2023), it is based on effectively adapting the market object's activities to the conditions of economic instability.

Packard and Clark (2020) believe that allocating the factorisation of influences, which should be updated in probabilistic modelling, should be implemented based on the classical risk management methodology. This methodology considers not only probabilistic characteristics but also the level of their impact.

According to the results of scientific research by modern scholars (Benbya et al., 2020), the practical adaptation of traditional management process algorithms based on modelling processes is a primary component of the process of forming accurate and effective management decisions in order to implement effective economic activity under challenging conditions of uncertainty. At the same time, Benbya et al. (2020) argue that applying the functionality of modelling processes in the modern innovation field, with the involvement of digital optimisation tools, is a promising means of intensifying the effectiveness of management decisions during the crisis.

In their studies, some authors (Gečienė, 2020) emphasise the need to introduce the preliminary development stage of a plan of promising measures into the management paradigm in conditions of instability. They emphasise the need to take into account the principle of economic feasibility. Moreover, the authors emphasise that modelling is an effective analytical tool for efficiently processing massive volumes of data. The scientists' conclusions are synergistic with our study's results, which proves that modern probabilistic modelling capabilities ensure coordinated data management and effective adaptation of management decisions to unstable conditions.

As a follow-up to the research described above results, some modern scientists (Zhao et al., 2020) formulate the main requirements for the expected effectiveness of decision modelling in the management system, which include:

- minimisation of risks and levelling the consequential impact of the uncertainty factor on economic activity;
- creation of optimal conditions for investment;
- coordination of information flows that determine the vector of strategic decision-making within the management paradigm in crisis conditions of instability of socio-economic processes.

The modern process of forming a management strategy for the market entities' activities in the face of instability should be focused on optimising the availability, completeness, and speed of information and forming an appropriate concept of management decisions with accuracy and efficiency as priorities. Scholars whose studies have been outlined above are convinced of this. They assure of the need to introduce new interactive tools and expand the capabilities of the modelling process in the

field of research. Such processes should occur against active state and administrative innovation activities.

The mentioned research findings of modern scientists are identical to the conclusions of the current study, especially in actualising the need to use probabilistic models to increase their impact on forming and improving management decisions in the context of instability of the socio-economic field. The conceptual principles are the primary vectors for optimising the crisis management environment. At the same time, the main principle of crisis management in the context of unstable globalisation is to ensure the processes of analytics and market monitoring as the basis for forming alternative management decisions characterised by efficiency and accuracy. The outlined concept allows us to respond quickly to changes and adapt key management strategies. The government's regulatory policy plays an important role.

However, as of today, the number of studies on applying probabilistic modeling of managerial decisions in uncertain conditions still needs to be improved, marked by limited practical developments. Most studies are devoted to theoretical aspects and descriptions of modelling algorithms. The prospects for further research are seen in the formation of tools for making managerial decisions under an unstable economic environment based on the digitalisation of the probabilistic modelling process and the inclusion of artificial intelligence technologies in its functionality. This will allow for an individualised approach to the process while minimising the risks of making wrong decisions.

6 Conclusion

Providing sustainable economic performance in the face of an unstable socio-economic environment requires synergising efforts to develop effective strategic management decisions and the ability to quickly adapt to market dynamics. An integrated approach and considering a range of influential external and internal conditions ensure the effectiveness and accuracy of decisions within the management system. This approach ensures the formation of a reliable basis for further development and maintaining a stable position in the market in the face of uncertainty and changes.

As part of this study, we analysed the potential for optimising marketing strategies to build competitiveness and effectively promote goods and services in the face of instability and crises. The research proved that using innovative digitalisation capabilities in marketing systems allows for intensified performance and significantly increases companies' competitiveness under challenging conditions.

As a result of identifying the priorities of anti-crisis marketing, we proposed a universal algorithm for improving the efficiency of their implementation. The article diagnosed the multifactorial capabilities of modern innovative marketing tools, such as:

- optimisation of the quality communication processes;
- increase of competitiveness;
- prompt adaptation of supply to the demand dynamics;
- enhancement of the company's investment attractiveness.

The proposed model of anti-crisis marketing strategy reflects an interrelated set of strategic and operational measures subject to shared goals and tasks.

The study described practical tools for automating marketing processes that help optimise sales and increase profitability. The article also proposed priority directions for further scientific research on this topic, including developing practical functionality for anti-crisis marketing activities.

Literature:

1. Benbya, H., Nan, N., Tanriverdi, H., & Yoo, Y.: Complexity and Information Systems Research in the Emerging Digital

World. *MIS Quarterly*, 2020, 44(1), 1–17. <https://ssrn.com/abstract=3539079>

2. Boomen, M., Spaan, M., Shang, Y., & Wolfert, A.: Infrastructure maintenance and replacement optimisation under multiple uncertainties and managerial flexibility. *Construction Management and Economics*, 2020, 38(1), 91–107. <https://doi.org/10.1080/01446193.2019.1674450>

3. Caunhye, A. M., Cardin, M. A., & Rahmat, M.: Flexibility and real options analysis in power system generation expansion planning under uncertainty. *IIEE Transactions*, 2022, 54(9), 832–844. <https://doi.org/10.1080/24725854.2021.1965699>

4. Dehshiri, S. J. H., Amiri, M., Olfat, L., & Pishvae, M. S.: A robust fuzzy stochastic multi-objective model for stone paper closed-loop supply chain design considering the flexibility of soft constraints based on Me measure. *Applied Soft Computing*, 2023, 134, 109944. <https://doi.org/10.1016/j.asoc.2022.109944>

5. Gečienė, J.: The resilience of organisations in the context of regional social sustainability: management challenges under uncertainty. *Organizacijų vadyba: sisteminiai tyrimai*, 2020, 83, 37–55. <https://doi.org/10.1515/mosr-2020-0003>

6. Halakhova, T., & Kulyk, A.: Probability models of production inventories at the enterprise. *Scientific Notes of Ostroh Academy National University. Economics Series*, 2023, 28(56), 151–155. [https://doi.org/10.25264/2311-5149-2023-28\(56\)-151-155](https://doi.org/10.25264/2311-5149-2023-28(56)-151-155)

7. Harmatiy, N.: Digital technologies of smart protocols in the simulation of economic development. *Theses of the IV International Scientific and Practical Conference of Scientists and Students "Digital Economy as a Factor of Innovation and Sustainable Development of Society"*. (pp. 3–4). Ternopil: Ternopil Ivan Puluj National Technical University, 2023.

8. Hensel, C., Junges, S., & Katoen, J. P.: The probabilistic model checker STORM. *International Journal on Software Tools for Technology Transfer*, 2022, 24, 589–610. <https://doi.org/10.1007/s10009-021-00633-z>

9. Huskova, V. H.: Data mining methods and models for evaluating financial risks. *Dissertation for obtaining a scientific degree of a Ph.D.* National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Ministry of Education and Science of Ukraine. Kyiv, 2020, 197 p.

10. Izmailova, O., Krasovska, H., & Krasovska, K.: Module for expected losses assessing in the information security risk management system of a construction company. *Ways to Improve Construction Efficiency*, 2022, 1(50), 81–92. [https://doi.org/10.32347/2707-501x.2022.50\(1\).81-92](https://doi.org/10.32347/2707-501x.2022.50(1).81-92)

11. Kataieva, Ye. Yu., Liuta, M., & Ovcharov, O. M.: Analysis of methods for calculating the duration of tasks in project management. *Collection of Scientific Papers ИОС*, 2020, (pp. 84–86). <https://doi.org/10.36074/30.10.2020.v1.26>

12. Kotsyuba, O. S.: Theoretical-probabilistic approach to the modeling of uncertainty in economic activity from the perspective of the historical path of its development. *Strategy of the Economic Development of Ukraine*, 2022, 51, 107–119. <https://doi.org/10.33111/sedu.2022.51.107.119>

13. Koval, N. O.: Features of Strategic Financial Controlling in Modern Conditions. *Modern Economics*, 2022, 31, 52–57. [https://doi.org/10.31521/modecon.V31\(2022\)-08](https://doi.org/10.31521/modecon.V31(2022)-08)

14. Levenchuk, L. B., & Bidyuk, P. I.: Bayesian data analysis in modelling and forecasting nonlinear nonstationary processes. *KPI Science News*, 2020, 3, 14–23. <https://doi.org/10.20535/kpissn.2020.3.209877>

15. Levenchuk, L. B., Huskova, V. G., & Bidyuk, P. I.: Probabilistic modelling of operational risks. *KPI Science News*, 2021, 3, 26–37. <https://doi.org/10.20535/kpissn.2021.3.251681>

16. Moeen, U., Alvi, A., & Hashim, M.: Financial Instability in the Era of Deregulation: Examining the Role of Government Oversight. *Journal of Business and Management Research*, 2023, 2(2), 982–993. <https://jbmr.com.pk/index.php/Journal/article/view/88>

17. Packard, M. D., & Clark, B. B.: On the mitigability of uncertainty and the choice between predictive and nonpredictive strategy. *Academy of Management Review*, 2020, 45(4), 766–786. <https://doi.org/10.5465/amr.2018.0198>

18. Pellegrino, R., Costantino, N., & Tauro, D.: The value of flexibility in mitigating supply chain transportation risks.

International Journal of Production Research, 2021, 59(20),

6252–6269. <https://doi.org/10.1080/00207543.2020.1811417>

19. Peñalba-Aguirrezabalaga, C., Sáenz, J., & Ritala, P.: Marketing-specific intellectual capital: conceptualisation, scale development, and empirical illustration. *Journal of Intellectual Capital*, 2020, 21(6), 947–984. <https://doi.org/10.1108/JIC-05-2019-0095>

20. Shchetinina, O., Smyrnova, O., & Kotliar, V.: Financial modelling: probability theoretic approaches. *Herald of Kyiv State University of Trade and Economics*, 2021, 139(5), 127–138. [https://doi.org/10.31617/visnik.knute.2021\(139\)09](https://doi.org/10.31617/visnik.knute.2021(139)09)

21. Sun, W., & Ding, Y.: Corporate social responsibility and cash flow volatility: The curvilinear moderation of marketing capability. *Journal of Business Research*, 2020, 116, 48–59. <https://doi.org/10.1016/j.jbusres.2020.05.016>

22. Yankovska, L. V., Yavorivskyi, R. L., & Sverstyuk, S.: Scientific approaches to the modelling of ecological systems and processes. *Theses of the IV International Scientific and Practical Conference of Scientists and Students “Digital Economy as a Factor of Innovation and Sustainable Development of Society”*. (pp. 199–201). Ternopil: Ternopil Ivan Puluj National Technical

University, 2023.

http://dspace.tnpu.edu.ua/bitstream/123456789/31624/1/Yankovska_Yavorivskyi_et%20al.pdf

23. Zhao, X., Calinescu, R., Gerasimou, S., Robu, V., & Flynn, D.: Interval change-point detection for runtime probabilistic model checking. In *Proceedings of the 35th IEEE/ACM International Conference on Automated Software Engineering*, 2020, (pp. 163–174). New York: Association for Computing Machinery. <https://doi.org/10.1145/3324884.3416565>

24. Zheldak, T. A., Koriashkina, L. S., & Us, S. A.: Fuzzy sets in control and decision-making systems: a textbook. Dnipro: Dnipro University of Technology, 2020. 387 p. <http://ir.nmu.org.ua/handle/123456789/156356>

25. Zuluaga, S., & Sánchez-Silva, M.: The value of flexibility and sequential decision-making in maintenance strategies of infrastructure systems. *Structural safety*, 2020, 84, 101916. <https://doi.org/10.1016/j.strusafe.2019.101916>

Primary Paper Section: A

Secondary Paper Section: AE, AH

MODERN CHALLENGES AND DEVELOPMENTAL OUTLOOK OF THE STATE BORDER GUARD SERVICE OF UKRAINE'S ADMINISTRATIVE AND LEGAL FUNCTIONS

^aANDRII TSARUK, ^bYAROSLAV KUSHNIR,
^cNADIYA DEMCHYK, ^dOLHA TSARENKO,
^eSERHII TSARENKO, ^fSERHII ADAMCHUK

^{a,b,c,d,e,f}*The Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine, Khmelnytskyi, Ukraine.*
 email: ^acaruk333@ukr.net, ^byarukfurrier@ukr.net,
^cDemNPet@ukr.net, ^domtsarenko@ukr.net, ^esitsarenko@ukr.net,
^fscar999@ukr.net

Abstract: The article examines the legal activities of the State Border Guard Service of Ukraine during the war in 2022-2024. The article considers the essence of administrative and jurisdictional activities of the State Border Guard Service of Ukraine, which consists in controlling border crossings and ensuring compliance with legislation. It analyses the impact of legal reforms on the functioning of the Service and the strengthening of control over the state border in connection with martial law. The legal aspects of increasing liability for violating the border crossing regime from 2022 compared to the pre-war period are described. The provisions for introducing additional administrative measures in the form of enhanced control over the departure of persons liable for military service are revealed. The research describes the changes in the service's work before the war, when border control was carried out according to peaceful procedures, compared to the significant strengthening of measures after 2022. Particular attention is paid to technological innovations used to effectively identify violators. The role of international organisations in providing technical and informational support to improve the work of the Border Guard Service in the legal sector and at the operational level is explored. At the micro level, the article analyses the legal and administrative components of SBGS activities and their interaction with other law enforcement agencies. It considers the service's current problems in exercising its powers and outlines the prospects for further development in the context of escalating war. The article also determines the importance of SBGS administrative and jurisdictional activities for ensuring national security and stability.

Keywords: Administrative and jurisdictional activities, State Border Guard Service of Ukraine, National security, Border control, Legal regulation, Illegal migration, Offences

1 Introduction

State border services in most countries play a crucial role in ensuring national security, regulating migration flows and combating illegal activities at the borders. Their main task is to monitor compliance with the law at the state borders and protect the economic and political interests of the country. In the European Union, the functioning of border services is regulated by EU directives and decisions. The FRONTEX agency, which coordinates member states' actions to protect the European Union's external borders, is critical. The United States Border Patrol operates under the Department of Homeland Security (DHS) and focuses on combating illegal migration, terrorism and smuggling. One of its main tasks is to control all land, sea and air borders. In addition to their operational role, border services worldwide carry out legal operations and transfer offenders to the relevant judicial authorities.

The legal peculiarities of the functioning of the State Border Guard Service of Ukraine in 2022-2024 are determined by the need to adapt to martial law conditions. According to the law, the SBGS is subordinated to the Ministry of Internal Affairs of Ukraine and operates based on the Law of Ukraine "On the State Border Guard Service". The Presidential Decree "On the Introduction of Martial Law" was one of the regulatory documents that changed the nature of its activities. The administrative component of the activity is the legal regulation of migration processes and border crossing in times of war, as there is a ban on men aged 18 to 60 without special permits. The strengthening of the migration border from 2022 is also due to increased liability for illegal border crossing by Law of Ukraine No. 2461-IX. The SBGS has significant powers to combat smuggling and protect the state's economic interests. The Service maintains enhanced control over the movement of goods, weapons and other resources across the border. The SBGS administrative body closely cooperates with the National Police and the Security Service of Ukraine, which help coordinate efforts to identify and apprehend offenders.

Increasing the technological efficiency of its operations is an essential development area for the State Border Guard Service of Ukraine at both levels of activity. Using the latest technologies, such as uncrewed aerial vehicles for border monitoring, significantly increases the efficiency of patrolling and detecting violators. Introducing biometric control systems at crucial border crossings allows us to identify people with forged documents and prevent dangerous elements from entering Ukraine. The use of modern video surveillance systems and analytical software for processing large amounts of data allows us to optimise the work of the service and speed up the decision-making process. In addition, since 2022, separate migration registers have been in place, operating based on digital technologies and the relevant infrastructure. The technological development of the SBGS aims to introduce the automation of the detention procedure and impose administrative penalties. It is advisable to create its database for threat analysis and an appropriate integrated system for exchanging information with other law enforcement and international agencies. It will significantly enhance the ability of the service to respond promptly to changes in national security and ensure a higher level of administrative and jurisdictional activity.

2 Literature Review

Scientific research on the legal nature of the activities of border guard services is an essential topic for ensuring national security in the context of the spread of armed conflicts. The relevance of the issue has increased since the outbreak of the war in Ukraine in 2022. According to Baranov (2023), this was reflected in the activities of the SBGS, which have expanded significantly due to the need to regulate mobilisation processes and strengthen border control. According to studies by Borovyk et al. (2023), border services are the primary elements of national security strategies, as they perform administrative, jurisdictional and military functions. The author Tyshchuk (2023) points out that during martial law, border services face challenges related to increased migration pressure and the need to strengthen state borders.

The legal aspects of the activities of the border services during wartime have been widely discussed in academic literature. The authors Bratko et al. (2023) note that changes in legislation during the war in Ukraine contributed to strengthening border crossing control and introducing administrative measures against persons liable for military service. Introducing stricter liability for border crossing regime violations helped significantly reduce illegal migration and smuggling (Bratko et al., 2023). According to Levadny et al. (2022), international cooperation of border services with other law enforcement agencies aims to ensure stability in the context of Europe's most significant armed conflict after 1945. Especially when coordinating actions to combat illegal migration (Levadny et al., 2022).

The administrative and jurisdictional activities of border services in different countries are widely studied in the scientific literature due to their essential role in ensuring national security. The authors Hao et al. (2023) note that modern border services are increasingly focusing on the use of the latest technologies to improve the border crossing control process. The study by Nováčková et al. (2023) emphasises the importance of close cooperation between border services and international organisations and law enforcement agencies to counteract cross-border threats effectively. This is supported by research that shows that the integration of international border management standards contributes to a reduction in the level of offences and increases the overall effectiveness of border services (Nováčková et al., 2023).

Considerable attention is also paid to analysing the impact of global migration crises on the administrative activities of border services. Bruthans and Jiráková (2023) examine the role of

border services in preventing irregular migration during massive population movements caused by armed conflicts or economic crises. The researchers emphasise that border services in the European Union are increasingly resorting to stricter administrative measures to control migrant flows in order to ensure stability in border regions (Bruthans & Jiráková, 2023). The authors Corici et al. (2022) point out the need to modernise border services by updating EU countries' legal and regulatory framework in line with modern needs.

Neighbouring countries make a significant contribution to the development of border services. According to the study by Kushnir et al. (2023), their strategic importance as the borders of the European Union is emphasised. Poland, Moldova, Romania, Latvia and Lithuania are actively modernising their border services to improve security and combat illegal migration, as evidenced by the study by Ananin (2023). Also, according to Tsymaliuk and Shkoda (2023), European countries are integrating the latest technologies to strengthen border control and active cooperation with international structures.

Researchers Khrystynchenko et al. (2023) argue that introducing technological innovations is one of the determining factors for the successful operation of border services in modern conditions. Their conclusions emphasise the importance of using systems of court case registers and legislative resolutions to follow the rule of law (Khrystynchenko et al., 2023). According to Kamensky (2023), the legal transformation of administrative functions became a key area of SBGS development during the war, as it empowered border control to respond to various types of offences.

The study by Muzychuk et al. (2023) on the importance of the State Border Guard Service of Ukraine in wartime highlights the importance of rapid response to threats and ensuring law and order at the borders. According to Krasivskyy (2023), the SBGS's cooperation with international partners has become crucial in stabilising Ukraine's national security. According to Chystokletov (2023), a powerful consequence was the ability to strengthen defence on the western borders and intensify the fight against illegal migration. Similar conclusions were made by Bomberger & Hanba (2023), who noted that the increase in illegal border crossing attempts during the war required authorities to introduce new administrative measures and increase resources for border protection.

The article aims to identify how the administrative and jurisdictional activities of the State Border Guard Service of Ukraine were transformed during the war and affected national security. The main focus is on changes in legal regulations and increasing the effectiveness of state border control in the context of armed conflict. The study focuses on the need to understand the role of international cooperation and the introduction of technological innovations in border services. The article analyses how legislative initiatives and legal reforms have adapted to new security challenges. The study uses a comprehensive approach that covers legal, technological and organisational aspects of the administrative activities of the border guard service.

3 Material and Methods

The study's methodology involves a structural analysis of the administrative and jurisdictional activities of the State Border Guard Service of Ukraine during the full-scale war of 24 February 2022. The research sample includes the main functions and tasks of the SBGS that were carried out from 2022 to 2023, as these years were crucial due to active hostilities and the need to reform the border guard service. The selected period allows the author to analyse the changes that occurred in the administrative and jurisdictional activities of the Service during the escalation of hostilities. A comparative analysis is applied to study the

administrative and jurisdictional activities before and during the war.

Methods of analysing legal acts, systematising and summarising scientific sources have been introduced. The legal issues of strengthening the borders, regulating migration flows, combating smuggling and illegal crossing were studied. The primary method of proving the facts was the analysis of statistical information reflecting the results of the SBGSU activities for the selected period, including quantitative indicators of detention of offenders, seizure of illegal goods and implementation of administrative measures. The content analysis of the SBGS communications was done by studying the official reports of the service and its interaction with other state institutions and law enforcement agencies. This made it possible to assess the effectiveness of interaction between various institutions in the field of border security and the role of the SBGS in ensuring law and order under martial law.

A separate area of the study was to characterise international cooperation with the European Border Agency and the exchange of information with the border services of neighbouring countries. The public interaction of the SBGS with international partners, which includes joint measures to combat illegal migration, terrorism and smuggling, was studied.

At the final stage, the article describes the peculiarities of the administrative and jurisdictional activities of the SBGS by the legislative changes introduced in 2022-2024. Particular attention was paid to the resolutions and legislative acts regulating the activities of the SBGS during martial law, including changes to criminal liability and the introduction of new customs rules. The research was conducted using scientific publications from the Scopus and Web of Science databases, which allowed us to reveal in detail certain aspects of the SBGS administrative and jurisdictional activities and their role in the national security system of Ukraine.

4 Results

The State Border Guard Service of Ukraine has undergone a significant transformation during the war, as in addition to its traditional administrative and jurisdictional functions, it is actively involved in combat operations and defence of the state. The administrative and jurisdictional activities of the SBGS are aimed at protecting and controlling the state border, which has been significantly expanded under martial law to counter new threats and ensure national security. As of 2024, border protection includes preventing illegal crossing and deterring armed provocations by the enemy, significantly different from the functions before 2022. An essential part of the SBGS's work is to regulate border traffic through additional identification of persons and citizens liable for military service and control over the movement of humanitarian goods and military equipment. The Border Guard Service also eliminates sabotage groups, coordinates with other law enforcement agencies, and ensures critical infrastructure security at the borders.

Before the outbreak of war in 2022, the activities of the State Border Guard Service of Ukraine were regulated by a peacetime legal framework. Border crossings were controlled according to standard procedures that did not consider the specific challenges of wartime. The technical equipment at border crossing points was limited, and the use of innovative technologies was just beginning. The fight against smuggling was based on traditional methods of inspection and verification. International cooperation was focused on standard security agreements with neighbouring countries and international organisations, but global military challenges remained outside the primary strategy of the Border Guard Service. The peculiarities of the difference in jurisdictional activities are shown in Table 1.

Table 1. Differences in the administrative and jurisdictional activities of the SBGS before and after the full-scale war of 2022

Category	Before the war of 2022	After the war in 2022
Legislative regulation	Peaceful legislation with an emphasis on routine border crossing control procedures.	Legislation has been amended to consider wartime conditions and strengthen control.
Border crossing control	Standard control with minimal checks for people and vehicles.	Stricter controls, including restrictions on conscripts and humanitarian aid.
Fighting smuggling	Smuggling was controlled using traditional methods, mainly through vehicle inspections.	Anti-smuggling measures have been strengthened with the help of new technologies.
Technical support	Standard equipment, such as scanners and handheld detectors, without massive upgrades.	Introducing the latest technologies, such as drones and biometric systems.
International cooperation	Cooperation with neighbouring countries and international organisations to ensure security.	Expanding cooperation with the EU, NATO and other organisations to counter new threats.
Border infrastructure	The infrastructure was in satisfactory condition but needed modernisation to improve efficiency.	Large-scale infrastructure modernisation for faster response to challenges.

Source: compiled by the authors

With the loss of approximately 20% of Ukraine's territory due to the temporary occupation, the role of the SBGS has become even more critical. The Service is focused on protecting the state borders, intensifying defensive measures on Ukraine's western borders and countering threats on the borders with the temporarily occupied territories. Since men aged 18 to 60 are not allowed to travel abroad, illegal border crossing cases have become more frequent, requiring increased attention to identify violators and organisers of such schemes. Due to the hostilities in the East of the country, Western Ukraine has become a critical region for internal migration and business relocation. This created new challenges for the SBGS, which had to respond to the increase in the number of people and goods crossing the border. Administrative measures have, therefore, been stepped

up to ensure the security of critical logistical routes for military and humanitarian aid.

As part of this cooperation, the Ukrainian Border Guard Service has strengthened its coordination with the relevant European authorities to counter international threats and illegal migration. In addition to the new work areas, the SBGS continues to perform its traditional functions of passport control, regulation of international border traffic and countering smuggling. The war has forced the service to significantly expand its essential functions, including an active military component and coordination with army units for the country's defence. The main results of the work in 2023-2024 are shown in Table 2.

Table 2. Performance results of the state border guard service for 2023 and 4 months of 2024

Indicator	2023	2024*
Persons missed in the prescribed manner (million)	10,154	9,389
Vehicles passed (million)	2,565	2,335
Refused to cross the state border (persons)	22 230	23 917
Weapons seized (units)	195	115
Ammunition seized (pcs.)	21 901	2 309
Seized narcotic substances (kg)	36,1	33
Explosives seized (kg)	5,31	-
Seized psychotropic substances (kg)	0	18,79
Seized precursors (kg)	0,36	37,64
Seized goods (UAH million)	184,478	113,536
Reports on administrative offences were drawn up	6 784	10 701
Fines imposed for administrative offences	13,580	17,152
Total number of illegal migrants detained (persons)	2 055	1 577
Detained for illegal border crossing	91	43
Detained for violating the rules of stay in Ukraine	1 942	1 506
Detained for other offences	22	28
Foreigners-potential illegal migrants were denied entry	491	402

Source: compiled based on SBGS data

*for four months of 2024

The analysis of the SBGS performance in 2023-2024 shows some changes in the performance indicators of the service. As of the beginning of 2024, the number of people allowed to cross the border per the established procedure has partially decreased from 10.154 million to 9.389 million. However, given only the beginning of the year, this figure may increase during winter. This results from increased control and the introduction of new border crossing rules. At the same time, the number of refusals to cross the border increased from 22,230 to 23,917, reflecting increased security requirements and a stricter approach to violators. The decline in seized weapons and ammunition in 2024 was due to decreased illegal shipments amid increased control measures.

However, the increase in seized psychotropic substances from 0 to 18.79 kg and precursors indicates an increase in smugglers' activity. At the same time, the SBGS has significantly intensified its work in administrative offences, as evidenced by the increase in the number of protocols drawn up from 6,784 to 10,701. Moreover, the procedural activity is reflected in the fines imposed, which increased from UAH 13,580 million to UAH 17,152 million in the first four months of 2024 alone. The active administrative and jurisdictional role of the SBGS is aimed at ensuring law and order and national security in times of war.

The effectiveness of the State Border Guard Service of Ukraine has been significantly improved through the use of the latest technology and technical modernisation. One of the key

elements of modernisation was the introduction of drones to monitor the border and detect violations. The use of uncrewed aerial vehicles based on new NATO models from 2022 has made it possible to increase the effectiveness of patrolling. Their use has been introduced in hard-to-reach border areas where the physical presence of border guards is limited. Drones provide a rapid response to potential threats. Introducing biometric control systems at key checkpoints has enhanced the SBGSU's ability to detect people with forged documents and prevent dangerous individuals from entering Ukraine. Modern video surveillance systems and analytical software for processing large amounts of data have created opportunities to improve the accuracy of decisions and prevent numerous offences.

Strengthening control over the circulation of goods has been and remains a priority for the State Border Guard Service in ensuring Ukraine's economic security during the war. In 2022-2024, changes to customs procedures were introduced to simplify the transport of humanitarian goods and military equipment. Before

the war, logistics operations were carried out in peacetime, which allowed the usual procedures to be followed with less emphasis on urgency. However, in 2020-2021, specific mechanisms were already in place to control the quality and legality of imported goods, especially military equipment and dual-use goods, although they were not as stringent as in wartime.

Changes in customs legislation during 2022-2023 provided temporary duty exemptions for certain critical goods, facilitating the increase in humanitarian aid and army supplies. The SBGS's role was to control border crossing points and ensure compliance with the new regulatory requirements. In order to effectively cooperate with the corporate sector and public figures, the Border Guard Service is open to providing information, as evidenced by the growing interest in official information. The relevant dynamics of the number of requests in 2023 are shown in Figure 1.

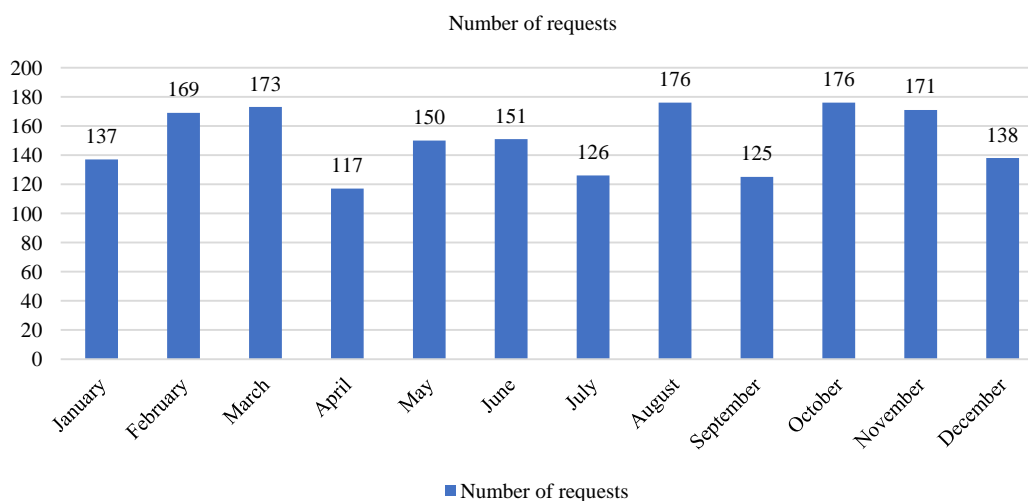


Figure 1. Number of requests for public information received by the administration of the State Border Guard Service in 2023
Source: compiled based on SBGS data

The increase in SBGS requests in 2023 is directly related to intensifying international military cooperation with European countries and international military organisations. Before the war began, Ukraine was not a key provider of border-strengthening expertise to other countries; instead, it was actively engaged in international cooperation. The exchange of information on security threats took place within the framework of peace agreements and was not as crucial for other countries globally as it became after 2022.

An important aspect of cooperation is internal access to information for coordination between law enforcement agencies and external partners for strategic and tactical support. During 2023, the number of requests fluctuated between 117 and 176 per month, reaching 1808 requests, which underlines the growing international interest in cooperation with the SBGS.

The legal component of the State Border Guard Service of Ukraine's communication with the public and law enforcement agencies is a component of its administrative and jurisdictional activities. The main goal of communication is to strictly comply with the legislation governing the security of the state border and law and order in the country. The SBGS regularly interacts with the National Police, the Security Service of Ukraine and other agencies, exchanging information on border violations and armed threats. Before the war, an essential communication component was to ensure coordination in cases of detection of offences, which was regulated by the Law of Ukraine "On the State Border Guard Service". The SBGS actively interacted with the public through official channels, explaining the border crossing rules, but the innovations were less urgent than martial

law. An essential legal element is to ensure transparency and openness in matters relating to civil rights and procedures both by 2022 and during 2023-2024. The main features of the legal activities of the Border Guard Service are presented and described in Table 3.

The administrative and jurisdictional activities of the State Border Guard Service of Ukraine are the main link in ensuring law and order at the state border. Its legal activities include a wide range of tasks aimed at complying with the law and performing the functions of state security control. One of the main tasks is to ensure the legality of crossing the state border by checking documents, restricting the departure of specific categories of citizens and controlling humanitarian and dual-use goods. The legal component of the SBGS's administrative and jurisdictional activities is based on the relevant Ukrainian legislation regulating border crossing rules, liability for border violations and measures to combat illegal migration.

As of 2024, a significant number of administrative border control measures have been introduced, with stricter sanctions for violations of the crossing regime. Administrative and jurisdictional activities include checks of persons liable for military service crossing the border and control of cargo. The jurisdictional function helps to detect and counter illegal border-crossing schemes and ensure compliance with martial law. The SBGS is authorised to detain violators, draw up administrative reports, impose fines, and cooperate with other law enforcement agencies to refer cases of violations to the courts. This allows for comprehensive oversight of border-related offences and timely response to threats.

Table 3. Administrative and jurisdictional activities of the State Border Guard Service

Legal activities	Regulatory standards	Regulatory act
Strengthening control at the state border during the war	Introduction of additional checks, including biometric control for foreigners	Decree of the President of Ukraine No. 64/2022, 2022
Changes in administrative liability for border violations during martial law	Increase fines and criminal liability for illegal border crossing	Law of Ukraine No. 2461-IX "On martial law", 2022
Regulation of travel of persons liable for military service abroad	Prohibition of travel for men aged 18 to 60 without special permits	Resolution of the Cabinet of Ministers of Ukraine No. 57, 2022
Introduction of mobilisation measures at the border	Establish mobilisation points at crucial border crossings	Order of the State Border Guard Service of Ukraine No. 45/2022
Increase the powers of the State Border Guard Service	The State Border Guard Service of Ukraine has been granted additional powers to protect critical infrastructure	Resolution of the Cabinet of Ministers of Ukraine No. 1101, 2022
Imposing restrictions on border crossing for humanitarian goods	Regulation of border crossings with humanitarian goods, introduction of precise accounting	Resolution of the Cabinet of Ministers of Ukraine No. 1038, 2022
Administrative simplifications for volunteers and humanitarian missions	Introduction of a simplified border crossing procedure for volunteers and humanitarian organisations	Law of Ukraine No. 2051-IX, 2022
Strengthening security measures against smuggling and illegal border crossing	Joint activities with law enforcement agencies to detect and prevent smuggling	Resolution of the Cabinet of Ministers of Ukraine No. 828, 2022
Organisation of border control in the temporarily occupied territories	Control over the movement of people and goods in the de-occupied territories of Ukraine	CMU Resolution No. 812, 2023

Source: compiled by the authors

5 Discussion

The results obtained on the administrative and jurisdictional activities of the State Border Guard Service of Ukraine in 2022-2024 confirm the importance of reforming legal regulation and introducing the latest technologies to ensure national security. However, this topic is widely discussed by scholars globally, which creates exciting areas for further research.

Our findings align with Khalimon et al. (2023), who argues that increasing accountability for border crossing violations and introducing additional administrative measures are critical in an armed conflict. Similarly to Radchenya (2023), our study shows that international cooperation is critical to effective border control and countering irregular migration. Comparison with Torichnyi and Melnychuk (2023) shows that technological innovations significantly increase the efficiency of border services in critical conditions. Melnychuk's et al. (2023) findings on the role of legal reforms during wartime confirm our data on the need to adapt legislation to new challenges.

According to Osinskyi (2023), controlling the movement of goods is especially important, as the fight against smuggling is of strategic security importance for any country. The study correlates with Libanova & Pozniak (2023), who emphasises the importance of international assistance in terms of technical support from European partners. The findings also show the importance of coordination between the SBGS and other security agencies in Ukraine to respond quickly to security threats in complete agreement with Zabokrytskyi (2023). Our findings align with Sahan & Anishchenko (2023), who notes that introducing extensive data systems is crucial in modernising border control. Stepanova (2023) notes that cooperation between state authorities and international organisations is crucial for countering irregular migration.

Our study aligns with the findings of Muzychuk et al. (2023), who emphasises the importance of legal changes to adapt border policy to the new realities of war. Prospects for further research on the SBGS include analysing the effectiveness of its work in the context of war and adaptation to new security challenges. A comparative analysis of the indicators of illegal border crossing before and after the war will allow us to assess the effectiveness of enhanced control measures. It is also essential to explore the space for amending the legal acts governing the activities of the Border Guard Service, taking into account new challenges and wartime experience. Thus, the study results emphasise the need to constantly update the legal framework and introduce

technologies to ensure proper control at the borders of Ukraine and European countries.

6 Conclusion

Thus, the administrative and jurisdictional activities of the SBGS are a factor in ensuring national security and law and order during a full-scale war. The introduction of legal changes in 2022-2024, in particular Law of Ukraine No. 2461-IX, significantly increased liability for illegal border crossing and regulation of the departure of persons liable for military service. This allowed for more effective control of migration flows and reduced the risks of illegal activities. One of the critical reforms was introducing a rapid response to military challenges and the needs of the Ministry of Defence. The strategic importance of the SBGS is confirmed by the strengthening of international cooperation with EU border services, which aims to increase efficiency in the fight against smuggling and illegal migration. In 2023-2024, the SBGS actively implemented technological innovations, significantly improving offenders' detection.

The study showed that technological innovations helped reduce the response time to border incidents, which is critical during active hostilities. The introduction of innovative technologies and the reform of the legal framework significantly increased the SBGS's efficiency. The main motive was to improve the procedural activities after the prompt service of the process. However, the growth of challenges is proportional to the development of the war, so the need to regulate the regulatory and legal components remains relevant by martial law. This calls for further modernisation of border control and strengthening of international coordination. In the coming years, special attention should be paid to integrating unified registers and expanding cooperation with international organisations. Adapting to the new conditions of war in Ukraine and introducing modern technologies will be crucial for ensuring Ukraine's national security in the coming decades.

Literature:

1. Ananin, O.: Methodology of historical research of the participation of the State Border Service of Ukraine in the Russian-Ukrainian War (2014-2018). *Scientific Papers of the Kamianets-Podilskyi National Ivan Ohienko University. History*, 2023, 41, 9-19. <https://doi.org/10.32626/2309-2254.2023-41.9-19>
2. Baranov, S.: Problems of Legal Support for the Organisation of Cooperation between the Units of the State Border Guard Service of Ukraine and the National Police of Ukraine on the

- Protection of the State Border. *Journal of International Legal Communication*, 2023, 8(1), 27-38. <https://doi.org/10.32612/u.w.27201643.2023.8.pp.27-38>
3. Bomberger, I. L., & Hanba, O. B.: Trust in the State Border Guard Service of Ukraine: theoretical and legal context. *Analytical and Comparative Jurisprudence*, 2022, (4), 13-17. <https://doi.org/10.24144/2788-6018.2021.04.2>
 4. Borovyk, O. V., Binkovskiy, O. A., ... Figura, O. V.: A View on the Formation of the Training System of the Border Office of Ukraine. *Collection of Scientific Works of the Military Institute of Kyiv National Taras Shevchenko University*, 2023, (78), 26-46. <https://doi.org/10.17721/2519-481x/2023/78-03>
 5. Bratko, A., Zakharchuk, D., & Kashtelian, S.: Fundamentals of planning operational and preventive border operations at the state border. *State security*, 2023, 2(2), 24-32. <https://doi.org/10.33405/2786-8613/2023/2/2/290067>
 6. Bruthans, J., & Jiráková, K.: The Current State and Usage of European Electronic Cross-border Health Services (eHDSI). *Journal of Medical Systems*, 2023, 47(1). <https://doi.org/10.1007/s10916-023-01920-9>
 7. Chystokletov, L.: National police as a component of the security and defence sector in countering Russian aggression in Ukraine. *Bulletin of Lviv Polytechnic National University. Series: Legal Sciences*, 2023, 10, 1(37), 208-220. <https://doi.org/10.23939/law2023.37.208>
 8. Corici, A. A., Podgorelec, B., Zefferer, T., Hühnlein, D., Cucurull, J., Graux, H., ... Krimmer, R.: Enhancing European Interoperability Frameworks to Leverage Mobile Cross-Border Services in Europe. In *ACM International Conference Proceeding Series*, 2022, pp. 41-53. Association for Computing Machinery. <https://doi.org/10.1145/3543434.3543638>
 9. DPSU: Number of requests for public information received by the Administration of the State Border Guard Service. (2024). <https://dpsu.gov.ua/ua/zviti/>
 10. DPSU: Results of operational and service activities of the State Border Guard Service. (2024). <https://dpsu.gov.ua/ua/potochniy-rik/>
 11. Hao, S., Chen, Z., Wang, C. C., & Hung, C. Y.: Impact of Digital Service Trade Barriers and Cross-Border Digital Service Inputs on Economic Growth. *Sustainability (Switzerland)*, 2023, 15(19). <https://doi.org/10.3390/su151914547>
 12. Kamensky, D. V.: Population health as a component of public security: the experience of the European Union and Ukraine. *Analytical and Comparative Jurisprudence*, 2023, (5), 335-340. <https://doi.org/10.24144/2788-6018.2023.05.60>
 13. Khalimon, S., Kyrylenko, V., Sitsynskiy, A., Litvin, L., & Poliuk, V.: State borders stability formation on the conditions of response to migration crises on the example of Ukraine. *Cuestiones Políticas*, 2023, 41(79), 542-566. <https://doi.org/10.46398/cuestpol.4179.37>
 14. Khrystynchenko, N. P., Zhuravlyov, D. V., & Shopina, I. M.: Public administration of personnel training of the State Border Service of Ukraine. *Analytical and Comparative Jurisprudence*, 2023, (5), 423-426. <https://doi.org/10.24144/2788-6018.2023.05.75>
 15. Krasivskyy, O.: Specific features of public involvement and digitalisation of services when reforming public administration during the war. *Democratic Governance*, 2023, 31(1), 12-23. <https://doi.org/10.23939/dg2023.01.012>
 16. Kushnir, I., Demchuk, N., & Adamchuk, S.: Theoretical and legal characteristics of the administrative activities of the State Border Guard Service of Ukraine. *Uzhhorod National University Herald. Series: Law*, 2023, 2(78), 60-66. <https://doi.org/10.24144/2307-3322.2023.78.2.9>
 17. Levadny, I., Borovyk, O., Khalimon, S., & Soroka, A.: Legal Aspect of Implementation of Perspective Models of Educational Training of the Personnel of the State Border Guard Service of Ukraine. *University Scientific Notes*, 2022, 3(87), 47-58. <https://doi.org/10.37491/unz.87.4>
 18. Libanova, E., & Pozniak, O.: War-driven wave of Ukrainian emigration to Europe: an attempt to evaluate the scale and consequences (the view of Ukrainian researchers). *Statistics in Transition New Series*, 2023, 24(1), 259-276. <https://doi.org/10.59170/stattrans-2023-014>
 19. Melnychuk, Yu., Bashtovyy, V., & Zalozh, V.: Recommendations to the Bodies (Divisions) of the State Border Protection Regarding the Combating of Illegal Activities Related to the Illegal Use of Aircraft. *State Security*, 2023, 1(1), 47-56. <https://doi.org/10.33405/2786-8613/2023/1/1/288272>
 20. Muzychuk, O., Salmanova, O., Khromov, A., & Seliukov, V.: Law enforcement agencies in the system of subjects of human rights protection and defence. *Revista de Gestão e Secretariado (Management and Administrative Professional Review)*, 2023, 14(9), 15004-15019. <https://doi.org/10.7769/gesec.v14i9.2764>
 21. Nováčková, D., Paškrtová, L., & Vnuková, J.: Cross-Border Provision of Services: A case study in the Slovak Republic. *Administrative Sciences*, 2023, 13(2). <https://doi.org/10.3390/admsci13020054>
 22. Osynskiy, O. O.: The Legal Mistakes in Departmental Normative Legal Acts which regulate the activities of the State Border Service of Ukraine. *Juridical Scientific and Electronic Journal*, 2023, (6), 37-41. <https://doi.org/10.32782/2524-0374/2023-6/6>
 23. Radchenya, N. M.: Regulatory and legal ensuring the training of the staff of the State border service of Ukraine: problems and directions of improvement. *Analytical and Comparative Jurisprudence*, 2023, (6), 240-244. <https://doi.org/10.24144/2788-6018.2022.06.43>
 24. Sahan, V. V., & Anishchenko, V. O.: Case Method as a Means of Competencies Formation of Future Officers for the Military (Ship) Management in Sub-Divisions of the State Border Guard Service of Ukraine. *Scientific Herald of Sivershchyna. Series: Education. Social and Behavioural Sciences*, 2023, (2), 173-192. <https://doi.org/10.32755/sjeducation.2023.02.173>
 25. Stepanova, Yu. P.: Criminal and Law Aspects of Military Criminal Offences Counteraction in the State Border Guard Service of Ukraine. In *Military Offences and War Crimes: Background, Theory and Practice*. (pp. 654-685). Izdavnictva "Baltija Publishing", 2023. <https://doi.org/10.30525/978-9934-26-302-6-30>
 26. Torichnyi, V., & Melnychuk, Yu.: Monitoring Changes in the Border Space of Ukraine: Management Aspect. *The Scientific Journal of the National Academy of National Guard "Honour and Law"*, 2023, 3(86), 51-55. <https://doi.org/10.33405/2078-7480/2023/3/86/287083>
 27. Tsybaliuk, S., & Shkoda, T.: Social Partnership on Wage Regulation in Ukraine's Public Sector. *Studia Regionalne i Lokalne*, 2023, Special Issue, 50-67. <https://doi.org/10.7366/15094995s2304>
 28. Tyshchuk, V. V.: Features of Legal Differentiation of the Border Sphere in Ukraine. *Italian Review of Legal History*, 2023, (9), 295-329. <https://doi.org/10.54103/2464-8914/21918>
 29. Zabokrytskyi, I.: European payment order as a means of cross-border debt collection in the European Union. *Analytical and Comparative Jurisprudence*, 2023, (1), 568-572. <https://doi.org/10.24144/2788-6018.2023.01.99>

Primary Paper Section: A

Secondary Paper Section: AD, AG

MODERN METHODS, TECHNOLOGIES AND TOOLS OF FOREIGN LANGUAGE LEARNING IN UKRAINIAN AND SWEDISH UNIVERSITY PRACTICES: CHALLENGES FOR IMPLEMENTATION IN CONDITIONS OF POSTPANDEMIC AND WARTIME

^aNATALIIA MELNYK, ^bLESIA KONOPLIANYK,
^cOLHA KOVALENKO, ^dYULIIA PRYSHUPA,
^eSVITLANA MIROSHNYK

^{a,b,d,e}National Aviation University, Kyiv, Ukraine.

^cNational Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine.
 email: ^aloroknataliia@gmail.com

Note: The study is the result of the project "Higher education in the post-pandemic period: transformations, challenges and perspectives" State registration number: 0122U001803 (National aviation university registration number: 420-DB22) of the Ministry of Education and Science of Ukraine, financed from the state budget.

Abstract: The article is dedicated to the problem comparative analysis the motivational readiness formation of future teachers for professional activity in Ukrainian and European educational institutions. The analysis has shown similarities in theory of Ukrainian and Swedish scientific understanding are in the approaches: educational and professional dialogue stimulated independent thinking, created a space for communication, and activated the application of knowledge already acquired by students. The investigation demonstrated, that work in small groups, as well as the "brainstorming" method, which allowed to significantly increase the creative activity of students in a short time, proved to be effective. At the same time, it was noticed that it is not easy for students to depart from existing stereotypes in solving any problem and to offer a new, original solution that goes beyond the possible. In general, the "brainstorming" that was used in seminars, laboratory-practical classes included the following stages: preparatory – defining the conditions of group work (group rules and time budget), creating several groups of "idea generators" and groups of "experts", formulating the problem to be solved; basic ("brainstorming") – problem solving, maximum manifestation of creative possibilities, free expression of ideas, recording of all expressed ideas; revision - on the basis of defined criteria, "experts" chose the best ideas (up to 10 minutes); final – discussion of the work, substantiation and presentation of the best ideas, recommendation for their practical implementation. The participants of the "brainstorming" were placed in a circle in the auditorium. "Experts" were located outside the circle, monitored the work and recorded all statements based on the need to receive the largest number of ideas. The teacher managed the course of work, but did not exert any pressure on the participants. It was also distinguished that the principle differences are in the practice of the motivational readiness formation of future teachers for professional activity in Ukrainian and European educational institutions: in European universities, these practices are more case oriented, investigations practices usage; on the contemporary in Ukraine – more pedagogical and theoretical practices are included.

Keywords: the motivational readiness, future teachers, readiness formation, professional activity, psychological and pedagogical conditions.

1 Introduction

Analyzing the problem of second language learning in university settings in Ukraine and Sweden is highly relevant due to several interconnected factors: impact of wartime conditions on higher education in Ukraine, post-pandemic adaptations, European integration and internationalization, comparative approach to pedagogical practices, supporting students' academic and professional needs and challenges of implementing new tools and technologies.

First of all is we speak about impact of Russian invasions into Ukraine and results of its influence we have to emphasize, that the ongoing war in Ukraine has profoundly disrupted traditional educational practices, including language learning. Many universities have had to adapt rapidly to new realities such as remote teaching, hybrid models, and catering to the needs of displaced students. Analyzing second language learning within this context allows for understanding how modern tools can support effective learning amidst instability. Secondly, both Ukraine and Sweden have faced challenges in adjusting to post-pandemic educational practices, including shifts toward digital and hybrid learning models. The COVID-19 pandemic fundamentally changed how languages are taught and learned, with digital platforms and online methodologies becoming more central. Understanding these shifts can inform better practices and tools to maintain high standards of language instruction. As for the third factor, here we need to remind, that for Ukraine, the integration into the European educational space is a significant priority. Proficiency in foreign languages, especially English, is crucial for students to engage in academic mobility programs and to participate in European research and professional

networks. Examining how language education is structured in Swedish universities, which are already well integrated into the European educational system, can provide valuable insights and models for Ukrainian institutions. Also by analyzing the practices in both Ukrainian and Swedish universities, the study allows for a comparative perspective that highlights effective teaching strategies, technological tools, and curriculum design. Sweden's established practices in second language acquisition can offer models for adaptation in Ukraine, particularly in the use of digital resources and inclusive pedagogical approaches. More over, second language proficiency is essential for students in both academic and professional contexts, enabling them to access broader academic literature, collaborate internationally, and prepare for global job markets. In Ukraine, especially under the conditions of war, these skills are not only a gateway to international opportunities but also critical for contributing to the rebuilding and transformation of the country. And finally, the conditions of post-pandemic recovery and ongoing conflict pose unique challenges for the implementation of new educational tools. It is important to analyze what barriers exist in both countries, such as infrastructure, access to digital resources, and training for educators, to ensure that modern methods of second language learning can be effectively applied.

If we take deeper approach to the analysis of second language learning in university settings in Ukraine, we should refer to the survey of the British Council, which starting in 2014, and in partnership with the Ministry of Education and Science of Ukraine has been conducted in-depth baseline studies of universities across the country to evaluate the current English provision as well as the role and status of English. This has focused on three key audiences: teachers of English for Specific Purposes (ESP) and English for General Academic Purposes (EGAP), teachers of other subjects who wish to use English as a Medium of Instruction (EMI) or for research and international purposes, and finally general students who need to understand English either for course requirements or as a specific target for their universities.

By 2017 the British Council had completed detailed baseline studies of 15 classical and technical universities. Their findings and recommendations have been shared with representatives of the Ministry of Education and Science, and with the rectors, senior management and teachers of each of the participating universities. The response to the findings has been one of enthusiasm and action, with proactive working groups agreeing key action points to be taken forward. The collated details of all of the findings and recommendations from all 15 universities are now presented in this report, for wider discussion and use beyond just the universities surveyed (Bolitho & West, 2017).

As for the impact and settings of second language learning in Ukrainian universities the investigation of Pylypenko and Kozub (2021) proved out that Ukrainian philology students overall positively evaluate their distance learning experience. It does not negatively impact students' foreign language learning motivation; despite a positive attitude to distance learning, Ukrainian philology students face particular challenges connected with access to devices, lack of information and communications technology skills, Internet connection, and lack of communication with their peers; and that distance education cannot entirely replace face-to-face learning.

One of the thorough investigations was provided by team of Ukrainian scientists about different integration of immersive technologies, such as virtual reality (VR), augmented reality (AR), mixed reality (MR), and artificial intelligence (AI), offers promising solutions to enhance language education. The study found that various immersive technologies have been commonly employed in foreign language education, with semi-immersive experiences being the most prevalent. Combining VR with full immersion and AR with semi-immersion were the most

frequently observed approaches. These technologies engage multiple senses, creating authentic and engaging learning experiences that foster students' motivation, curiosity, and self-regulation (Palamar et al., 2023).

If we speak about Swedish context of English as a second language, we should admit that the role of English in Sweden is undergoing a transitional phase. Despite being officially categorized as a foreign language, its practical use in various contexts often aligns more closely with that of a second language (L2). The way English is used, the contexts in which it appears, and its frequency of use contribute to this shift, leading to a continual re-evaluation of its status. Furthermore, the concepts of English as a Foreign Language (EFL) and English as a Second Language (ESL) are not static; they can adapt and coexist as different forms of language proficiency, both at individual and societal levels (Bardel et al., 2023). According to the systemic analysis of the authors for bachelor's level courses and study programs, the general entry requirements include a minimum grade of E in Swedish or Swedish as a second language, Mathematics, and English. At the university level, English maintains a more prominent role compared to other languages, similar to its status in the school system. In scientific disciplines, English is used more frequently than in the humanities and social sciences, where it often serves as a supplementary language alongside Swedish (Bardel et al., 2023). The association of Swedish higher education institutions (SUHF) appointed a working group to review the status of languages in higher education and make recommendations for the future (SUHF, 2017). The report highlighted a need for a national language strategy that identifies the direction for which specific initiatives and assignments are necessary, that report has shown the extent to which languages have been discontinued at universities during the time span 2008–2016. French has been cut at six universities, English at five, Finnish, German, Greek, Italian, and Spanish have been cut at three universities, to give some examples. As the result the conception was reviewed and there has been a significant increase in funding dedicated to practice-based research within the field of education. The Swedish government has allocated resources to the Swedish Research Council to support graduate schools specifically designed for in-service teachers pursuing advanced studies in educational sciences. Additionally, in 2015, the Swedish government established the Swedish Institute for Educational Research (Skolforskningsinstitutet) to provide financial support for high-quality research projects with a practical focus on educational practices. Since 2017, the government has also been financing the ULF network, a national initiative that stands for "Utveckling, Lärande, Forskning" (which translates to 'development, learning, research'). This network includes collaborations between universities and schools, with the aim of developing and testing long-term models for research partnerships, integrating academic research with school activities, and enhancing teacher education programs (Olsson & Cederlund, 2020).

The mentioned above demonstrates, that Swedish experience could be greatly increase Ukrainian approaches and practice with positive incomes, thus the purpose of the article is to examine the current methodologies, tools, and approaches used for second language acquisition in higher education institutions in Ukraine and Sweden. It aims to analyze the specific challenges and opportunities associated with implementing these methods in the unique contexts of post-pandemic recovery and wartime conditions. Additionally, the article seeks to identify effective practices that can be adapted to improve second language learning outcomes and ensure the resilience and adaptability of educational systems in both countries..

The object of study is the array of contemporary methods, digital tools, and pedagogical practices utilized for teaching second languages within university settings in Ukraine and Sweden. It focuses on how these approaches are implemented, adapted, and challenged in the context of post-pandemic adjustments and the impact of ongoing wartime conditions, particularly in Ukraine.

The subject of research – is the specific challenges, strategies, and conditions that influence the effective integration of modern language learning tools and methods in higher education. It explores how these factors affect second language acquisition in Ukrainian and Swedish universities, focusing on the impact of post-pandemic shifts in education and the disruptions caused by wartime conditions in Ukraine..

Task for realization of the investigation:

- To analyze the specific barriers and challenges faced in implementing modern language learning tools in each context, including technological, pedagogical, and logistical difficulties;
- To identify effective practices and successful strategies that have been implemented in both contexts to enhance second language learning, focusing on tools that support digital and hybrid learning environments;
- To formulate recommendations for improving the implementation of modern language learning methods in Ukrainian and Swedish universities, addressing the identified challenges and emphasizing strategies for resilience in post-pandemic and wartime conditions.

2 Methodology

The research will involve a comparative analysis of the data collected from both Ukrainian and Swedish universities. This analysis will focus on identifying similarities and differences in the use of modern language learning tools, the challenges faced, and the outcomes achieved. The qualitative data from interviews and focus groups will be analyzed using thematic analysis to identify key themes, patterns, and insights related to the implementation of second language learning practices. This will help in understanding how different contexts influence the effectiveness of language learning strategies. Case studies of specific universities or programs that have successfully implemented modern tools for second language learning will be developed. These case studies will highlight best practices and innovative approaches to language education amidst challenges. The research will be grounded in a review of relevant literature on second language acquisition, educational technology, and pedagogical practices, ensuring that the findings are contextualized within existing knowledge and frameworks.

3 Results and discussions

3.1 Ukrainian practice and context

Contemporary higher education institutions in Ukraine increasingly adopt interactive methods and technologies for teaching English as a professional language, as these approaches foster deep motivation, take into account students' interests, and align with their current needs. This facilitates the integration of acquired knowledge with students' prior and ongoing experiences and ensures their active involvement in the learning process, allowing them to manage their own educational progress.

Interactive methods, in particular, are effective in developing English language skills within a professionally oriented context, emphasizing dialogic interaction. Such methods encourage students to think critically, analyze information, consider alternative viewpoints, and engage in discussions – skills essential for addressing complex challenges related to their future professional activities. Various forms of work are utilized to achieve this: individual, paired, and group tasks, along with research projects, role-playing games, document analysis, and engagement with diverse information sources (Barabanova, 2005).

Recently, instructors have been compelled to focus more on grammar when preparing students for exams and tests, which has led to limited opportunities for developing oral communication skills. The global repertoire of foreign language teaching methodologies offers a wide range of interactive methods that, when adapted to a specific curriculum, can be effectively employed in grammar instruction. This approach transforms the perception of grammatical phenomena from being isolated from

the act of communication, making grammar exercises more engaging and less about mechanical manipulation of grammatical forms. Cooperative learning is an instructional approach that involves small group work, creating opportunities for discussing each issue, defending, and justifying one's viewpoint. This method not only fosters a deeper understanding of the subject matter but also enhances thinking and speaking skills. Large groups are divided into smaller ones, each following a set of instructions specially designed by the instructor. Each student works on their specific task, focusing on their portion of the material until they fully understand the studied topic and complete their part. Then, students share their findings, recognizing that each contribution is critical and essential for the work of others, as the absence of any part would result in an incomplete task (some important information would be lost, and other students would not receive it). The method of "cooperative learning" is sometimes translated as "collaborative learning." The key conditions for the effectiveness of cooperative activities include: students understanding their interdependence with other group members and feeling personal responsibility for achieving group goals; engaging in interactions where students help each other learn; and developing the ability to work together and solve potential professional challenges (Barabanova, 2005).

The "brainstorming" method (also known as "brain attack" or "deferred judgment") was proposed by Donald Phillips (USA). It is applied when a group faces the challenge of finding new solutions and approaches to a situation. "Brain attack" significantly enhances the effectiveness of generating new ideas in a large audience (20–30 people). Its main objective is to identify a range of solutions to a single problem within a short time frame. Brainstorming is a technique that stimulates creative activity and productivity for problem-solving. "Brain attack" is a method for addressing urgent tasks within a very limited time. The essence of the method lies in expressing the maximum number of ideas in a short period, followed by discussion and selection of these ideas. This method is used for developing creative abilities or solving complex problems. The brainstorming method can be utilized in various forms of activity: in work with small groups, teams, large groups (such as "audience participation"), and in one-on-one individual work. The use of these methods, especially in small group settings, supports the development of communication skills, collaboration abilities, argumentation, and the capacity to reach compromises. Cooperative learning, in particular, deserves attention, as it involves working in small groups where each participant is responsible for a specific part of a task, fostering collective information processing and achieving shared goals (Dyjakchova, 2014).

Discussion methods are a type of group learning method based on organizational communication in the process of solving educational and professional tasks. Due to its multifunctionality, the discussion method can be considered a universal approach for learning the English language. Additionally, it provides opportunities to search for and reinforce positive models of communicative behavior among students. In this sense, the method can be viewed as a didactic technique in the process of purposefully forming speaking skills in English. The method involves presenting participants with a situation that entails certain psychological relationships, which they are encouraged to consider from the perspective of selecting a specific type of behavior: the most appropriate, the most likely, and the permissible. The method is built on typical examples, teaching students to apply theoretical rules of grammar, pronunciation, and vocabulary in practice while also allowing participants to analyze specific situations and identify errors (Pavlenko, 2014).

Situational modeling methods, such as simulation-based and role-playing games, enable students to acquire procedural competencies and reflect on problem-solving strategies (Diachkova, 2014). This creates conditions for the development of critical thinking, creative engagement, and adaptability – crucial skills for the preparation of specialists in both technical and humanities fields. Such methods also aid students in mastering grammatical content by integrating it into authentic

communicative scenarios, thereby significantly enhancing the quality of teaching English as a professional language. Combinatorial simulation games are employed to develop language culture and assess acquired knowledge. In such games, memory is engaged, making them suitable for the assimilation and reinforcement of material. This represents a reproductive level of thinking, where students perform actions from memory without prompts. Automated skills are better recognized and understood by students, as the means are directly linked to thinking, thereby facilitating the enhancement of their ability to apply knowledge in situations close to real-life contexts. Strategic games are more complex and possess a certain role-based aspect (students' actions are dictated not only by the situation and rules of the game but also by behavioral characteristics imposed by the role and the specifics of the scenario being enacted). This involves a partially exploratory, heuristic level, and sometimes a creative level of thinking. Strategic games are utilized for learning new material and acquiring new experiences under non-standard conditions while also summarizing previously studied content. They foster a deeper connection between students' knowledge and their future professional activities, leading to an understanding of professional issues and possible solutions to them.

It should be noted that the conditions under which the learning process occurs have changed somewhat. Depending on the region and the security situation, higher education seekers and instructors may be located in their permanent residence city, in another region of Ukraine, or outside the country. Furthermore, those studying in unfamiliar regions or abroad may not all have access to computers; thus, they participate in the educational process exclusively via mobile phones. It is essential to remember that an air raid alert signal may sound at any time. In light of this, when organizing classes, it is crucial to consider time zone differences, the possibility of joining online sessions, the availability and quality of internet connectivity, the technical capabilities of participants in the educational process, and other factors. Distance learning during wartime can be conducted in both synchronous and asynchronous modes. However, in our opinion, the best results can be achieved by using hybrid learning, meaning that part of the material is covered in synchronous mode while the remainder is addressed asynchronously. It is necessary to discuss the rules for working in both synchronous and asynchronous modes, as well as the actions to be taken in the event of an air raid alert affecting any participants in the educational process. For the instructor, it is essential to create a favorable and positive atmosphere in the classroom, establish trusting relationships with students, pay attention to the psycho-emotional state of the participants, and provide psychological support when necessary.

In teaching English, a successful combination of communicative and activity-based approaches is essential. It is important to work on the socio-cultural context of the content of knowledge. One cannot ignore the fact that some learners are located outside our country and are gaining knowledge about the cultures of other nations, allowing them to compare various aspects of life with life in Ukraine, form an understanding of living in a globalized world, and compare systems of universal and national values. During practical sessions, a successful approach involves combining traditional teaching methods with innovative ones. For direct meetings with learners, resources such as Zoom, Google Meet, Microsoft Teams, Hangouts, and Skype can be utilized; for assignment posting, knowledge assessment, and testing, platforms like Google Classroom, Edmodo, and Moodle can be employed. Considering that not all learners can attend classes, resources such as YouTube can be used to explain grammatical material, discuss the usage of lexical units, and familiarize students with the realities of English-speaking countries.

Instructors can also create audio-visual materials independently and upload them to accessible platforms for further discussion with learners. Today, foreign language instructors have access to educational services that allow the creation of numerous creative assignments, didactic materials, presentations, quizzes, and test control tasks. Some examples include:

- Edpuzzle: a platform that enables users to create their own videos for explaining new material or project work;
- Kahoot: a platform that allows users to create their own quizzes and interactive tasks;
- Learningapps.org: a platform that hosts a vast number of tasks for practicing and testing grammatical and lexical material, with the option to create custom tasks;
- slides.com: a platform designed for creating presentations and multimedia projects.

In today's environment, learners have access to numerous resources for free informal education, which can help improve their English language proficiency. Among these are: BBC Learning English, British Council Learn English, Busuu, Campster, Coursera, Drops, Duolingo, EnglishDom, Future Learn, Genius Space, Grammar Guru, Lingo Hut, Real English, Tutlo, UTalk, and others (Vasylieva, 2022).

Some participants in the educational process have been forced to relocate within Ukraine or abroad due to threats to life, military actions, and the temporary occupation of certain territories. Many educators and students still remain in temporarily occupied territories and require special support from the state. Some educational institutions have been physically destroyed. Consequently, certain problems arise that require immediate solutions.

This situation has compelled the Cabinet of Ministers of Ukraine, educational administrators, and civil society to seek urgent solutions on how to organize the educational process for students in their places of permanent residence and evacuation, when to conclude the academic year, how to assess higher education seekers and issue their diplomas, how to ensure the payment of salaries to educational institution staff, and how to provide psychological support, among other concerns. Thus, despite the most challenging times in Ukraine, the educational process in higher educational institutions is being conducted in a distance or blended format, depending on the security situation. For the Ukrainian educational system, this challenge has also become a catalyst for much-needed modernization changes in education, opening a window to new opportunities. This primarily involves the development of digital and distance education, particularly online education. However, the prospects for transforming education are not limited to these areas. The development of informal and non-formal education also requires close attention, as does the creation of mechanisms for recognizing its outcomes within the formal education system. There is a pressing need for testing and widespread implementation of modern teaching methods using information technology (Education in a State of Martial Law, 2022).

Alongside this, a number of problems related to distance learning arise. Firstly, there is a lack of internet access, or participants in the educational process may not be able to connect to the internet. As mentioned above, many people are forced to leave their homes and move to safer locations due to military actions, where internet resources may be unavailable. Secondly, some higher education seekers are unable to study remotely due to their volunteer activities, service in the Armed Forces of Ukraine, involvement in territorial defense units, or work commitments. Thirdly, there are unscrupulous students who take advantage of the difficult situation in Ukraine and skip classes without justification. However, it is impossible to clarify the circumstances under which they miss distance classes. Fourthly, many students are located in territories temporarily occupied by the Russian Federation. Here, numerous questions arise regarding the education of such students and the completion of the academic year or education in general, as well as obtaining diplomas. In this case, it is recommended to utilize available electronic resources, regional platforms, resources of higher education institutions, and so on, in any scenario. Fifthly, unfortunately, not all academic staff are skilled in applying innovative teaching methods, which affects the quality of education for higher education seekers (The Ukrainian Higher Education System in the Context of Russian Military Aggression, 2022). As a result, it is necessary to conduct classes

and workshops aimed at training higher education institutions' academic staff in the application of innovative teaching methods during the distance education process. Thus, despite certain problematic issues related to distance learning, it makes education more accessible. However, in choosing this format, we should not have to choose between accessibility and quality. Higher education should be accessible to all based on each individual's abilities. It should strengthen the skills and abilities of higher education seekers that are necessary for their lives and for understanding others; for conflict resolution; for teamwork and planning common goals and a shared future; for respecting pluralism and diversity (such as gender, ethnic background, religion, and culture); as well as for active participation in societal life. It should also help students master cognitive methods: the basic means of communication and oral speech, literacy, problem formulation and resolution; to gain both general and in-depth knowledge in various fields; to understand rights and responsibilities; and, most importantly, to learn how to learn.

3.2 Swedish practice and context

The newly implemented teaching programme for comprehensive schools reinforces language teaching by making the learning of a second foreign language compulsory, by increasing language class hours and by introducing Spanish on an equal footing with German and French. These measures are in keeping with Sweden's long tradition of language teaching, which has always held a place of honour in the Swedish school curriculum. This article sets out to describe the evolution and organisation of foreign language teaching as well as the status and image related to the languages that are taught. When the Swedish governing coalition government came into office in autumn 1991, one of its spokesmen, the Minister of Education, pointed out the necessity of reinforcing language teaching in the school context. This materialised with the introduction of a new teaching programme in 1994, which made compulsory the learning of a second foreign language. English had already been made compulsory for all pupils in 1962 when the *grundskola* was created to cover nine school years in a unique framework. Language teaching therefore holds a place of honour in the Swedish school curriculum. And one is entitled to wonder if this choice made by the Swedish school authorities is a recent phenomenon (Cabau-Lampa, 1999).

The present-day situation in Sweden in the field of language education with the learning of two compulsory foreign languages brings us back to the time where this dual linguistic training was obligatory for pupils wishing to continue their studies at high school and university. The difference is that this training is not reserved to a minority of privileged pupils anymore. After a presentation of how the Swedish school system has developed throughout the centuries, the article discusses the status and organization of language teaching. It then focuses on the three languages that have traditionally been taught, i.e. German, French and English, before giving an overview of the present-day situation (Cabau-Lam, 2005).

According to the scientific work of Camilla Bardel, before delving into the specifics of foreign language education in Sweden, it's important to first understand the linguistic landscape of the country. In 2009, the Swedish Parliament enacted the Language Act, which designated Swedish as the primary language of the nation. This legislation affirms that Swedish serves as the common language within society, ensuring that all residents are entitled to receive information in Swedish and can expect to communicate in this language across various societal domains. While Sweden has maintained a relatively homogeneous linguistic environment for a considerable time, other languages have coexisted alongside Swedish. For instance, Finland and Sweden were united as one country for 800 years until 1809, during which Finnish emerged as a significant minority language. Since Finland gained independence, there has been a steady influx of Finnish speakers migrating to Sweden. Historically, immigration to Sweden has occurred, albeit in limited numbers, predominantly from neighboring northern European nations. However, since the early

years following World War II, immigration to Sweden has seen a consistent increase. According to recent data, nearly one-fifth of Sweden's population was born abroad, indicating a diverse influx of people from nearly every country worldwide. This broad immigration brings with it a rich tapestry of languages; estimates suggest that around 200 languages are currently spoken in Sweden (Bardel et al., 2023).

Stage model for foreign language instruction and learning

The teaching and learning of foreign languages within the compulsory education system and upper secondary education in Sweden are organized into seven stages, corresponding to the levels outlined in the Common European Framework of Reference for Languages (CEFR) (Council of Europe, 2001, 2020). This structure is illustrated in Figure 1. The alignment signifies that students are expected to achieve a certain CEFR level as a minimum by the conclusion of each stage of their studies. However, it is important to note that a comprehensive empirical study to validate this alignment has not yet been conducted. For instance, students studying English are expected to attain a CEFR level of B1.2 by the end of English 5 in Year 10, which is the first year of upper secondary school. Stages 1 to 4 are applicable to compulsory education, while Stages 5 to 7 pertain to upper secondary education. Students have the option to select a modern language (ML) in Year 6, aiming to reach Stage 2 by the end of Year 9. They may then progress to Stage 3 during their time in upper secondary school. Additionally, as part of their elective courses, students can choose to learn a second ML, achieving Stage 1 by Year 9 and continuing to Stage 2 in upper secondary school. Furthermore, students may also begin a new ML at Stage 1 in upper secondary school (Skolverket, 2021).

For admission to bachelor's-level courses and programs, the standard entry requirements mandate a minimum of grade E in Swedish (or Swedish as a second language), Mathematics, and English. At the university level, English retains a more significant status compared to other languages, mirroring its prominence in the educational system. A report from a study conducted at Stockholm University by Bolton and Kuteeva (2012) indicated that the prevalence of English usage is notably higher in scientific disciplines than in the humanities and social sciences, where it is generally employed as a supplementary language to Swedish.

A substantial proportion of scientific publications in Sweden is produced in English, reinforcing the language's dominant position within the academic landscape. Two recent doctoral dissertations further elucidate this phenomenon. Salö (2016) demonstrated that the majority of academic texts at the university level are authored in English. While Swedish is employed for scientific purposes to a certain degree—particularly in popular science and some scholarly reports in the humanities—recent years have seen an enhanced emphasis on English due to prevailing research policies in Sweden, which acknowledge its significance in achieving impact on the global research stage.

Moreover, Jämsvi's (2020) investigation into the evolution of language policies governing higher education institutions from the 1970s to the present revealed a transformation in the perception and valuation of multilingualism in Sweden. During the 1970s, there was a clear ambition to embrace multilingualism as relevant and advantageous for higher education. The 1974 internationalization study presented to the Swedish Government advocated for the necessity of Swedes to acquire proficiency in several global languages, including Chinese, French, German, and Russian. In contrast, this perspective appears to have diminished in the twenty-first century. Jämsvi's analysis found that contemporary policy documents reflect a prevailing notion equating English with internationalization. This ideological shift signifies a transition away from solidarity as a core value, giving way to the influence of market forces and economic interests across various societal domains, which consequently enhances the status of English.

Trends in foreign language studies in higher education

In recent years, Sweden has witnessed a notable decline in interest toward the study of foreign languages at the university level. In 2016, the Association of Swedish Higher Education Institutions (SUHF) established a working group to assess the status of language programs within higher education and to propose future initiatives (SUHF, 2017). The resulting report underscored the necessity for a national language strategy that delineates the direction for specific initiatives and tasks that need to be undertaken. It also highlighted the extent to which foreign language programs have been discontinued across universities between 2008 and 2016. For instance, French has been eliminated from six universities, English from five, Russian from four, while Finnish, German, Greek, Italian, and Spanish have been cut from three universities, among other examples.

In transitioning from the previous discourse on language learning to the current focus on language teaching, it is important to highlight the findings of Bardel et al. (2023) regarding terminological issues in language education research. An edited volume from Umeå University, authored by Lindgren and Enever, addresses a range of topics pertinent to language education, primarily exploring the gap between research and practice in this domain. The Swedish term "språkdidaktik" often encapsulates this field, particularly in conjunction with teacher education in Sweden, and it represents an expanding area of research. According to the editors, "språkdidaktik" encompasses both the subject matter of language and the theories and practices of teaching and learning. They further note that the Swedish term "didaktik" and the German "Didaktik" is broader than the English term "didactics," which typically focuses primarily on teaching methodologies.

However, the intricate relationship among the terms 'didactics,' 'teaching and learning,' and 'language education' requires further elucidation. Language education encompasses various aspects pertinent to teaching and learning, including the role of language development in subjects beyond language itself. Some contributions within Lindgren and Enever's volume touch upon this complexity, examining diverse subfields of language education.

The studies presented in this volume reflect prominent topics in Swedish research, such as grammar instruction, collaborative learning in university-level language courses, and the use of Computer Assisted Language Learning (CALL). These themes resonate with ongoing discussions related to formal linguistic structures, the intersection of language teaching and information and communication technology (ICT), language policy, multilingualism, and Content and Language Integrated Learning (CLIL).

In the area of vocabulary, phraseology, and grammar in language education, research on teaching materials remains sparse but is recognized as significant. Two studies focusing on vocabulary in English textbooks for young learners and one examining grammar in Italian textbooks shed light on this topic. The literature on vocabulary acquisition emphasizes the necessity of multiple exposures to lexical items and phrases. Studies analyzing vocabulary in textbooks for young learners reveal a lack of conscious rationale in vocabulary selection, highlighting the need for alignment with research findings. Shifting focus from teaching materials to teaching interventions and teacher beliefs, research indicates that English teachers can enhance students' collocational skills through minor adjustments in instructional strategies. Additionally, interviews with EFL teachers demonstrate their awareness of vocabulary's role in language acquisition, although vocabulary instruction is not often prioritized as an independent learning objective. The integration of ICT in language education is crucial, given its widespread implementation in Swedish education. However, few studies on Computer Assisted Language Learning have emerged recently. Research highlights the potential of web-based technologies for fostering linguistic and cultural competencies in students. Studies on text-based interaction and students' use of online resources underscore the need for increased awareness of

diverse writing genres and enhanced technological competencies within foreign language education. Overall, the findings of Bardel, Gyllstad, and Tholin contribute valuable insights into the evolving landscape of language education research, emphasizing the importance of bridging theory and practice in this dynamic field (Bardel et al., 2023).

4 Discussions

The teaching of foreign languages, particularly English, is evolving in both Ukraine and Sweden, each adapting to their unique socio-cultural and educational contexts. While both countries recognize the importance of interactive methods in language education, their approaches differ significantly due to varying pedagogical traditions and current challenges. In Ukraine, contemporary higher education institutions increasingly utilize interactive methods and technologies to teach English as a professional language. These approaches are designed to enhance student motivation, align with their interests, and facilitate the integration of new knowledge with prior experiences. The emphasis on active involvement in the learning process enables students to manage their own educational progress (Barabanova, 2005; Dyiakchova, 2014). The interactive methods employed, such as cooperative learning and brainstorming, not only enhance grammatical skills but also encourage critical thinking and problem-solving. For example, cooperative learning, which divides larger groups into smaller ones, fosters collaboration and interdependence among students, making each member's contribution essential for group success (Barabanova, 2005).

Despite the positive aspects of these methods, the Ukrainian educational landscape faces challenges due to the ongoing conflict and the need for distance learning. Many students are displaced, with varying access to technology and the internet, necessitating a blend of synchronous and asynchronous learning to accommodate different needs. This situation has prompted educators to adopt innovative tools like Google Classroom and Zoom while creating engaging multimedia resources for students. However, issues such as internet access and varying levels of technological proficiency among academic staff present obstacles to effective implementation (Education in a State of Martial Law, 2022).

Moreover, Ukrainian educators are urged to combine communicative and activity-based approaches, focusing on the socio-cultural context of the content. The significance of fostering an understanding of global and national values among students is crucial, especially for those learning in a foreign context (Vasylieva, 2022). Despite these challenges, the need for educational reform during these trying times has catalyzed the integration of digital technologies and innovative teaching methods in Ukrainian higher education.

In Sweden, foreign language education, particularly English, is characterized by a strong emphasis on communicative competence and a student-centered approach. Swedish pedagogical practices often prioritize collaboration, critical thinking, and real-world application of language skills. The use of project-based learning and authentic assessments allows students to engage meaningfully with the language and develop their linguistic abilities in contexts that mirror real-life situations (Woods, 2014).

Swedish educators also leverage technology in language teaching, utilizing platforms like Google Classroom and various

online resources to enhance learning. The Swedish educational framework encourages flexibility, allowing educators to tailor their teaching methods to meet the diverse needs of their students. This adaptability is particularly relevant in today's globalized world, where students are often exposed to different cultures and languages, fostering a broader understanding of communication in diverse contexts.

4.1 Comparative analysis of two practice of foreign language teaching in Ukraine and Sweden

While both Ukrainian and Swedish practices in foreign language teaching emphasize interactive and student-centered approaches, the context in which these practices are applied differs significantly. In Ukraine, the ongoing conflict necessitates a focus on innovative teaching methods that can be delivered through distance learning, often under challenging circumstances. In contrast, Sweden's well-established educational infrastructure allows for a more integrated approach to language learning, emphasizing collaboration and real-world applications without the immediate pressures of a crisis.

In Sweden, the language instruction framework is aligned with the Common European Framework of Reference for Languages (CEFR), categorizing foreign language learning into seven stages, reflecting systematic progression from basic to advanced proficiency (Skolverket, 2021). This alignment emphasizes a clear set of expectations regarding language competency, with students expected to achieve certain CEFR levels at various educational stages. English, being a dominant language in academia and the workplace, is taught extensively, reinforcing its significance in the curriculum (Bolton & Kuteeva, 2012).

In Ukraine, the foreign language curriculum, particularly English, is increasingly focused on developing practical communication skills. The challenges posed by the war necessitate innovative pedagogical approaches, including the integration of interactive methods and technologies (user's preferences). Current practices in Ukrainian higher education emphasize a shift from traditional rote learning to more communicative and task-based methodologies, aiming to foster critical thinking and real-world language use.

4.2 Integration of technology and teaching methodologies

Swedish language education embraces modern methodologies, incorporating digital tools and resources to enhance learning experiences. The integration of Information and Communication Technology (ICT) has been pivotal in facilitating language acquisition, with a focus on collaborative learning and learner autonomy (Bardel et al., 2023). Despite the general success in integrating ICT, there remains a call for further research on its effectiveness, especially concerning vocabulary and grammar instruction. In Ukraine, the shift towards interactive and technology-driven methodologies is becoming increasingly pronounced, particularly in response to the needs of students affected by the war. The use of digital platforms for language learning has surged, aiming to maintain educational continuity amidst disruptions (user's project details). However, there are concerns regarding the adequacy of teacher training in utilizing these technologies effectively, which parallels challenges observed in Sweden.

Here's a comparative Table 1 summarizing the practices of foreign language teaching in Ukraine and Sweden based on the information provided.

Table 1: the practices of foreign language teaching in Ukraine and Sweden

Aspect	Ukraine	Sweden
Historical Context	Rapid reforms in response to the ongoing war with Russia.	Longstanding emphasis on foreign language education since 1962.
Policy Framework	National policies aim to enhance English proficiency for European integration.	Language Act (2009) designates Swedish as the primary language; English is dominant.
Compulsory Languages	English is the primary focus, with increasing emphasis on European languages.	Two foreign languages are compulsory; Spanish introduced alongside German and French.
Teaching Methodologies	Shift from rote learning to communicative and task-based approaches, influenced by war conditions.	Structured alignment with the CEFR, emphasizing progression through seven stages.

Integration of Technology	Growing use of digital platforms and interactive methods in response to war disruptions.	Incorporation of ICT in teaching; focus on collaborative learning and learner autonomy.
Current Challenges	Disruption of educational continuity due to war; need for practical language use.	Declining interest in foreign language studies at the university level; need for revitalization strategies.
Opportunities for Improvement	Collaboration with international partners for best practices in language pedagogy.	National strategy needed to address declining language program interest and maintain relevance.
Teacher Training	Urgent need for enhanced training on the use of technology and innovative methodologies.	Ongoing emphasis on teacher education, although challenges remain in implementing effective ICT strategies.
Cultural and Linguistic Diversity	Increasing multilingualism due to immigration; emphasis on practical language skills.	Diverse linguistic landscape; approximately 200 languages spoken due to immigration.
Status of English	English is gaining prominence, especially in higher education and professional contexts.	English is dominant in academia; substantial scientific publications are produced in English.

This comparative analysis examines foreign language education practices in Ukraine and Sweden, highlighting distinct approaches shaped by their historical and socio-political contexts. Ukraine's educational framework is undergoing rapid reforms in response to the ongoing conflict with Russia, necessitating a reactive approach to language education focused primarily on enhancing English proficiency for European integration. In contrast, Sweden boasts a stable historical commitment to foreign language education, emphasized since 1962, promoting a bilingual policy that values both Swedish and English. In terms of compulsory languages, Ukraine prioritizes English while Sweden mandates the study of two foreign languages, fostering broader linguistic competencies. Methodologically, Ukraine is shifting towards communicative and task-based approaches, responding to immediate needs, whereas Sweden employs structured methodologies aligned with the Common European Framework of Reference (CEFR), supporting systematic skill development.

Technology integration is on the rise in Ukraine, driven by wartime disruptions, while Sweden has established frameworks for incorporating Information and Communication Technology (ICT) in education, focusing on collaborative learning. Current challenges differ: Ukraine faces educational disruptions and the need for practical language skills, while Sweden grapples with declining interest in foreign language studies at the university level. Opportunities for improvement include Ukraine's potential collaboration with international partners for best practices in language pedagogy, and Sweden's need for a national strategy to rejuvenate language programs. Teacher training remains urgent in Ukraine to equip educators with innovative methodologies, while Sweden continues to emphasize ongoing professional development, particularly in ICT implementation. Finally, both countries are experiencing increasing cultural and linguistic diversity, necessitating tailored approaches to language education, with English's status growing in Ukraine and already dominant in Sweden's academic landscape.

5. Conclusions

Both Ukraine and Sweden have rich histories of foreign language teaching, but the current context significantly shapes their approaches. Ukraine's language education is heavily influenced by ongoing conflict, prompting a shift towards practical language skills for integration into European systems. In contrast, Sweden has a long-standing tradition of foreign language education, emphasizing multilingualism as a core value.

Policy Frameworks: Ukrainian policies are focused on enhancing English proficiency as part of a broader strategy for European integration, responding to urgent needs created by the war. Conversely, Sweden's policies reflect a well-established framework that prioritizes the learning of multiple foreign languages within its education system. **Teaching Methodologies and Integration of Technology:** Ukraine is moving away from rote learning to more communicative and task-based approaches, particularly in the context of digital learning due to war-induced disruptions. Sweden, however, maintains a structured approach aligned with the Common European Framework of Reference for Languages (CEFR), integrating ICT into language instruction, but may need to adapt to changing student interests.

Challenges and Opportunities. Ukraine faces significant challenges in maintaining educational continuity due to the war, while Sweden is experiencing a decline in interest in foreign language studies at the university level. Both countries have opportunities to collaborate internationally, share best practices, and innovate in language pedagogy. **Cultural and Linguistic Diversity:** Ukraine's increasing multilingualism due to immigration presents a challenge and an opportunity for language teaching, focusing on practical language skills. In Sweden, the coexistence of numerous languages enriches the educational landscape but also requires a nuanced approach to language instruction. **Recommendations** **Enhancing Teacher Training:** Ukraine should prioritize training for language teachers in innovative methodologies and the use of digital platforms to adapt to the ongoing challenges of wartime education. Sweden could benefit from continual professional development that addresses current trends in language teaching and integrates modern technologies effectively.

Refreshing Foreign Language Programs. Sweden should develop a national language strategy that outlines initiatives to rekindle interest in foreign language studies at the university level. This might include increased funding for language programs, awareness campaigns, and integration of language learning with career readiness. **Promoting Practical Language Use:** In both countries, language curricula should emphasize practical language use in real-life contexts. This can be achieved through project-based learning, exchanges, and collaborations with international partners, especially for Ukrainian institutions seeking to enhance English proficiency. **Leveraging Technology:** Both Ukraine and Sweden should continue to harness the potential of technology in language teaching. This includes the development of online platforms that facilitate collaborative learning and provide access to diverse language resources, thereby enhancing engagement and improving learning outcomes. **Fostering Multilingualism:** Both countries should actively promote multilingualism as a valuable skill. Ukraine can create language programs that include minority languages and languages of significant immigrant populations. Sweden could continue to support initiatives that embrace the country's diverse linguistic landscape, preparing students for global citizenship.

Research and Evaluation. Establishing a robust research framework in both countries to evaluate foreign language teaching practices and their effectiveness is essential. This should include comprehensive studies on the alignment of curricula with the CEFR, as well as assessments of student outcomes and engagement. By addressing these conclusions and implementing the recommendations, both Ukraine and Sweden can enhance their foreign language teaching practices, ensuring that students are well-equipped for a globalized world.

Further investigations of the topic regarding foreign language education practices in Ukraine and Sweden could encompass a range of areas to deepen understanding and inform future developments: investigate the effectiveness of recent educational reforms in Ukraine, particularly regarding language education, and analyze the adaptability of teaching strategies in response to wartime challenges, task-based approaches in Ukraine compare with Sweden's CEFR-aligned methodologies in terms of student outcomes, digital tools are being implemented in classrooms and

their impact on language learning outcomes, along with teacher training programs that support technology use etc.

Literature:

1. Bolitho, R., & West, R.: *Internationalization of Ukrainian universities in the context of the English language: The "English for Universities" project*. Kyiv: Stal Publishing, 2017.
2. Pylypenko, O., Kozub, L.: Foreign Language Teaching of Ukrainian University Students in a Distance Learning Environment. *Arab World English Journal (AWEJ)*, 2021. 12(3), 375–384.
3. Palamar, S., Brovko, K., & Semerikov, S.: Enhancing foreign language learning in Ukraine: Immersive technologies as catalysts for cognitive interest and achievement. *Proceedings of the Information Technology and Implementation (IT&I-2023)*, 2023. November 20–21, 2023.
4. Bardel, C., Gyllstad, H., & Tholin, J.: Research on foreign language learning, teaching, and assessment in Sweden 2012–2021. *Language Teaching*, 2023. 56(2), 223–260. <https://doi.org/10.1017/S0261444823000022>
5. Olsson, L., & Cederlund, A. B.: The third room as meeting place. *Swedish Educational Research*, 2020. 25(4), 87–89. <https://doi.org/10.15626/pfs25.04.06CrossRefGoogle Scholar>
6. Barabanova, H. V.: *Methodology of teaching professionally-oriented reading in non-linguistic higher education institutions: Monograph*. Kyiv: Inkos, 2005.
7. Dyiakchova, Ya. O.: *Formation of Professionally Oriented English Competence in Speaking for Future Lawyers*. Theory and Methodology of Teaching: Germanic Languages, Kyiv, 2014.
8. Pavlenko, V. V.: Methods of problem-based learning. *New Learning Technologies: Scientific-Pedagogical Collection*, 2014. 81 (special issue), 75–79.
9. Vasylieva, M. P.: *Features of teaching English in a state of martial law*. In *Educational process in a state of martial law in Ukraine*. Materials of the nationwide scientific and pedagogical professional development, May 3 – June 13, 2022. Odesa: Helvetika Publishing House, p. 68.
10. Education in a State of Martial Law, April 11, 2022. <https://eo.gov.ua/osvita-v-umovakh-voiennoho-stanu/2022/04/11/>
11. The Ukrainian Higher Education System in the Context of Russian Military Aggression: Problems and Development Prospects, 2022. <https://niss.gov.ua/news/statti/ukrayinska-syst-ema-vyshchoyi-osvity-v-umovakh-voyennoyi-ahresiyi-rf-problemy-y>
12. Cabau-Lam, B.: Foreign language education in Sweden from a historical perspective: Status, role and organization. *Journal of Educational Administration and History*, 2005. 37(1), 95–111. <https://doi.org/10.1080/0022062042000336109>
13. Cabau-Lampa, B.: Foreign Language Teaching in Sweden: a long tradition. *Scandinavian Journal of Educational Research*, 1999. 43(4), 399–408. <https://doi.org/10.1080/0031383990430404>
14. Bardel, C., Gyllstad, H., & Tholin, J.: Research on foreign language learning, teaching, and assessment in Sweden 2012–2021. *Language Teaching*, 2023. 56(2), 223–260. <https://doi.org/10.1017/S0261444823000022>
15. Commentary for subject plans in Modern Languages and English. *Skolverket*, 2021. <https://www.skolverket.se/publicationsserier/kommentarmaterial/2021/kommentarmaterial-till-amn-esplanerna-i-moderna-sprak-och-engelska?id=7842GoogleScholar>
16. Bolton, K., & Kuteeva, M.: English as an academic language at a Swedish university: Parallel language use and the 'threat' of English. *Journal of Multilingual and Multicultural Development*, 2012. 33(5), 429–447. <https://doi.org/10.1080/01434632.2012.670241CrossRefGoogle Scholar>
17. Salö, L.: *Languages and linguistic exchanges in Swedish academia. Practices, processes, and globalizing markets*. DiVA, Stockholm University, 2016. <http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A907250&dsid=1950Google Scholar>
18. Jämsvi, S.: *Unpacking dominant discourses in higher education language policy: A critical study of language policy in Swedish higher education*. Gupea, University of Gothenburg, 2020. <https://gupea.ub.gu.se/handle/2077/58606Google Scholar>
19. SUHV. *The Association of Swedish Higher Education Institutions*, 2017. <https://suhf.se/in-english/>
20. Woods, D. R.: Problem-Oriented Learning, Problem-Based Learning, Problem-Based Synthesis, Process Oriented Guided Inquiry Learning, Peer-Led Team Learning, Model-Eliciting Activities, and Project-Based Learning: What Is Best for You? *Industrial & Engineering Chemistry Research*, 2013. 53(13), 5337–5354.

Primary Paper Section: A

Secondary Paper Section: AM

MODERNISATION OF PROFESSIONAL EDUCATION FOR FUTURE PRIMARY SCHOOL TEACHERS THROUGH MODERN INFORMATION TECHNOLOGIES

^aIVAN VASYLYKIV, ^bOKSANA ZHYHAYLO,
^cSOLOMIIA ILLIASH, ^dNATALIIA KALYTA,
^eSVITLANA LUTSIV

^{a,b,c,d,e}*Drohobych Ivan Franko State Pedagogical University,
 Drohobych, Ukraine.*

*email: ^aivan-v@i.ua, ^bOkzhigajlo@ukr.net, ^cillyasha@ukr.net,
^dn.kalyta.@dspu.edu.ua, ^elutsiw@ukr.net*

Abstract: The article examines the problem of using information technologies in the educational and professional training of future primary school teachers. The authors found that the integration of digital resources into the educational process can effectively solve didactic tasks. It provides opportunities for virtual travel and improves the accessibility and efficiency of education. The application of information technologies contributes to enhancing the educational process. They prepare future teachers to function within the information society and promote the development of critical thinking and creativity among students. The new approach puts the teacher at the center of the educational process. This approach takes into account the professional competencies and personal interests of educators to promote the improvement of methodological, organizational, and technological support for personalized learning. The paper investigated the possibilities of using information technologies in the educational process to train future primary school teachers. The methodology included a systematic approach and general theoretical scientific methods. They include analysis, synthesis, and systematization of the research material on the role of digital technologies in the training of future primary school teachers. The research methodology employed two indicators to assess the psychological and emotional qualities of students, namely: assessment of communication skills; analysis of cultural and value orientations. The research results showed a high level of discomfort related to the current educational system. Nearly half of the respondents experience psychological and emotional stress due to the existing teaching format. In addition, as a result of the program implementation, it was found that the configuration model of student-centered learning applied to distance learning had a significant impact on students. The statistical analysis of the chi-square indices of overall conformity ($\chi^2 = 0.36\dots1$) indicates a high conformity of the data set.

Keywords: Electronic resources, Virtual laboratories, STEM education, IT in pedagogy, Professional training

1 Introduction

Nowadays, in the context of the gradual digital transformation of society, the use of modern technologies is becoming a necessary component of the educational process (Nazaretsky et al., 2022). In Ukraine, one of the key strategies for education development is the integration of digital technologies to improve the quality of the educational process, as well as to ensure accessibility and effectiveness of learning. It also helps to prepare future professionals for successful functioning in a digital society. All these factors make the study relevant (Lai et al., 2022).

In the digital era, it is vital to make appropriate changes to the education system, focusing on training future professionals to use modern digital tools competently in their professional activities (Kruszewska et al., 2022). This necessitates the introduction of digital methods and tools into the educational process, which will contribute to a better understanding and perception of educational material. The transition to distance learning is one of the most critical challenges in today's environment, as it raises many questions for teachers, such as:

- How to ensure effective interaction with students remotely?
- How do we optimize the online learning process?
- Which tools to use for high-quality lessons and grading? (Hennessy et al., 2022).

These challenges create an urgent need to integrate digital technologies into the educational process for effective learning and to achieve positive results during the training process. The relevance of modern information technologies in the professional education of primary school teachers lies in the need to adapt the educational process to the requirements of modern society and technological development.

Using IT can improve learning, provide access to innovative methods, and increase student motivation. These are key factors

in shaping quality education and the readiness of future teachers for the challenges of our time (Xue & Wang, 2022).

The article aims to analyze and reveal the impact of modern information technologies on the process of training future teachers. It also defines their role in teachers' education and promotes the effective implementation of such technologies into the educational process.

The main trends in applying information technologies in the educational process include:

- the virtualization of learning and the use of online resources;
- the development of interactive teaching methods through electronic platforms;
- the use of virtual reality in curricula.

2 Literature Review

The United States has seen an increase in the use of information technologies within the educational process. This includes the active utilization of online platforms for learning and cooperation, the development of distance learning, the use of e-textbooks and interactive whiteboards, and the growing interest in programming and STEM education. STEM education, consisting of Science, Technology, Engineering, and Mathematics, is defined by several key features that contribute to the deep development of students. It is an integrated approach that combines science and math subjects. STEM promotes the interaction between science, technology, engineering, and mathematics, unlocking the enormous potential of this union. STEM education emphasizes solving real-world issues through critical thinking and practical skills (Lander et al., 2022). It helps students develop not only theoretical knowledge but also the ability to apply it on a practical level.

STEM education encourages students to work in a team that reflects the real conditions in the professional environment. Such cooperation and communication skills are essential in the modern world. Active use of technology in the STEM learning process is equally important. Modern technologies, virtual tools, and programming help develop information competencies and prepare students for the challenges of the contemporary world. Another essential element is an emphasis on practical skills. STEM education focuses on the practical use of theoretical knowledge through experiments, projects, and real-world problem-solving, which forms a deep understanding of the content (Chiang et al., 2022).

Finally, STEM fosters creativity. The curricula emphasize creativity and innovative thinking, which are key competencies for future success in STEM fields. The goals of STEM education are often achieved through various software tools. Some popular programs and tools include Scratch and Scratch Jr - for learning the basics of programming, especially in younger age groups. In today's world, technology is transforming our environment and revolutionizing the education system. Virtualization of learning and various online resources are becoming an integral part of the educational process, bringing a new level of flexibility and accessibility (Shamir-Inbal & Blau, 2022).

Virtualization of learning opens up endless possibilities for students. Virtual lectures that use video and audio materials provide effective education at a distance, making learning more accessible and convenient. Virtual laboratories allow you to conduct experiments and research in an interactive virtual environment. LEGO Mindstorms, Arduino, and Raspberry Pi help to learn electronics and programming, providing a hands-on approach to learning. Tinkercad helps to create 3D models and experiment with electronics, improving students' creative and research skills (Ibrokhimovich & Mirzaxolmatovna, 2022; Mirzaxolmatovna et al., 2022). Virtual tours help to expand

horizons by allowing you to virtually travel to places, visit countries, and immerse yourself in historical events.

Online resources also play a key role in the modernization of education. E-textbooks, interactive exercises, and virtual collaboration platforms such as Google Classroom and Microsoft Teams provide students with access to learning material anytime and anywhere. They give teachers and students a convenient tool for sharing information and communicating (Akour & Alenezi, 2022; Kotiash et al., 2022). These technologies not only make education more flexible but also open up new opportunities for students to learn. Virtualization of learning and online resources are becoming not only methods but also the key to effective and innovative learning in the modern world. Electronic platforms for learning and cooperation help to create dynamic and interactive learning. They increase the effectiveness of training future primary school teachers (Fernández-Batanero et al., 2022; González-Pérez & Ramírez-Montoya, 2022).

Virtual reality creates an immersive environment that increases learner engagement and activity. Students can conduct virtual experiments or interact with virtual objects, making learning more practical and dynamic (Adam & Metljak, 2022; Mansurjonovich, 2022). It is possible to “visit” places or events that are physically far away, expanding the geographical coverage of learning opportunities. Virtual reality allows students to customize the learning process to the needs of each person, creating an individualized approach. Virtual scenarios can be used to teach students in immersive environments that may be difficult to recreate in the real world (Chen et al., 2022). Virtual reality in education opens up great opportunities to improve the learning process and prepare students for the challenges of the modern world. The use of interactive whiteboards and screen projectors is a modern approach to organizing learning, where traditional whiteboards are replaced by a screen that responds to touch (Yoon & Kim, 2022; Zhang, 2022). They create an interactive environment where the teacher and students can interact with the content in real-time. Projectors and interactive whiteboards are actively changing the traditional approach to learning, making it more attractive and open to new opportunities for teacher-student interaction.

The development of communication skills through video conferencing is a relevant and essential aspect of the modern world (Martínez-Borreguero et al., 2022). Video conferencing provides an opportunity to see the opponent, which adds an important visual element to communication. They can observe body language and facial expressions, which helps to understand emotions and intonations more effectively. The ability to interact with each other via video conferencing provides flexibility and convenience, allowing participants to communicate without being physically present. This format facilitates communication over long distances, enabling global communication and collaboration (Martínez-Borreguero et al., 2022).

Videoconferencing in educational projects allows students to learn new disciplines and interact with teachers or other students, even if they are located at a distance. Video conferencing is becoming an effective tool for holding remote meetings and business negotiations while maintaining personal contact. Developing communication skills through video conferencing is an essential element of modern communication, especially in the context of the growing importance of remote work and study. The specific features of each discipline determine the specifics of using information technology (IT) in content-based training. In particular, it includes the use of virtual math laboratories for research and experiments or using software to create graphs and visualize mathematical concepts (Bowman et al., 2022). Such technologies contribute to an interactive and effective language skills acquisition process, allowing students to improve their skills in an engaging and stimulating environment. Such trends aim to prepare students for the digital economy and develop key skills for a successful career (Sabdash & Lysko, 2023).

In Europe, there is a very high level of use of information technologies in educational institutions. The trends include:

- The widespread use of online learning platforms.
- The development of electronic resources and e-books.
- The active use of interactive technologies in teaching primary school students.

Virtual laboratories and video conferencing are widespread forms of such classes to support the learning process (Antonietti et al., 2023). Additionally, there is a tendency to develop partnerships with tech companies to prepare students for the demands of the modern digital environment.

3 Methods

The research methodology is based on applying a systematic approach and general theoretical scientific methods. They include analysis, synthesis, and systematization of the research material. The research methodology was created to consider the impact of information technology on the training of future primary school teachers (Mogas et al., 2022). The study of the effectiveness of primary school teachers' training was carried out among the 3rd year students of Drohobych State Pedagogical University, named after Ivan Franko. The sample was selected based on educational background and the availability of a large technical support base. Students from the Departments of Elementary School Education and Fine Arts took part in the experiment. A total of 15 respondents were interviewed: 8 women and 7 men, with an average age of 19.2 years (SD=3; range 19-23 years). The majority of the participants had already experienced higher education. However, only 2 out of 30 people entered the third year of their studies after graduating from a pedagogical college with a secondary special education. The initial survey helped to identify key transformations in the student-centered learning process. The third-year students answered three questions to identify changes in the educational sphere. The survey provided information on the needs and aspirations of students regarding interactive learning in Ukraine. The respondents answered the following questions:

Question 1. Which aspects of existing education need to be adjusted?

Question 2. What are the benefits of moving to a new approach towards university education?

Question 3. How confident are you in implementing changes at your university?

Question 4. Please specify the measures that have already been taken to transform the education system.

Question 5. Please indicate possible difficulties that may arise during the implementation of changes.

The assessment was based on a Likert scale ranging from 1 to 5, which included five answer options with two extremes and one neutral option. Instead of the categories of “strongly agree” or “strongly disagree”, the scores were given in numbers from 1 to 5 for better clarification of the answers.

The obtained results were interpreted using the Gleicher's Formula for Managing Change,

$$R = (D \times B \times V \times F) > C, \quad (1)$$

where: R - readiness for changes,

D - unhappiness with the way things are going now,

B - anticipated benefits from the changes,

V - vision of the future,

F - real opportunities for implementing changes,

C - the price or resistance to changes.

According to this formula, readiness for change (R) is defined as the product of dissatisfaction (D), anticipated benefits (B), the vision of the future (V), and realistic possibilities for implementing change (F), and this product is compared to the cost of resistance (C).

It is necessary to specify the numerical values for each formula component (D, B, V, F, C) before determining the readiness for change using this formula. If the product ($D \times B \times V \times F$) exceeds C, then the readiness for change is considered sufficient.

Please note that specific values and interpretations can be determined based on the specific data and context of the study (Table 1).

Table 1. Sample characteristics (N=15)

Gender %	Number of people	%
Men	7	33,3
Women	8	66,7
Age<19	9	60
20–22	3	20
> 22	3	20
Specialty General secondary education	14	93,3
Specialized secondary education	1	6,7

Notes: F means the first concrete steps that can be taken to achieve the vision; C means the cost of changes.

The refined equation includes the maximum amount of factors. This indicator is intended to reflect the main criteria for overcoming resistance to change and success in achieving goals. Every organization should identify the source of dissatisfaction, formulate a plan, and act on small changes.

The study focused on analyzing the implementation of student-centered learning during 2021-2022. Among the studied aspects were student motivation, teacher knowledge, choice of teaching methods, assessment in student-centered learning, and the use of information technology to improve the quality of education. The study included online phases using e-mail, online questionnaires, and Google Forms tests to collect data. Communication skills and cultural and value orientations were assessed using appropriate tests. The results of the study allowed us to develop and implement the program in the group. The sample group monitored the implementation of the planned motivational and informational activities during the first semester.

The motivational factor of student-centered learning was determined by practice-oriented weekly preparation for professional activities.

The informational factor included measures to reengineer the distance education system, aimed at digitalization and coherence of learning processes using the Teams and MOODLE platforms. The program was implemented by teachers, information technology specialists, and the authors of this study.

The final stage included an analysis of the changes that occurred during the implementation of the educational and professional program within the first semester. A comparison of psychological and emotional states between the experimental group and a control group of third-year students was also conducted. The control group included 10 students of the Institute of Pedagogy and Psychology, while both groups (control and experimental) studied under the same curriculum. Compliance with the criteria defined earlier was based on statistical data and analysis tools, such as correlation coefficient criteria and Pearson's chi-square method.

4 Results

The first stage results received the maximum number of single responses among 3rd-year students. In general, criterion D received the lowest score, indicating that dissatisfaction with the current situation is less pronounced among students than other criteria. The majority of students recognized only one criterion as vital to them - high academic performance.

When comparing the perspectives of educational transformation and student-centered learning, given 10 repeats, it showed the least degree of variation. It is evidence of a certain consensus among students on the prospects of educational transformation that is focused on their needs and learning:

D = 3 unsatisfied with the current situation;
 B = 14 anticipated benefits from the changes;
 V = 14 vision of the future;
 F = 13 success factors;
 C = 10 the price of changes.

According to Gleicher's Formula for Managing Change, the readiness for changes according to Formula 1 has been:
 $R = (3 \times 14 \times 14 \times 13) > 10$
 $R = 20532 > 10$

Thus, the readiness for changes in this case is high (20532). It indicates that, altogether, unhappiness with the current state, anticipated benefits from the changes, vision of the future, and success factors exceed the costs of changes. This may indicate a favorable background for implementing changes in the education system based on the mentioned factors (Figures 1, 2).

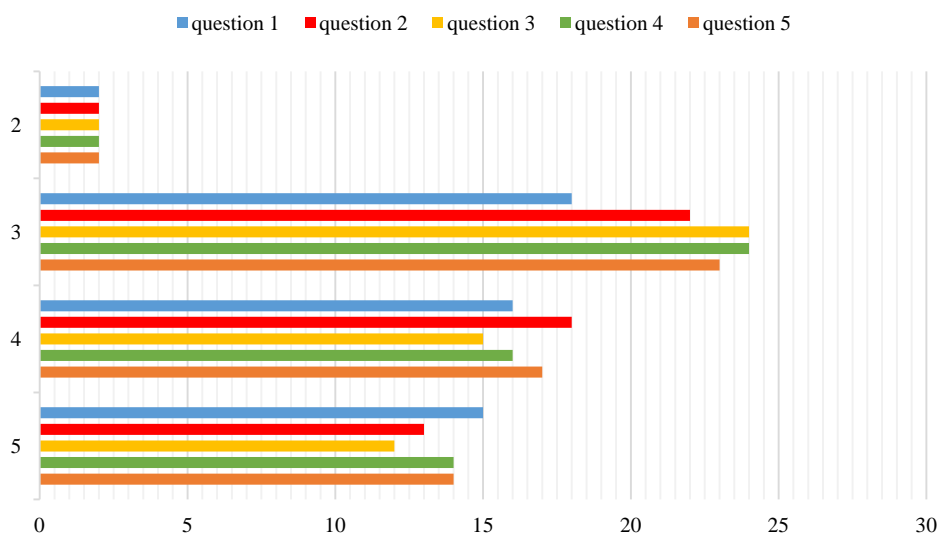
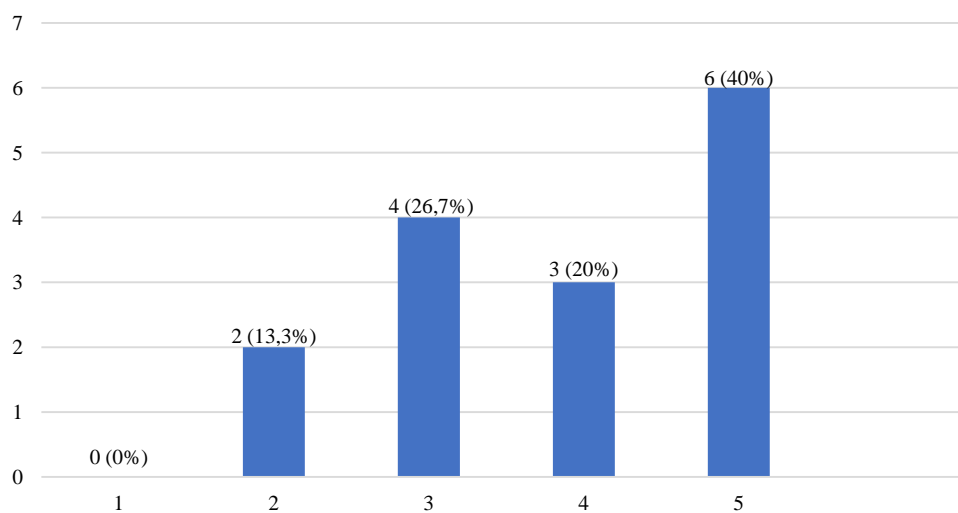
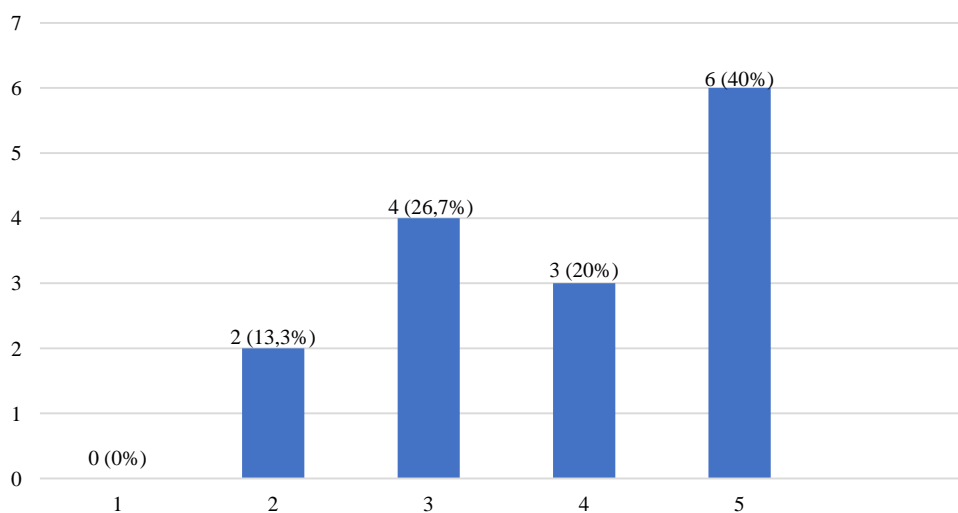


Figure 1. Information about the needs and aspirations of students concerning interactive learning in Ukraine

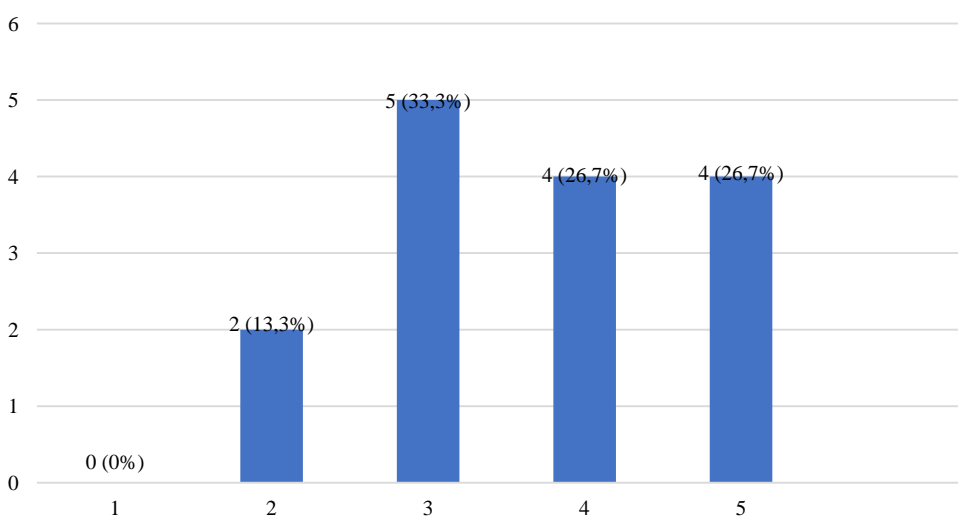
What aspects of current education need adjustments?



How confident are you about implementing change at your university?



Name the advantages of switching to a new approach to studying at university.



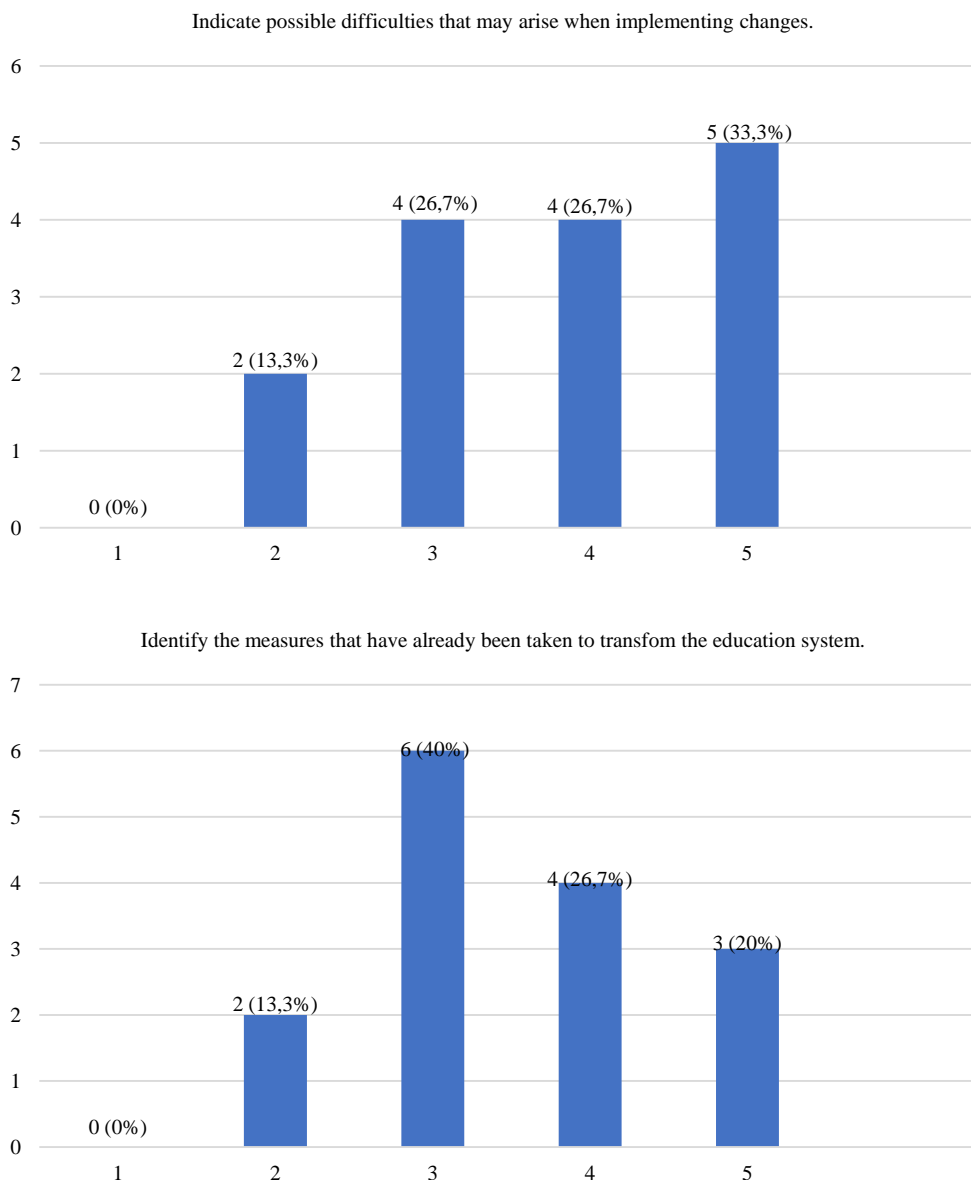


Figure 2. Survey results on the needs and aspirations of students concerning interactive learning in Ukraine

Survey results on the needs and aspirations of students concerning interactive learning in Ukraine are presented in the following table.

The chart below presents the results of the survey on different aspects of education system transformation.

Question 1 (Identify measures for transformation):

The answers range from 2 to 5, indicating different levels of awareness or recognition of the actions taken to transform the education system.

Question 2 (Specify difficulties in implementation):

Responses range from 2 to 5, reflecting different opinions on potential challenges or problems in implementing changes in the education system.

Question 3 (Name the benefits of the new approach):

The answers range from 2 to 5, reflecting different perceptions of the benefits of the transition to a new approach to university education.

Question 4 (Confidence in implementing changes):

The answers range from 2 to 5, demonstrating the range of respondents' confidence levels in implementing changes in their respective universities.

Question 5 (Aspects that need to be adjusted in the current educational system):

The answers range from 2 to 5, indicating different opinions on which aspects of the current education system need to be adjusted.

Overall, the table reflects the diversity of respondents' opinions on various aspects of the education system. They include implemented measures, potential difficulties, perceived benefits, confidence in implementation, and areas that need to be adjusted.

The results of the statistical analysis of the chi-square indices of overall compliance ($\chi^2 = 0.36 \dots 1$) indicate a high consistency of the data set.

5 Discussion

Information technologies in the professional education of future primary school teachers face several problems and challenges.

Unequal access to technical means and the Internet creates inequalities among students and limits their opportunities for learning through IT. Currently, not all teachers have sufficient qualifications and skills to use information technologies in the educational process effectively. Therefore, the issue of ensuring data privacy and security arises, especially when using online platforms and sharing information. The reliance on technical means can lead to problems in the case of technical failures or unforeseen circumstances. In some locations, there are limited opportunities for effective virtual communication and interaction between students and teachers. It is important to identify fair methods for assessing and tracking students' progress within the virtual learning environment.

The expenses for purchasing and maintaining hardware and software can be a burdensome factor for educational institutions. Therefore, there is a need to adapt to new technologies and their use in the educational process. The ways to solve these problems may include:

- Training of teachers in using IT.
- Development of more accessible technical tools.
- Coordinated strategies for introducing technologies into education.

In this article, we discuss the key aspects of using modern information technologies in the training of future primary school teachers. Integration of these technologies into the educational process is vital for the formation of competent and technologically-educated teachers who can meet the challenges of modern education. First of all, it is essential to emphasize the fact that the integration of information technologies into pedagogical education is a critical element in improving the quality of education. By using these technologies, we create interactive and innovative learning environments, promoting the development of creativity and pedagogical skills of future teachers.

The implementation of the above model helps to improve the interaction between teachers and students, promoting their active partnership. However, along with the great potential of information technologies, there are challenges to their implementation. It is necessary to adapt curricula and teaching methods to the digital era, which requires both time and resources. The issue of accessible and reliable technical facilities needs to be addressed. However, if handled correctly, these challenges can be turned into opportunities to develop more flexible and innovative teaching methods.

Information technologies in teachers' training meet modern requirements for education. These technologies help to develop critical thinking, creativity, and adaptability, which are key competencies of teachers in the contemporary information environment. Such technologies help teachers not only to teach but also to innovate and promote students' progress actively. In conclusion, it should be noted that the prospects for introducing information technologies in teacher education are very promising. The introduction of new technologies can improve the quality of education, making it more accessible and personalized. New technologies research and implementations should be considered as a strategic direction for further educational process development.

Therefore, the application of modern information technologies in the training of future primary school teachers has a significant potential for changes in education, improvement of education quality, and formation of highly qualified teachers ready for modern challenges.

6 Conclusions

In conclusion, we can emphasize that the use of information technologies in the professional education of future primary school teachers is a necessary element of modern pedagogical practice. The introduction of these technologies allows the creation of an innovative and effective learning environment,

expands the possibilities of teacher training, and contributes to their readiness for the challenges of the modern learning environment.

In particular, the article examines the impact of information technology on primary school teacher training and determines the relevance of using IT in education, as well as its role in the development of professional competencies. The paper also emphasizes the challenges and issues that arise while implementing such technologies and indicates how to solve them.

Finally, we should also note the need for further research and training programs aimed at optimizing the use of information technologies in preparing future teachers, in particular those that address the specifics of the educational process in primary school. Such an approach will contribute to the formation of professional educators capable of meeting modern requirements.

Literature:

1. Adam, T. B., & Metljak, M.: Experiences in distance education and practical use of ICT during the COVID-19 epidemic of Slovenian primary school music teachers with different professional experiences. *Social Sciences & Humanities Open*, 2022, 5(1), art. no. 100246. <https://doi.org/10.1016/j.ssaho.2021.100246>
2. Akour, M., & Alenezi, M.: Higher education future in the era of digital transformation. *Education Sciences*, 2022, 12(11), art. no. 784. <https://doi.org/10.3390/educsci12110784>
3. Antonietti, C., Schmitz, M. L., Consoli, T., Cattaneo, A., Gonon, P., & Petko, D.: Development and validation of the ICAP Technology Scale to measure how teachers integrate technology into learning activities. *Computers & Education*, 2023, 192, art. no. 104648. <https://doi.org/10.1016/j.compedu.2022.104648>
4. Bowman, M. A., Vongkulluksn, V. W., Jiang, Z., & Xie, K.: Teachers' exposure to professional development and the quality of their instructional technology use: The mediating role of teachers' value and ability beliefs. *Journal of Research on Technology in Education*, 2022, 54(2), 188–204. <https://doi.org/10.1080/15391523.2020.1830895>
5. Cattaneo, A. A., Antonietti, C., & Rauseo, M.: How digitalized are vocational teachers? Assessing digital competence in vocational education and looking at its underlying factors. *Computers & Education*, 2022, 176, art. no. 104358. <https://doi.org/10.1016/j.compedu.2021.104358>
6. Chen, Y., Chow, S. C. F., & So, W. W. M.: School-STEM professional collaboration to diversify stereotypes and increase interest in STEM careers among primary school students. *Asia Pacific Journal of Education*, 2022, 42(3), 556–573. <https://doi.org/10.1080/02188791.2020.1841604>
7. Chiang, F. K., Zhang, Y., Zhu, D., Shang, X., & Jiang, Z.: The influence of online STEM education camps on students' self-efficacy, computational thinking, and task value. *Journal of science education and technology*, 2022, 31(4), 461–472. <https://doi.org/10.1007/s10956-022-09967-y>
8. Fernández-Batanero, J. M., Montenegro-Rueda, M., Fernández-Cerero, J., & García-Martínez, I.: Digital competences for teacher professional development. Systematic review. *European Journal of Teacher Education*, 2022, 45(4), 513–531. <https://doi.org/10.1080/02619768.2020.1827389>
9. González-Pérez, L. I., & Ramírez-Montoya, M. S.: Components of Education 4.0 in 21st-century skills frameworks: systematic review. *Sustainability*, 2022, 14(3), art. no. 1493. <https://doi.org/10.3390/su14031493>
10. Hennessy, S., D'Angelo, S., McIntyre, N., Koomar, S., Kreimeia, A., Cao, L., ... & Zubairi, A.: Technology use for teacher professional development in low and middle-income countries: A systematic review. *Computers and Education Open*, 2022, 3, art. no. 100080. <https://doi.org/10.1016/j.caeo.2022.100080>
11. Ibromkhovich, F. J., & Mirzaxolmatovna, X. Z.: The most important role of mathematics in primary school. *Galaxy International Interdisciplinary Research Journal*, 2022, 10(3), 652–655.

12. Kotiash, I., Shevchuk, I., Borysonok, M., Matviienko, I., Popov, M., Terekhov, V., & Kuchai, O.: Possibilities of Using Multimedia Technologies in Education. *International Journal of Computer Science and Network Security*, 2022, 22(6), 727–732.
13. Kruszewska, A., Nazaruk, S., & Szweczyk, K.: Polish teachers of early education in the face of distance learning during the COVID-19 pandemic—the difficulties experienced and suggestions for the future. *Education 3-13*, 2022, 50(3), 304–315. <https://doi.org/10.1080/03004279.2020.1849346>
14. Lai, C., Wang, Q., & Huang, X.: The differential interplay of TPACK, teacher beliefs, school culture and professional development with the nature of EFL teachers' technology adoption. *British Journal of Educational Technology*, 2022, 53(5), 1389–1411. <https://doi.org/10.1111/bjet.13200>
15. Lander, N., Lewis, S., Nahavandi, D., Amsbury, K., & Barnett, L. M.: Teacher perspectives of online continuing professional development in physical education. *Sport, Education and Society*, 2022, 27(4), 434–448. <https://doi.org/10.1080/13573322.2020.1862785>
16. Mansurjonovich, J. M.: Professional Educational Institutions Theoretical and Practical Basis of Development of the Content of Pedagogical Activity of Teachers. Information and Information Technologies. *Open Access Repository*, 2022, 9(12), 85–89.
17. Martínez-Borreguero, G., Naranjo-Correa, F. L., & Mateos-Núñez, M.: Cognitive and emotional development of STEM skills in primary school teacher training through practical work. *Education Sciences*, 2022, 12(7), art. no. 470. <https://doi.org/10.3390/educsci12070470>
18. Mirzaxolmatovna, X. Z., Ibrokhimovich, F. J., & Ne'matovna, R. S.: Methodology of Teaching Mathematics in Primary Education. *Journal of Pedagogical Inventions and Practices*, 2022, 7, 81–83.
19. Mogas, J., Palau, R., Fuentes, M., & Cebrián, G.: Smart schools on the way: How school principals from Catalonia approach the future of education within the fourth industrial revolution. *Learning Environments Research*, 2022, 25(3), 875–893. <https://doi.org/10.1007/s10984-021-09398-3>
20. Nazaretsky, T., Ariely, M., Cukurova, M., & Alexandron, G.: Teachers' trust in AI-powered educational technology and a professional development program to improve it. *British journal of educational technology*, 2022, 53(4), 914–931. <https://doi.org/10.1111/bjet.13232>
21. Sabadash, V., & Lysko, V.: Studies on Adsorption of Petroleum Products under Static Conditions. *Journal of Ecological Engineering*, 2023, 24(10), 40–46. <https://doi.org/10.12911/22998993/169997>
22. Shamir-Inbal, T., & Blau, I.: Micro-learning in designing professional development for ICT teacher leaders: The role of self-regulation and perceived learning. *Professional Development in Education*, 2022, 48(5), 734–750. <https://doi.org/10.1080/19415257.2020.1763434>
23. Xue, Y., & Wang, Y.: Artificial intelligence for education and teaching. *Wireless Communications and Mobile Computing*, 2022, 2023(1), 1–10. <https://doi.org/10.1155/2022/4750018>
24. Yoon, I., & Kim, M.: Dynamic patterns of teachers' professional development participation and their relations with socio-demographic characteristics, teacher self-efficacy, and job satisfaction. *Teaching and Teacher Education*, 2022, 109, art. no. 103565. <https://doi.org/10.1016/j.tate.2021.103565>
25. Zhang, W.: The Role of technology-based education and teacher professional development in English as a Foreign Language Classes. *Frontiers in Psychology*, 2022, 13, art. no. 910315. <https://doi.org/10.3389/fpsyg.2022.910315>

Primary Paper Section: A**Secondary Paper Section: AM, IN**

SHAPING FUTURE TECHNOLOGY TEACHERS' DESIGN CULTURE THROUGH RESEARCH ENGAGEMENT

^aMARYNA GRYNova, ^bOLHA TYTARENKO,
^cVALENTYNA TYTARENKO, ^dINNA VAZHENINA,
^eVALERII TYTARENKO, ^fIHOR SAVENKO,
^gNATALIIA SULAIEVA

^{a,b,c,d,e,g}*Poltava V. G. Korolenko National Pedagogical University, Poltava, Ukraine.*

^f*Hryhorii Skovoroda University in Pereiaslav, Pereiaslav, Ukraine.*

email: ^a*grinovamv@gmail.com*, ^b*ookirosir@gmail.com*,

^c*valentinatytarenko48@gmail.com*,

^d*kaf_pmm@gsuite.pnpu.edu.ua*, ^e*arellav@ukr.net*,

^f*iv_savenko@ukr.net*, ^g*Sula_polt@ukr.net*

Abstract: The scientific work is focused on researching the peculiarities of forming the design culture of future technology teachers. Its distinctiveness lies in its description of this process through the lens of research activities. The article examines five main questions that allow for a systematic representation of the problem. Firstly, we analysed the impact of research activities on the formation of design culture in students, as it reveals the connection between research and the development of design competencies. Secondly, we determine the most effective methods and approaches for developing design culture. Thirdly, we explore the main components of design culture and their formation within the framework of research activities. Fourthly, we demonstrate the challenges of integrating research activities into the preparation of future teachers and the possible strategies to overcome them. Finally, we analyse the influence of design culture development on future technology teachers' professional training and pedagogical activities. The significance of this article lies in the opportunity to highlight and distinguish the issue of integrating research activities, which can enhance the quality of training for future technology teachers (especially in the technology field, where design culture is a crucial component). This scientific work proposes new approaches for incorporating research activities into the educational process, essential for developing innovative educational programmes. The work helps to understand better another aspect of the issue: how the formation of design culture contributes to developing competencies in future technology teachers, which is crucial for their future professional activity. The results of this theoretical study may be used to improve educational programmes and reform the preparatory stage of teacher training in technology, which is an essential link in improving the education sector.

Keywords: Design, Design education, Design culture, Project-based learning, Gamification

1 Introduction

The topic we have raised has interested researchers for more than just the past year. However, questions remain that require detailed consideration or more profound study. In particular, it is essential to understand how participation in research contributes to developing design competencies in students pursuing a teaching education and how this affects their future professional activities. Equally important is the analysis of the effectiveness of the research methods implemented, as this allows us to identify which of them most successfully fosters the formation of design culture. Another crucial issue is the identification of the core components of design culture. This issue includes the problem of their formation, as well as the challenges that accompany this process. We also consider design culture's general development as a significant problem.

The value of this research lies in its contribution to understanding the role of research activities in improving the quality of training for future teachers. This scientific work proposes new approaches to integrating research activities into the educational process, encouraging researchers in this field to refine existing educational programmes. The results may be used not only to improve educational programmes but also to reform the training of technology teachers (which is relevant in the context of current challenges in the field of education).

2 Analysis of recent studies and publications

The issues of design education and its development prospects are represented by the works of such Ukrainian scholars as Kryvolapov & Madzhon (2002), Mykytiuk (2011), Antonovych & Vdovchenko (2012), Tymenko (2012), Prusak & Kordiaka (2013), Rudenchenko (2017), Blyzniuk (2018), Aliksieieva

(2020), Shvets et al. (2021), and other domestic researchers, as well as foreign scientists, including Nelson (1999), Zhang et al. (2012), Manzini and Coad (2015), Hernandez et al. (2017), Mendoza et al. (2022), and others. Additionally, the issues of design culture and competence are covered in the works of Yavoryk (2008), McMullen (2016) and other researchers.

Povidaichyk and Povidaichyk (2021) researched improving the professional training quality of future educators. Moiseienko and Sosnytskyi (2022), in turn, emphasised the importance of involving students in research activities from the beginning of their studies.

The research aims to identify the impact of research activities on the process of forming design culture in future technology teachers, determine effective methods and approaches for integrating research elements into the domestic educational process, and assess how this influences the professional training of technology teachers.

3 Research methods

The research methods used to highlight this topic can be broadly divided into three groups: general scientific methods (analysis and synthesis of the research activity process, induction and deduction for formulating general principles of the process, comparison of the phenomenon under study in different countries of the world, abstraction and generalisation for concluding, modelling), pedagogical methods (analysis of pedagogical literature, the method of studying and generalising experience), as well as innovative and interdisciplinary methods (Design Thinking method, Big Data Analysis method, Learning Analytics method).

4 Results

The formation of design culture in future technology teachers is a complex and multifaceted process that requires integrating various knowledge, skills, and abilities and a wide range of critical competencies to adapt flexibly to a rapidly changing and interconnected world (Recomendación, 2006). Design culture includes aesthetic sensitivity, critical thinking, creativity, and the ability to innovate. Future technology teachers must effectively transmit knowledge and stimulate students to solve technological problems creatively.

Research activity is critical in forming this culture, as it develops the ability to think systematically, analyse problems, experiment, and find innovative solutions. It is crucial to consider in more detail how research activities influence this process, mainly through the experience of Ukraine and foreign countries (Sheiko, 2008).

Design, in a narrow specialised sense, is an artistic and creative process aimed at developing elements of the material and spatial environment created by industrial methods and characterised by high functionality and aesthetic appeal (Kuznetsova, 2022). The "design culture" encompasses methods and forms of organised design activities closely related to management and planning systems. It is a specific type of production of project documentation that describes the expected result of actions and the concept of the future object, whether it be an item, material environment, activity system, or lifestyle as a whole. The impact of research activities on the formation of design culture in Ukraine and the world can be described by characterising such areas of design culture development as critical thinking and analytical skills, stimulating creativity and innovative approaches, forming aesthetic sensitivity and understanding of design, and developing collaboration and interdisciplinary approach skills. Their comparative characteristics can be provided in Table 1.

Table 1: Comparative characteristics of trends in the development of component elements of design culture

Development direction	Country	Description
Development of critical thinking and analytical skills	Ukraine	Ukrainian pedagogical universities teach future technology teachers to analyse technological processes and develop innovative solutions to problems. For example, as part of their coursework and diploma theses, students conduct research at the intersection of technology and design, which helps them to think critically about design.
	Germany	In Germany, the emphasis is on project-based research, where students analyse real-world industrial problems and propose innovative solutions. This develops their critical analysis and design thinking skills.
	England	In UK universities, particularly in technology teacher training programmes, research aimed at solving environmental and social problems through design is actively used. This contributes to developing critical thinking in the context of modern challenges.
Stimulating creativity and innovation	USA	American educational programmes emphasise research projects, where students create prototypes of new products or systems using modern technologies and design methods. This approach develops their creativity and innovative thinking skills.
	Netherlands	In the Netherlands, the curricula for future technology teachers include active involvement in interdisciplinary research, which helps students develop creativity by integrating knowledge from different fields.
	Spain	Spanish universities like the University of Barcelona actively use research laboratories. These laboratories allow students to experiment with new materials and technologies, which helps to develop their creative imagination.
Developing aesthetic sensitivity and understanding of design	Ireland	In Ireland, at University College Dublin, for example, students study design as an interdisciplinary field incorporating elements of art, technology and social sciences. This helps to develop their aesthetic sensibility and understanding of the cultural aspects of design.
	Germany	Famous German design schools, such as the Bauhaus, have influenced the development of design education, where aesthetics is a crucial element. Modern programmes include research to help students better understand the role of design in society.
	England	In the UK, students actively study visual communications and graphic design, which helps them develop an aesthetic perception and understanding of the visual aspects of technological processes.
Development of cooperation skills and interdisciplinary approach	USA	In the USA, research activities often involve group work, which allows future technology teachers to learn how to collaborate with specialists from other fields, such as engineering, marketing, and social sciences. This contributes to the development of interdisciplinary thinking.
	Netherlands	Dutch educational programmes include research projects in collaboration with industrial partners and other faculties. These projects contribute to developing team skills and an interdisciplinary approach to solving design problems.
	Spain	In Spain, students are often involved in international research projects where they collaborate with colleagues from other countries, which develops their global thinking and interdisciplinary skills.
Application of new technologies in design	Ukraine	At Ukrainian universities, students are introduced to new technologies such as 3D printing and augmented reality through research activities that expand their design capabilities.
	USA	American students actively use the latest technologies, such as artificial intelligence and robotics, in their research projects, significantly affecting their understanding of contemporary design.
	England	In the UK, students use modern digital tools to work on projects related to interface design and user experience (UX/UI).

Source: compiled by the author

Developing a design culture in students is essential for forming their ability to think creatively and innovatively, perform critical analyses, and apply practical design solutions. Research activities are vital in this process, allowing students to study, analyse, and apply various design concepts and methods. In this context, information and communication technologies (ICT), such as radio, television, and modern digital technologies, including computers and the Internet, are considered powerful tools for implementing educational reforms and changes (Isah et al., 2015; Honchar et al., 2021).

Traditional and modern research methods are among the most effective methods for developing design culture. It is crucial to consider these methods in more detail and provide examples of their application in different countries.

Project-Based Learning (PBL) is a specific educational activity where students work on real-world projects. This practice allows them to apply theoretical knowledge gained during their studies. Such activities enhance their ability to solve real problems and contribute to developing critical thinking and creativity. For example, at universities in the USA, such as the Massachusetts Institute of Technology (MIT), students in engineering and design programmes work on real industrial projects. This approach enables American students to integrate the latest technologies and innovative solutions into their work. In courses at Hochschule für Bildende Kunst (HFBK, Germany), future

technology teachers participate in project-based research. These studies involve collaboration with industrial partners to create new design solutions.

Design Thinking is a method aimed at analysing user needs and generating innovative solutions that best meet these needs. This approach involves future specialists progressing through several stages of educational activity: empathy, problem identification, brainstorming, prototyping, and prototype testing. For example, engineering students use the design thinking method at Delft University of Technology (Netherlands). The goal of its application is to create innovative solutions for projects related to the environmental and social challenges faced by the country. At Imperial College London (England), students in design courses actively use design thinking to develop new products and services, considering real users' needs.

The Research Labs method is a learning approach in which laboratories allow students to conduct experiments and explore new materials and technologies, contributing to their understanding and development of design culture. For example, at Stanford University (USA), some laboratories specialise in research in interactive design and new technologies, allowing students to test and implement innovative concepts. Introducing such innovative technologies into the university's educational system improves the organisation of the educational process, reduces administrative burdens, and provides easy access to

information for all interested parties (Andrusiak et al., 2024). At the University of Barcelona (Spain), students work in laboratories that focus on research in visual communications and graphic design, helping them to develop aesthetic and technical skills (Garzón Artacho et al., 2020).

The Action Research method integrates research activities with practical activities, where the researcher is actively involved in the process and uses the obtained data to improve practice. For example, at University College Dublin (Ireland), students can implement projects that include real challenges in the field of design and receive feedback to improve their solutions. In Hochschule für Gestaltung (HfG, Germany) courses, students work on projects that directly impact the community and use action research to improve project outcomes.

Gamification is a method in which game elements are used to organise the educational process. Gamification as an educational element includes the creation of game scenarios, competitions, and simulations (Perejaslavskaja & Smahina, 2019). For example, at Carnegie Mellon University (USA), gamification is used in the educational process to conduct simulation games. These games help students learn design principles and project management. Students at the University of the Arts London (UK) participate in competitions and game-based projects, stimulating their creativity. Such projects contribute to the

development of design competencies. The Virtual Environments method uses virtual environments, which allow students to create and explore design concepts in conditions that simulate reality (without the limitations of physical resources, in absolutely ideal surplus conditions (Volynets, 2021)). For example, at Delft University of Technology (Netherlands), students use virtual labs to test their designs and self-developed products in a digital environment. This stage of educational work precedes physical prototyping. At MIT Media Lab (USA), students use virtual reality to create innovative design solutions and products and test them (Zayed et al., 2022).

Learning Analytics is a method that involves using data about students' learning to improve the educational process. It allows for tracking students' progress and personalising learning. For example, at University College London (England), learning analytics tracks students' success in design projects and adjusts teaching strategies based on the collected data. At Universitat Politècnica de València (Spain), data analytics is applied to analyse the effectiveness of different design teaching methods and to implement optimal practices.

We used the following diagram (Figure 1) to illustrate the integration of these innovative approaches.

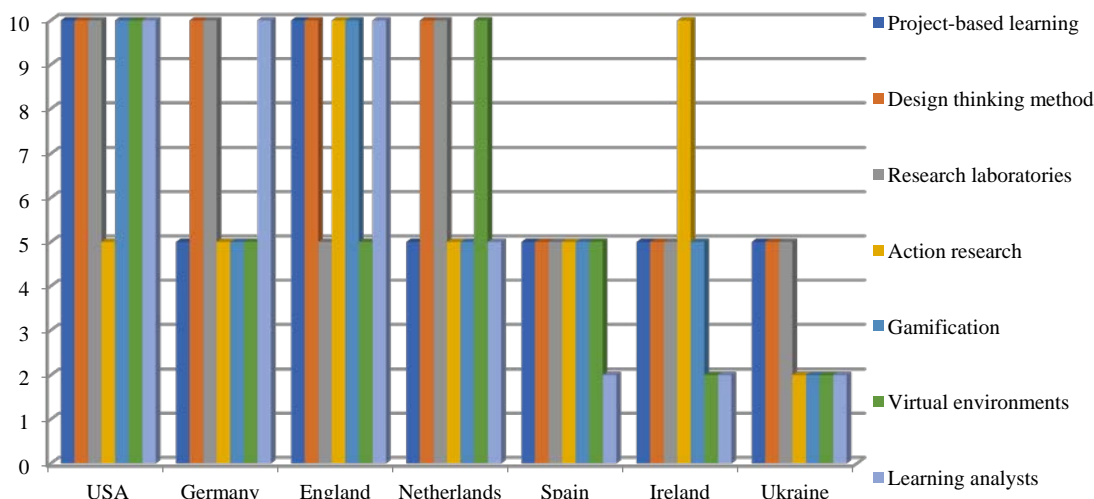


Figure 1: Analytical map
Source: compiled by the author

The question of the main components of the design culture of future technology teachers and their formation within the framework of research activities is relevant and multifaceted. It allows us to understand which key elements need to be developed in the educational process to prepare teachers capable of an innovative approach to teaching technology and how research activities contribute to this development. The main components of the design culture of future technology teachers are creativity and innovative thinking (the development of the ability to generate new ideas, experimentally test them, and implement them in practice. Within the framework of research activities, creativity is formed through participation in projects aimed at developing new pedagogical methods and technologies); technological literacy (knowledge of modern technologies and the ability to use them is the foundation for the effective implementation of design approaches in the educational process. An important role is played by the participation of students in research projects related to advanced technologies, such as 3D printing, robotics, and the Internet of Things (IoT)); aesthetic perception and design (future teachers need to understand the basics of design and aesthetics, which will contribute to the creation of a practical and attractive learning environment. This is formed through training in visual arts,

graphic design, and participation in projects where visual learning materials need to be developed); sociocultural competence (considering cultural and social aspects in the study of technology. This includes developing skills in working with different groups of students and considering their cultural characteristics. Research activities allow the study of the impact of cultural factors on the perception of technology); pedagogical mastery (it is essential to combine technological knowledge with pedagogical skills, which allows for the effective transmission of knowledge. Implementing this principle is ensured through participation in pedagogical experiments, development and the introduction of new teaching methods.

When considering the issue of forming the components of design culture through research activities, one cannot overlook the introduction into educational practice of such elements as project-based activities, scientific research, international internships, and exchanges. Through the analysis of these components, design culture examines how design knowledge is formed and developed and how this knowledge influences the design activities of specialists who are its carriers (Ryzhova, 2016). Researchers should consider each component a separate unit. Therefore, project-based activities involve future

technology teachers developing and implementing educational projects to create new teaching materials or methods. This enables students to develop creativity, technological literacy, and pedagogical skills. Including scientific research in the educational process involves researching pedagogy and technology. This helps develop critical thinking, analytical, and synthesis skills and improve technological and sociocultural competence. International internships and exchanges contribute to the participation of students in international programmes, allowing them to become acquainted with advanced practices in the fields of technology and pedagogy and expand the sociocultural competence of future technology teachers.

In Ukraine, examples of educational programmes that ensure the formation of these components of design culture include the “Software Engineering and Robotics” programme (National University “Lviv Polytechnic”), the “Educational and Pedagogical Sciences” programme (Taras Shevchenko National University of Kyiv). The Lviv Polytechnic University programme combines modern technology education with pedagogical courses that prepare students for teaching (Ministry of Education and Science of Ukraine, 2024), while the Taras Shevchenko National University of Kyiv programme is focused on integrating modern technologies into education, including information technology, forming both pedagogical and technological competence. As for other countries, in the USA, the “Technology, Innovation, and Education” programme (Harvard Graduate School of Education) focuses on studying the impact of technology on education and developing innovative educational technologies; in the Netherlands, the “Educational Sciences and Technology” programme (University of Twente) is oriented towards researching and developing the latest educational technologies with an emphasis on the design and implementation of learning environments; in Taiwan, the “Master in Educational Technology” programme (National Taiwan Normal University) focuses on integrating technologies into teaching and researching the impact of these technologies on

the educational process. These programmes contribute to forming a design culture through theoretical learning, practical activities, and active research (Zakharchuk, 2021).

The integration of research activities into the training process of future technology teachers is a crucial aspect of forming their professional competence. However, this process is accompanied by several challenges that may affect the effectiveness of education and professional training. Researching these difficulties and finding ways to overcome them is significant, especially in the context of rebuilding education in Ukraine after the large-scale war waged by Russia on Ukrainian territory on 24 February 2022.

Regarding the challenges of integrating research activities, it is essential to highlight the issue of resources. Effective research requires significant funding, equipment, and access to modern technologies. In many cases, Ukrainian educational institutions may not have sufficient resources, which limits the opportunities for conducting high-quality research. Due to insufficient funding or lack of access to international databases, students and teachers may face difficulties obtaining up-to-date scientific information, complicating high-level research. Teachers, who are supposed to ensure the integration of research activities into the educational process, may lack sufficient research experience, and the quality of educational services provided significantly affects students (Torres et al., 2011). This can reduce student learning quality and engagement in scientific activities. Including research activities may burden students, who already have much theoretical and practical material to study. This can lead to decreased motivation and productivity. It is also essential to consider that not all students are interested in research activities or do not see their relevance to their future professional activities, which reduces their engagement and the quality of their research work.

All these challenges can be represented in a diagram (Figure 2).

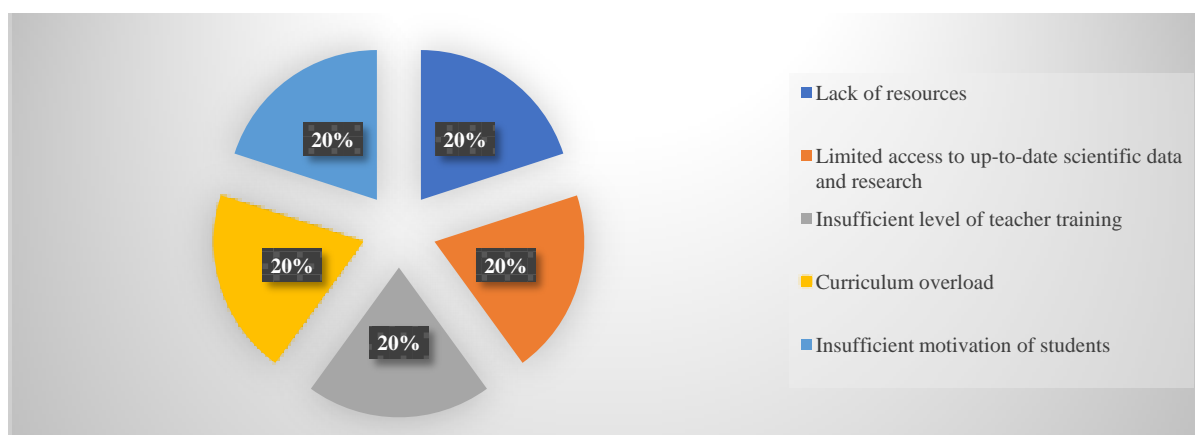


Figure 2: Difficulties of integrating research activities into the educational process of training future technology teachers
Source: compiled by the author

The issue of overcoming challenges is relevant not only for Ukraine. It has also arisen and been addressed in many developed countries. An example of successfully overcoming the challenges of integrating research activities into the educational process for training future technology teachers can be seen in Finland. The Finnish education system is known for its flexibility and focus on an individual approach. Teachers are given considerable autonomy in developing curricula, allowing for integrating research activities into the educational process without overloading students. This is achieved through a balance between theoretical knowledge and practical activities.

In the United States, involving students in research projects through particular internships and research assistantship programmes is widespread. This allows students to gain experience in fundamental research during their studies, enhancing their competence and motivation. Universities in the

Netherlands actively develop cooperation with businesses, which allows students to be involved in applied research projects. Thanks to this approach, the significance of the research conducted by students is enhanced, which in turn provides them with the opportunity to acquire practical skills in their field.

The presence of such positive examples, as seen in leading countries worldwide, indicates the existence of strategies to overcome the challenges of integrating research activities into the educational process. From this, the strategy includes specific structural elements, which determine the degree of its implementation. These include increased funding and resource allocation, the improvement of teacher qualifications, collaboration with international educational and research institutions, implementing flexible educational programmes, and motivating students through project-based learning.

Ukraine should incorporate each structural element into its post-war recovery plan to ensure its implementation. Specifically, Ukraine could focus on attracting international aid and investment to develop educational infrastructure. This includes modernising laboratories, access to international research databases, and acquiring modern equipment (Almenara & Osuna, 2018).

In addition, an important aspect is the regular training and internships for teachers, particularly abroad, which will help to enhance their competence in the field of research. Such practices will allow teachers to improve students' support quality for conducting research and integrate the research component more effectively into the educational process. By implementing this practice, universities in Ukraine would have the opportunity to develop cooperation with international partners actively (Yaroshenko, 2016). This is an excellent way for students and teachers to participate in joint research projects with scientists from leading countries, gaining access to the latest knowledge and technologies. Furthermore, reforming curricula to combine theoretical learning with research activities more flexibly would help reduce student overload and increase their motivation for research. Finally, incorporating research projects into academic courses with actual tasks and the possibility of practical application of the results will increase students' motivation for scientific activities. After all, it is not only external incentives that should determine the quality of professional activity but also the desire of specialists for self-development (Ilina et al., 2019).

Considering the experience of developed countries and the specifics of post-war reconstruction, Ukraine could adapt these practices to its conditions. Necessary steps could include:

- Attracting international grants and investments for the development of educational infrastructure, which includes the purchase of modern equipment and the creation of conditions for research;
- Developing public-private partnerships in the field of education, which will allow for the attraction of additional resources and the implementation of innovative approaches to education;
- Implementing national programmes to support young researchers, including financial support, access to resources, and internships abroad, which, in turn, will help overcome the shortage of experienced researchers and teachers.
- Overall, integrating research activities into the training of future technology teachers can significantly improve the quality of education in Ukraine and contribute to the development of innovative approaches to teaching technological disciplines. Moreover, it can increase the level of independence of future workers, their awareness of the importance of prioritising tasks, and their ability to use their time with maximum efficiency (Bakhov et al., 2021).

5 Discussion

While preparing this article, we delved deeply into the topic. However, to fully address the issue of Ukraine's prospects in integrating research activities into the formation of the design culture of future technology teachers, it is necessary to consider several additional questions. These questions will help to understand the critical aspects and challenges that remain unexplored or insufficiently covered. New queries from previous ones should be answered for a thorough analysis. Among them, the first is the question of the impact of the current economic situation in Ukraine on funding research activities in education. What role does government policy play in promoting the integration of research activities into the educational process? How can the Ukrainian diaspora and international organisations be engaged in supporting research activities in Ukraine? What innovative teaching methods can be implemented to enhance the effectiveness of forming a design culture? What is the role of international exchanges and internships in shaping the design culture of future technology teachers? How can the experience of developed countries be adapted to Ukrainian realities? What success indicators can be used to assess the effectiveness of

integrating research activities? How can equal access to research activities be ensured for students from different regions of Ukraine?

These questions allow us to broaden Ukraine's vision of its educational prospects and create a roadmap for overcoming the challenges associated with integrating research activities into the training of future technology teachers. This will contribute to the development of design culture and the overall improvement of the quality of education in Ukraine.

6 Conclusions

Research activity is a powerful tool for shaping the design culture of future technology teachers. It contributes to developing critical thinking, stimulates creativity, fosters aesthetic perception and understanding of interdisciplinary connections, and allows future teachers to master the latest technologies (Holovkova & Yermak, 2021). Different countries' experiences show that integrating research practices into the educational process significantly improves the quality of teacher preparation and makes them competitive globally.

The choice of effective methods and approaches for developing design culture in students depends on the learning context and the programme's specifics. Project-based learning, design thinking, research laboratories, action research, gamification, virtual environments, and learning analytics – all these methods have advantages and can be used to achieve different educational goals. It is important to adapt these approaches according to the student's needs and the educational process conditions to maximise the effect in developing design culture. Moreover, their application is practised in other countries. Adapting the experience of developed countries requires a critical approach, considering Ukrainian realities and potential challenges that may arise during its implementation (Radchenko et al., 2023). At the same time, defining success indicators and ensuring equal access to opportunities are necessary steps to evaluate and ensure the effective integration of research activities.

Literature:

1. Aliexsieieva, S.: Design and entrepreneurship: modern problems and prospects of preparation for entrepreneurial activities in the design education system. *Art Education: Content, Technologies, Management. Series: Pedagogical Sciences*, 2020, 15, 57–71. Kyiv: TOV "TONAR". <http://surl.li/a/cheby>
2. Almenara, J. C., & Osuna, J. B.: Los escenarios tecnológicos en Realidad Aumentada (RA): posibilidades educativas. *Aula abierta*, 2018, 47(3), 327–336. <https://doi.org/10.17811/rifie.47.3.2018.327-336>
3. Andrusiak, V., Hoby, L., & Vavryk, T.: Optimising the educational process in universities using chatbots. *Information Technology and Society*, 2024, 1(12), 6–12. <https://doi.org/10.32689/maup.it.2024.1.1>
4. Antonovych, E. A., & Vdovchenko, V. V.: Synthesis of design and technology in the system of national continuous design education. In *Theory and methods of education: scientific and pedagogical bulletin*, 2012, 2, 4–10. Kherson: Hryns DS.
5. Bakhov, I., Rudenko, Y., Dudnik, A., Dehtiarova, N., & Petrenko, S.: Problems of Teaching Future Teachers of Humanities the Basics of Fuzzy Logic and Ways to Overcome Them. *International Journal of Early Childhood Special Education*, 2021, 13(2), 844–854. <http://surl.li/esdjkq>
6. Blyzniuk, M. M.: Pedagogical Design on the Basis of Information Technologies: Analysis and Principles of the Project Approach. *Scientific Bulletin of Kremenets Taras Shevchenko Regional Humanitarian and Pedagogical Academy. Series: Pedagogy*, 2018, 10, 29–40. <https://doi.org/10.37835/2410-2075-2018-10-3>
7. Garzón Artacho, E., Martínez, T. S., Ortega Martín, J. L., Marín Marín, J. A., & Gómez García, G.: Preparing teachers for lifelong learning – the importance of digital competence in promoting innovation in teaching. *Sustainability*, 2020, 12(7), art. no. 2852. <https://doi.org/10.3390/su12072852>

8. Hernandez, R. J., Cooper, R., Tether, B., & Murphy, E.: The Value of Design in Innovation: Results from a survey within the UK Industry. *The Design Journal*, 2017, 20:sup1, S691–S704. <https://doi.org/10.1080/14606925.2017.1353015>
9. Holovkova, M. M., & Yermak, Y. I.: The organisation of the scientific-research activity of the applicants of higher education. *Pedagogical Sciences: Theory and Practice*, 2021, 2(1), 117–123. <https://doi.org/10.26661/2522-4360-2021-1-2-18>
10. Honchar, L., Derkachova, O., Shakhrai, V., Saienko, V., Hladoshchuk, O., & Voropayeva, T.: Formation of psychological readiness of the teacher to implement information and communication technologies in professional activities. *International Journal of Education and Information Technologies*, 2021, 15(38), 364–371. <https://doi.org/10.46300/9109.2021.15.38>
11. Iliina, I., Grigoryeva, Z., Kokorev, A., Ibrayeva, L., & Bizhanova, K.: Digital literacy of the teacher as a basis for creating a unified information educational space. *International Journal of Civil Engineering and Technology*, 2019, 10(1), 1686–1693.
12. Isah, A., Mabadeje, O., & Omori, A. E.: The relevance of ICTS in the administration and organisation of a functional continuing education program in Nigeria. *The International Journal of Interdisciplinary Educational Studies*, 2015, 10(3), 37–44. <https://doi.org/10.18848/2327-011X/CGP/v10i03/53288>
13. Kryvolapov, M., & Madzihon, V.: Design and technology in the system of continuing education. *Plastic art*, 2002, 1, 31–33.
14. Kuznetsova, H. B.: The Role and Value of Design in the Modern Business Innovation. *Problems of Modern Transformations. Series: Economics and Management*, 2022, (3). <https://doi.org/10.54929/2786-5738-2022-3-02-02>
15. Manzini, E., & Coad, R.: Design, when everybody designs: An introduction to design for social innovation. The MIT Press, 2015. <https://doi.org/10.7551/mitpress/9873.001.0001>
16. McMullen, M.: Intercultural Design Competence: A Guide for Graphic Designers Working Across Cultural Boundaries. *The International Journal of Visual Design*, 2016, 10(3), 19–30. <https://doi.org/10.18848/2325-1581/CGP/v10i03/19-30>
17. Mendoza, S., Sánchez-Adame, L. M., Urquiza-Yllescas, J. F., González-Beltrán, B. A., & Decouchant, D. A.: Model to Develop Chatbots for Assisting the Teaching and Learning Process. *Sensors*, 2022, 22, art. no. 5532. <https://doi.org/10.3390/s22155532>
18. Ministry of Education and Science of Ukraine: On the announcement of a competitive selection of projects for basic research, applied research and scientific and technical (experimental) developments of young scientists in 2024. <https://mon.gov.ua/en>
19. Moiseienko, N. H., & Sosnytskyi, I. O.: The role of students' research activity in the formation of their secondary language personality. In *Modern problems of methods of teaching languages and teaching foreigners in higher education institutions: a collective monograph*. (pp. 17–26). Odesa: ONU, 2022.
20. Mykytiuk, O. M.: Research work in higher education institutions – the basis of quality education management. *Means of educational and research work*, 2011, 35, 71–82. http://nbuv.gov.ua/UJRN/znpkhnpu_zntndr_2011_35_12
21. Nelson, L. M.: Collaborative Problem Solving. In C. M. Reigeluth, & A. A. Carr-Chellman (Eds.), *Instructional-Design Theories and Models, Building a Common Knowledge Base*. (pp. 241–267). Lawrence Erlbaum Associates, 1999.
22. Perejaslavskaya, S., & Smahina, O.: Gamification as the current trend of national education. *Electronic Scientific Professional Journal “Open educational e-environment of modern university”*, special edition “New pedagogical approaches in STEAM education”, 2019, pp. 250–260. <https://doi.org/10.28925/2414-0325.2019s24>
23. Povidaichyk, O. S., & Povidaichyk, M. M.: The main approaches to student research work. *Scientific Bulletin of Uzhhorod University. Series: Pedagogy. Social Work*, 2021, 1, 216–218. http://nbuv.gov.ua/UJRN/Nvuuped_2017_1_58
24. Prusak, V., & Kordiaka, I.: Ecological design in solving the social problem of ‘human waste’. *Bulletin of the Kharkiv State Academy of Design and Arts*, 2013, 2, 46–47. http://nbuv.gov.ua/UJRN/had_2013_2_15
25. Radchenko, O., Bielai, S., Kovach, V., Hrabar, N., & Yevtushenko, I.: Formation of Information Security Systems of the State: Current Status, Trends, and Problems. In Radchenko, O., Kovach, V., Semenets-Orlova, I., Zaporozhets, A. (Eds.), *National Security Drivers of Ukraine. Contributions to Political Science*. (pp. 93–112). Springer, Cham, 2023. https://doi.org/10.1007/978-3-031-33724-6_6
26. Recomendación 2006/962/CE Del Parlamento Europeo Y Del Consejo, De 18 De Diciembre De 2006, Sobre Las Competencias Clave Para El Aprendizaje Permanente. <https://eur-lex.europa.eu/eli/reco/2006/962/oj>
27. Rudchenko, A. A.: Theoretical and methodological bases of teaching ethnodesign to students in higher art educational institutions. *Extended abstract of Doctor's thesis*. Kyiv: National Pedagogical Dragomanov University, 2017. 42 p. <http://enpuir.npu.edu.ua/handle/123456789/14438>
28. Ryzhova, I.: Methods, principles, and approaches to analysing design culture as conditions for harmonisation of nature, nature, and society relations. *Humanities Bulletin of Zaporizhzhie State Engineering Academy*, 2016, 66, 192–205. <https://doi.org/10.30839/2072-7941.2016.78593>
29. Sheiko, V. M.: *Organisation and methods of research activity*. Kyiv: Znannia, 2008. 310 p.
30. Shvets, O., Kolomiets, A., Hromov, Ye., & Kolomiets, D.: *New functions of design in the era of digitalisation and prospects for the development of design education: an analysis of world experience*. Vinnytsia: VDPU, 2021.
31. Torres, M., Hinojo-Lucena, F. J., & Aznar-Díaz, I.: Propuestas de trabajo innovadoras y colaborativas e-learning 2.0 como demanda de la sociedad del conocimiento. *ESE. Estudios sobre educación*, 2011, 20, 141–159. <https://doi.org/10.15581/04.20.4535>
32. Tymenko, V.: Pedagogical technology ‘design education’ in general and higher education institutions. *Collection of scientific works of Pavlo Tychyna Uman State Pedagogical University*, 2012, 2, 292–299. http://nbuv.gov.ua/UJRN/znpudpu_2012_2_42
33. Volynets, V.: Use of virtual reality technologies in education. *Continuing Professional Education: Theory and Practice*, 2021, (2), 40–47. <https://doi.org/10.28925/1609-8595.2021.2.5>
34. Yaroshenko, O. H. (Ed.): *Concept and methodology of implementation of research activities of subjects of the educational process of universities: monograph*. Kyiv, 2016. 178 p.
35. Yavoryk, Yu. V.: System of application of graphic computer programs in training of future design specialists. *Extended abstract of Candidate's thesis*. Kyiv: Institute of Higher Education of the APS of Ukraine, 2008. 20 p.
36. Zakharchuk, N.: Institutional initiatives and practices for student success: from the experience of Western universities. *Ukrainian Educational Journal*, 2021, (4), 37–47. <https://doi.org/10.32405/2411-1317-2021-4-37-47>
37. Zayed, N. M., Edeh, F. O., Darwish, S., Islam, K. M. A., Kryshchal, H., Nitsenko, V., & Stanislavky, O.: Human resource skill adjustment in service sector: Predicting dynamic capability in post COVID-19 work environment. *Journal of Risk and Financial Management*, 2022, 15(9), art. no. 402. <https://doi.org/10.3390/jrfm15090402>
38. Zhang, Y., Yang, X., & Liaw, P. K.: Alloy Design and Properties Optimization of High-Entropy Alloys. *JOM*, 2012, 64, 830–838. <https://doi.org/10.1007/s11837-012-0366-5>

Primary Paper Section: A

Secondary Paper Section: AL, AM

STRATEGIES FOR ENHANCING BUDGETING AND FINANCIAL MANAGEMENT TO BOOST BUDGET PROCESS EFFICIENCY

^aOLENA CHERNIAIEVA, ^bHANNA MYKHALCHENKO,
^cOLENA ATAIEVA, ^dMYKHAILO MARSHALOK,
^eMARTA KUNYTSKA-ILIASH

^{a,b,c}*Bakhmut Educational-Scientific Professional-Pedagogical Institute, V.N. Karazin Kharkiv National University, Kharkiv, Ukraine.*

^d*National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine.*

^e*Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies of Lviv, Lviv, Ukraine.*

email: ^achernyeva22@gmail.com,

^bMikhalchenkoanna1975@gmail.com,

^cataeva.elena.uipa@gmail.com, ^dmarshalok.m.s@nubip.edu.ua,

^ekunyskam@gmail.com

Abstract: Effective budgeting at the macro level is a crucial tool for managing a country's economy and contributing to its development and social progress. Budgetary policy plays a vital role in the state's financial provision for socio-economic development. This article aims to analyse the effectiveness of budgeting mechanisms and financial management, as well as to explore ways to improve them. The study employed various scientific methods, including the monographic method, statistical analysis, expert assessment method, and mathematical and statistical modelling. It investigated the theoretical principles of the budgeting process, identified the stages and conditions for its implementation, and analysed the peculiarities of budgeting in today's economic and social realities. The study also examined the essence, algorithms, and main components of the budgeting system mechanism. The effectiveness of implementing budgeting methodology as a component of financial management policy was evaluated, considering its practical aspects. The main factors influencing its effectiveness were determined. It was argued that optimizing the organizational mechanism of the existing budgetary system is necessary to improve the overall management paradigm of strategic development. The article identifies basic conceptual principles for applying budgeting methodology in the process of effective financial management. It proposes directions for improving the organizational mechanism of the revenue and expenditure formation system, and specifies a relevant toolkit for this purpose. The practical significance of the research results lies in their applicability to the practical experience of optimizing financial management technologies.

Keywords: financial planning, budgeting, strategy, management mechanism, economic effect.

1 Introduction

Achieving the right balance between income and expenditure is crucial for managing the level of national debt and maintaining financial stability. Directed budget usage can also help control inflation. Effective financial planning and rational resource allocation can prevent monetary circulation overlap and preserve price stability.

The effectiveness of budgetary policy depends on the level of development of the fiscal and budgetary system aimed at promoting economic growth. It is crucial to clarify the economic essence and direction of budgetary policy as a tool for economic growth and to introduce effective budgetary mechanisms in the context of economic transformations.

Researchers and experts analyse problems associated with the budgeting process. Forecasting income and expenditure can be challenging, especially in conditions of economic instability. Insufficient analysis and forecasting may result in inaccuracies in financial planning (Zharikov, 2023). Static budgets can become problematic as they are unable to adapt to changes in societal and economic conditions. Budget flexibility is key to accommodating unexpected circumstances. Attention is required to adjust the institutional environment to socio-economic changes and to determine priority directions for further development of financial-budgetary relations (Chugunov & Liubchak, 2023).

Inefficient financial resource management and complications in the budgeting process may arise due to the absence or inadequate use of information technologies (Kolawole, 2023; Savaşaneril, 2024). Budgeting may be less effective if it is not part of strategic planning and does not support the organization's strategic goals (Keho, 2023). Current research has shown that countries within the European Union budgetary system should invest more in sustainable production to benefit in real-time

from integration into the European Union (Tsyhanenko et al., 2023). Researching these issues can improve budgeting methods and practices, leading to more effective financial management for organizations and countries.

The purpose of the article is to determine the effectiveness of budgeting mechanisms and financial management, and explore ways to improve them in a dynamic economic environment.

2 Materials and methods

Various scientific approaches and tools are used to objectively and comprehensively assess the effectiveness of budgeting processes. Scientific methods applied in this context include the monographic method for analysing and evaluating financial information related to expenditures, revenues, deviations, etc., statistical analysis to identify and study patterns in budget data, and the expert evaluation method, which considers the position of qualified experts to assess the effectiveness of budgeting based on their experience and knowledge. Econometric models are used to analyse the relationships between different financial parameters and evaluate their impact on budgeting efficiency. Mathematical and statistical models are created to simulate various budget process scenarios and assess their impact on the results. The dynamics of changes in various budget indicators over time are investigated to identify trends, anomalies, and peculiarities.

This study aims to identify possible factors affecting budget performance by examining correlation relationships between various economic and financial indicators. The use of scientific research methods ensures objectivity and allows for the drawing of reasonable conclusions about the effectiveness of budgeting, as well as identifying opportunities for improvement.

3 Results

The effectiveness of a budget is determined by how well an organization uses its financial resources to achieve strategic goals and ensure sustainability. A budget is considered effective if it aligns with the organization's strategic objectives. Resource utilization should contribute to achieving better outcomes. An accurate and realistic revenue and expenditure forecast enhances the ability to manage financial resources effectively. The effectiveness of a budget is determined by its ability to control expenses and avoid overspending, as well as its capacity to adapt to changes in the external environment or internal conditions. Additionally, the cost and performance of projects or programs funded within the budget should be evaluated to determine its effectiveness.

The capacity to draw and maintain backing from diverse stakeholders, such as shareholders, partners, and employees, is also a measure of budget effectiveness. A well-designed budget considers opportunities for ongoing enhancement of planning, execution, and control procedures. It should equip managers with the requisite information to make sound strategic and operational decisions.

Budgetary organizations can use performance indicators and key performance indicators to assess their budgeting process and results. Continuous monitoring and analysis of budget effectiveness can help improve financial management and achieve organizational strategic goals. The budgeting system of the European Union has been particularly effective in achieving these goals (Figure 1).

Based on official data from EUR-lex (2024), the European Union's budget revenues and expenditures have shown a polynomial trend over the past 13 years, with significant growth observed in the last two years. This growth can be attributed to the economic recovery following the global COVID-19 pandemic and the intensification of Russia's military aggression against Ukraine. The budgeting system in Ukraine reflects the country's economic turbulence (Figure 2).

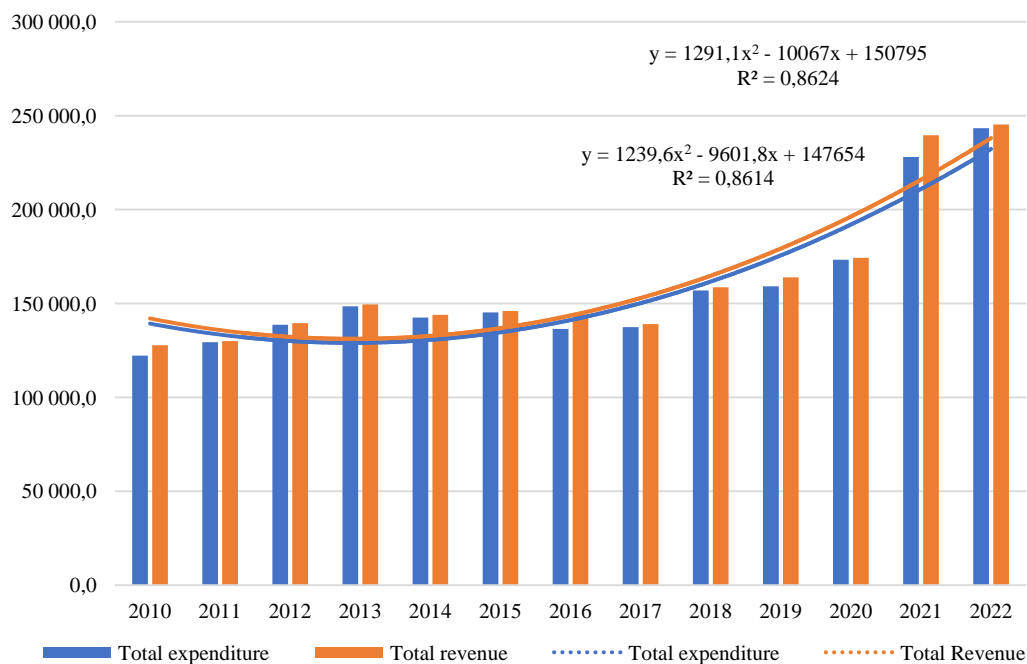


Figure 1: Dynamics of the EU budget revenues and expenditures, 2010-2022, EUR million
Source: An official website of the European Union. (EU) Budget.

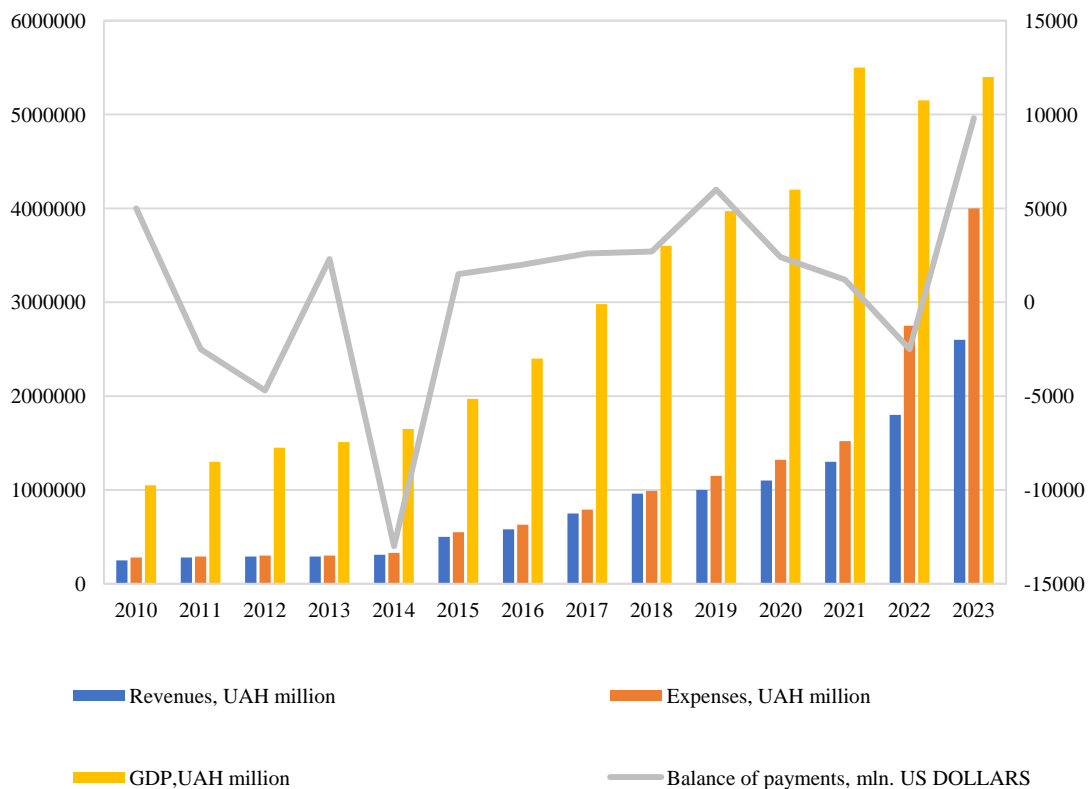


Figure 2: Key indicators of the State Budget of Ukraine, 2010-2023
Source: Rates, indices, tariffs (2024). The Ministry of Finance.

During the peak periods of military aggression in 2014 and the full-scale invasion by Russia in 2022, Ukraine's balance of payments underwent significant changes. Improving the system of budget expenditure management and enhancing the efficiency of their utilization is an important step towards addressing the key issue of effective use of budgetary funds in conditions of limited resources. During times of war, the budgetary mechanism for socio-economic development must effectively and efficiently achieve the country's economic, social, and defence priorities. This includes planning budget expenditures and analysing the results of budgetary fund utilization (Zharikov, 2023).

Improving budgeting and financial management mechanisms are crucial steps in ensuring the stability and effectiveness of the country's financial system. The correlation analysis shows a significant dependence between Ukraine's state debt and budgetary indicators, including revenues, expenditures, balance of payments, and gross domestic product. The correlation matrix data reveals a high degree of correlation between the state debt and State Budget revenues (98.1 %), expenditures (96.3 %), GDP (90.1 %), and the balance of payments (47.9 %) (Table 1).

Table 1: Matrix of correlation analysis of the impact of the State Budget of Ukraine on the formation of public debt, 2010-2023

	State debt, UAH million (Y)	Revenues, UAH million (X1)	Expenses, UAH million (X2)	Balance of payments, USD million (X3)	GDP, UAH million (X4)
Public debt, UAH million (Y)	1				
Revenues, UAH million (X1)	0,98127142	1			
Expenditures, UAH mn (X2)	0,96326827	0,988209	1		
Balance of payments, million USD (X3)	0,47936888	0,496604	0,443071	1	
GDP, million UAH (X4)	0,90139269	0,900144	0,835614	0,479369	1

Source: own calculations based on data Consolidated Budget of Ukraine (2011-2023); Balance of payments of Ukraine (1998-2023); Gross domestic product (2002-2022).

Traditionally, governments perform functions involving various levels of budgetary responsibility: intervention, distribution, development, stabilization, regulation, and public service.

The aim of government intervention is to correct market failures and achieve distributional efficiency. The intervention discussed here focuses on the distribution of accrued wealth rather than the efficiency of market functioning. It aims to improve conditions for better economic indicators, including investments in infrastructure and human resources. Governments use fiscal and monetary tools to correct macroeconomic imbalances such as inflation, unemployment, slow growth, and balance of payments issues. The regulatory function involves establishing and overseeing a structure that ensures the proper functioning of market forces and rules to regulate individual behaviour. The public service function involves providing public goods through national budgets.

The EU performs relatively few of these functions, and only some of them have budgetary implications. Currently, EU budget transfers are primarily linked to agricultural and regional policies, resulting in the EU mainly performing distribution and redistribution tasks. Furthermore, a clear development function can be observed. The primary objective of current transfers is redistribution, as funds mainly move from wealthier regions to poorer ones or from consumers and taxpayers to farmers (Omelchuk et al., 2022). However, most policy areas related to redistribution remain unchanged. In addition to regional development transfers, the EU supports development functions through expenditures on research activities, construction of the Trans-European Transport Network, and human resource development via educational programs. As the single market develops, the EU's regulatory function becomes increasingly important. However, this has minimal budgetary implications.

The role of economic stabilization is primarily the responsibility of national governments, except for monetary policy. To achieve a more balanced and dynamic growth of the European economy, it is necessary to improve the effectiveness of the stabilization function. However, member states view it as unrealistic for the EU budget to carry out the stabilization function in the future. Therefore, the revitalization of the slowly growing European economy will require coordination of economic policies among member states, possibly supplemented by a few initiatives at the EU level. Due to the size of the EU budget, it is unsuitable for participating in macroeconomic stabilization.

An effective institutional environment for budget planning has a significant impact on the macroeconomic balance, socio-economic development of the country, and the achievement of

medium-term social goals. The ongoing war in Ukraine presents a significant challenge, including for the financial and budgetary institutional environment.

The budget for the European Union (EU) in 2022 is €45 billion, equivalent to approximately 1 % of the EU's GDP and 2 % of total government spending in the region. Despite its small size in proportional terms, the EU budget undergoes intensive and highly developed parliamentary, political, and auditing processes (Downes et al., 2017).

New financing requirements have emerged recently due to unforeseen crisis events, which were not accounted for during the formation of the long-term EU budget for 2021-2027. The implementation of the EU budget for the same period has faced challenges since the beginning of 2021 due to the pandemic and its consequences. In response, the EU and its member states mobilised a total of 3.7 trillion euros. The EU budget allocated 70 billion euros in direct assistance to help EU citizens and businesses, as well as countries outside the EU, cope with the COVID-19 crisis. In 2022, Russia's aggressive war against Ukraine led to increased financial pressure. To date, the EU and its member states have provided Ukraine with 72 billion euros in financial, military, and humanitarian aid. The war has caused inflationary pressure and reduced the real value of financial resources.

The EU budget for 2021-2027 was initially set at 1.8 trillion euros under the Multiannual Financial Framework (MFF) and the Next Generation EU (NGEU) temporary recovery instrument. However, these financial resources were spent much faster than expected. The funds allocated for unforeseen expenditures, namely special measures, amounting to 10.5 billion euros for the period 2021-2024, were almost entirely depleted. The European Parliament has repeatedly called for a significant and urgent review of the EU budget. This briefing presents the financial situation of the EU for the period 2021-2027 as initially approved and updated in June 2023. It also provides an overview of how two major unforeseen crises have impacted the EU's financial capacity: the crisis in Ukraine, announced by the European Commission on June 20, 2023, and the crisis related to the UK's withdrawal from the EU. Additionally, it contains reference information related to the adoption of the MFF review.

The MFF ceiling for commitments in 2024 is €185,963 million, equivalent to 1.05 % of GNI. The MFF ceiling for payments is €70,543 million, equivalent to 0.96 % of GNI. Council Decision (EU, Euratom) 2020/2053 of December 14, 2020, on the system of own resources (ORD 2020), entered into force on

June 1, 2021, and applies retroactively from January 1, 2021. The maximum size of own resources for payments is limited to 2.0% of the total GNI of all member states. Out of this, 0.60 percentage points is a temporary increase solely intended to cover all obligations arising from the European Union Recovery Instrument. The resulting margin for 2024 between the upper limit of the MFF for payments and the upper limit of own resources for payments is €183,398 million, which is equivalent to 1.04% of GNI.

For the period 2021-2027, there is a significant decrease in the percentage difference between the upper limit of the MFF for payments and the upper limit of own resources for payments in 2022. This is due to the allocation of aid to Ukraine to overcome the consequences of Russian military aggression, as shown in Figure 3.

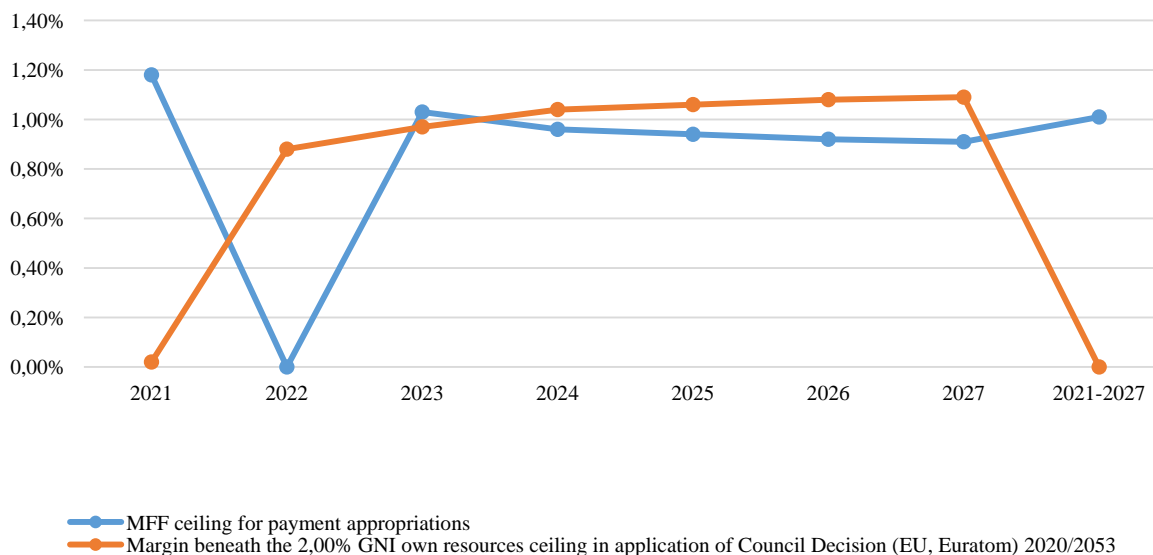


Figure 3: Limit of allocations for payments and own resources of the EU budget, % of GNI

Source: Compiled by the authors based on (An official website of the European Union)

A budgeting mechanism is a set of processes and procedures that determine how the budget is planned, developed, approved, executed, and monitored. An effective budgeting mechanism is a crucial tool in financial management and strategic planning, facilitating goal achievement and efficient resource utilization (Bouckaert & Reeth, 1996; Putra, 2021). Budget development starts with defining the strategic goals of the country or organization. The budget should reflect plans and tasks that will help achieve the stated goals.

To achieve this, the budget control mechanism employs a matrix of indicators for continuous monitoring and analysis of variances between planned and actual results (Sands & Lindars, 2012). Based on the results obtained, conclusions are drawn, and managerial decisions are made regarding budget formation for the next year and adjustments to current activities.

The budget management mechanism is a dynamic process that requires continuous analysis and improvement to ensure efficient resource utilization and goal achievement. It includes a range of processes and tools aimed at effective planning, execution, and control of financial resources within the organization's budget. The main stages of this mechanism include assessing the current state, analysing financial management, and identifying potential improvements.

4 Discussion

To ensure the effectiveness of budgeting and financial management mechanisms, it is necessary to adapt to the dynamics of economic growth and budgetary fund redistribution. This is particularly important in light of the transformation of the economic prerequisites of modern market participants. Scholarly sources (Tampubolon et al., 2024; Ndou & Gumata, 2023) support this approach. E. Ndou and N. Gumata highlight the significance of economic and political uncertainty in the expansion of budget deficits.

Contemporary researchers have shown that budgetary policy plays a crucial role in times of war in the formation and improvement of strategies to ensure Ukraine's economic security (Shein, 2023; Radionov, 2023). Y. Radionov highlights the priority of sustainable development and Euro-integration processes in Ukraine's budgetary policy during times of war and post-war recovery. Meanwhile, scholars (Lobodina et al., 2024) argue that the trends and features of local budget functioning during times of war reflect the necessity of adaptive transformation of the existing budgeting and financial management system.

A. Yeryomenko (2023) highlights the role of local budgets in the financial support system of territorial communities. The scholar argues for optimizing the structural-regional differentiation of the budgeting system within the concept of regional strategic development.

R. Bolgov (2023) investigates the impact of open budgeting on corrupt practices. Simultaneously, scholars stress that the improvement of budgeting and financial management mechanisms should aim to mitigate the consequences of corrupt activities and prevent their recurrence in the future.

Based on academic research, contemporary scholars (Shalashna, 2023) have outlined the key requirements for effective financial and budgetary policies to enhance socio-economic development. According to Shalashna, an effective budgeting concept can stimulate economic growth potential and enhance social processes. The conclusions drawn by scholars are similar to the results of the current research.

Contemporary scholars (Sánchez-Bayón et al., 2023) affirm that the modern process of optimizing the budgeting and financial management system should focus on effectively evaluating expenditure efficiency within the budget. They argue that new approaches to budgetary structuring are necessary, given the dynamic processes of globalization and economic integration.

The findings presented in academic research align with the conclusions of the current study, particularly regarding the need to prioritize the optimization of budgeting mechanisms and managerial systems to intensify their impact on shaping the strategic management paradigm. The conceptual principles identified are prioritised as vectors for optimising the budgetary policy formation system.

However, most academic research today focuses on the theoretical aspects of the phenomenon under study, describing traditional algorithms and approaches to budgeting management. There is a lack of research on practical mechanisms and tools for optimising the budgeting and financial management system.

5 Conclusion

During the research, we analysed the fundamental theoretical principles of the budgetary mechanism formation process, identified the stages and conditions for its implementation, and explored the peculiarities of budgeting in today's economic and social realities. It was identified the essence, algorithms, and main components of the budgeting system mechanism. The discussion included the practical aspects of implementing budgeting methodology as a component of financial management policy. The main factors influencing its effectiveness were determined, and the basic conceptual principles of applying budgeting methodology in the process of effective financial management were established.

The study established that the quality of the budget implementation procedure largely determines the existing parameters and standards of budgeting methodology implementation. Achieving the expected socio-economic effect requires effective control over the budget execution process. One potential challenge and risk of implementing budgeting methodology is the shifting of financial responsibility centres and inconsistency in the algorithm and forms of budget compilation. It is essential to correctly identify responsibility centres and delegate effective management powers to them to achieve positive results from improving budgeting mechanisms.

Therefore, the research supports the need to optimize the organizational mechanism of the current budgetary system to enhance the overall management paradigm of strategic development. This involves providing the process with the necessary key instruments to achieve a positive socio-economic effect.

The proposed directions for improving the budgeting mechanism are an integral component of the innovative paradigm of financial management. Effective implementation of these directions can significantly improve budgetary policy in the context of sustainable development and European integration processes. Practical testing of methods for improving the budgeting and financial management system in the perspective of post-war recovery in Ukraine is necessary for further scientific consideration.

Literature:

- Zharikov, A.: Budget policy in the conditions of economic transformations. *University Economic Bulletin*, 2023. 5–11. <https://doi.org/10.31470/2306-546X-2023-58-5-11>
- Chugunov, I. and Liubchak, I.: Institutional framework for budget planning. *Scientia fructuosa*, 2023. 152, 99–109. [https://doi.org/10.31617/1.2023\(152\)07](https://doi.org/10.31617/1.2023(152)07)
- Kolawole, B.: Budget Deficit and Economic Growth in Nigeria: A Further Assessment. *Futurity Economics&Law*, 2023. 3, 157–172. <https://doi.org/10.57125/FEL.2023.09.25.09>
- Savaşaneril, N.B.: Innovative Approaches to Modeling Economic Dynamics: Taylor Matrix Methods in Solving Budget Constraint Differential Equations, 2024. <https://doi.org/10.52460/src.2024.004>
- Keho, Y.: Budget Deficit and Economic Growth in Cote d'Ivoire: A Search for Threshold. *Journal of Economics and Public Finance*, 2023. 9. <https://doi.org/10.22158/jepf.v9n3p106>
- Tsyhanenko, O., Samus, H. and Medvid, A.: The state budget of Ukraine: Diagnostics in the context of martial law.

Scientific Bulletin of Mukachevo State University Series "Economics", 2023. 10, 58–66. <https://doi.org/10.52566/msu-econ3.2023.58>

- An official website of the European Union (EU) Budget. <https://eur-lex.europa.eu/summary/chapter/06.html>
- Communication from the commission to the european parliament and the council. Technical adjustment of the multiannual financial framework for 2024 in accordance with Article 4 of Council Regulation (EU, Euratom) 2020/2093 laying down the multiannual financial framework for the years 2021 to 2027. <https://eur-lex.europa.eu/>
- Downes, R., Moretti, D. and Nico, S.: Budgeting and performance in the European Union: A review by the OECD in the context of EU budget focused on results, 2017. <https://www.oecd.org/gov/budgeting/budgeting-and-performance-in-the-eu-oecd-review.pdf>
- Balance of payments of Ukraine (1998-2023). Rates, indices, tariffs. <https://index.minfin.com.ua/ua/economy/balance/> (accessed February 10, 2024).
- Gross domestic product (2002-2022). Rates, indices, tariffs. <https://index.minfin.com.ua/ua/economy/gdp/> (accessed February 10, 2024).
- Consolidated Budget of Ukraine (2011-2023). Rates, indices, tariffs. URL: <https://index.minfin.com.ua/ua/finance/budget/cons/>
- Management of the Government Debt of Ukraine During the War and in the Post-War Period — Centre for Economic Strategy. Centre for Economic Strategy — Non-governmental research center on economic policy issues. <https://ces.org.ua/en/managment-of-the-government-debt-of-ukraine-during-the-war-and-in-the-post-war-period/>
- Ukraine Facility: Council agrees on elements of new support mechanism for Ukraine - Ukraine. ReliefWeb. <https://reliefweb.int/report/ukraine/ukraine-facility-council-agrees-elements-new-support-mechanism-ukraine>
- Bouckaert, G. and Van Reeth, W.: Budgeting for efficiency and effectiveness: the case of the flemish government. *Társadalom És Gazdaság Közép- És Kelet-Európában/Society and Economy in Central and Eastern Europe*, 1996. 18(2), 33–48. <http://www.jstor.org/stable/41468275>
- Putra, W.: Effect of budget efficiency on economic growth. *Management and entrepreneurship: trends of development*, 2021. 2(16). <https://doi.org/10.26661/2522-1566/2021-1/16-05>
- Sands, H.R. and Lindars, F.W.: Efficiency in Budget Making. *The Annals of the American Academy of Political and Social Science*, 2012. 41, 138–150. <http://www.jstor.org/stable/1012435>
- Tampubolon, A., Suharianto, J., Sembiring, J. and Manullang, S. The Influence of Economic Growth and General Allocation Funds on the Capital Expenditure Budget in West Sumatra 2007-2020. *AURELIA: Jurnal Penelitian dan Pengabdian Masyarakat Indonesia*, 2024. 3, 479–489. <https://doi.org/10.57235/aurelia.v3i1.1657>
- Ndou, E. and Gumata, N. The Role of Economic and Policy Uncertainty on the Effects of Widening Budget Deficits on Yields and the Credit Default Swap Spreads, 2023. https://doi.org/10.1007/978-3-031-37755-6_19
- Shein, O.: The role of budget policy in ensuring the economic security of Ukraine during the conditions of the state of martial law. *Economic Analysis*, 2023. 33, 156-167. <https://doi.org/10.35774/econa2023.02.156>
- Radionov, Y.: Priorities of budget policy under martial law and post-war recovery of Ukraine. *Finansi Ukraïni*, 2023. 24–47. <https://doi.org/10.33763/finukr2023.09.024>
- Lobodina, Z., Kiveliuk, Y., Chaikivskyi, N. and Mykolaichuk, V.: Trends and peculiarities of local budgets functioning in the conditions of war. *Economics. Finances. Law*, 2024. 1, 16–21. <https://doi.org/10.37634/efp.2024.1.3>
- Yeryomenko, A.: Local budgets in the system of financial security of territorial communities. *University Economic Bulletin*, 2023. 132–137. <https://doi.org/10.31470/2306-546X-2023-57-132-137>
- Bolgov, R.: Open Budget Effect on Corruption in the EAEU Countries. *Eurasian integration: economics, law, politics*, 2023. 17, 43–51. <https://doi.org/10.22394/2073-2929-2023-04-43-51>

25. Shalashna, A.: Financial and budgetary policy as an tool of social and economic development of the country. *University Economic Bulletin*, 2023. 17–23. <https://doi.org/10.31470/2306-546X-2023-58-17-23>
26. Sánchez-Bayón, A., Segovia, F. and Vega, R.: Cost-Efficiency Evaluation into the European Union Budget. *Business and Management Research*, 2023. 12, 48. <https://doi.org/10.5430/bmr.v12n1p48>
27. Omelchuk, O., Ivanashko, O., Sipko, L., Virna, Z., Saienko, V. and Tolchieva, H.: Economic behavior of consumers during instability. *AD ALTA: Journal of Interdisciplinary Research*, 2022. Special Issue 12/02-XXVIII, 89-95.
28. Rates, indices, tariffs (2024). Ministry of Finance. <https://index.minfin.com.ua/ua/>

Primary Paper Section: A

Secondary Paper Section: AH, BC

THE HUMAN RIGHT TO PEACE: THE NEED FOR CONSOLIDATION

^aNATALIIA ONISHCHENKO, ^bMYKHAILO NONIAK,
^cOLEG BOHINICH, ^dNATALIIA KLESHCHENKO

^{a,b,c,d}*Institute of State and Law named after V. M. Koretsky NAS
of Ukraine, Kyiv, Ukraine.*

email: ^anataliyaonishchenko@gmail.com,

^bnonyakmv@gmail.com, ^coboginich@gmail.com,

^dNatalia_n_a@ukr.net

Abstract: The article is devoted to the theoretical justification for enshrining the human right to peace in normative acts. Due to society's threats, international law cannot regulate conflicts that are becoming increasingly large-scale daily. In this regard, the entire architecture of international law, including the international human rights system, requires urgent restructuring. The article aims to substantiate the need to enshrine every individual's right to peace and to determine the possibility of adapting such enshrinement to modern realities and normative transformations. The article describes the right to peace within the system of moral values, intellectual and philosophical appeals, and theories; characterises the right to peace in Ukrainian and international law; analyses court cases to establish the interconnection between the right to peace and human rights; and highlights the legal mechanisms for guaranteeing the right to peace. A list of declarations that enshrine the right to peace is provided. Due to their declarative nature, these declarations cannot implement the provisions enshrined within them. Examples from judicial practice are analysed in the context of national judicial proceedings and the European Court of Human Rights, where violations of the right to peace have been established. It is emphasised that the normative enshrinement of this right at both the international and national levels will contribute to developing the human rights protection mechanism and elevate it to a qualitatively new level. A separate section of the study concerns the legal guarantees for the realisation of the right to peace, and it is highlighted that the actual guarantee of this right primarily depends on political factors within society. The requirements each state should adhere to when determining the content and forms of guarantees in modern conditions are noted.

Keywords: International law, International human rights system, Collective rights, Legal guarantees, Regional conflict, Russian-Ukrainian war, General human rights doctrine.

1 Introduction

In connection with the continuous development of social relations, issues related to the mechanism of protection and the peculiarities of the realisation of human rights and freedoms in the scientific dimension are the most studied. However, regional conflicts, particularly the Russian-Ukrainian war, have revealed gaps in the current human rights system. This concerns the human right to peace, upon which other fundamental rights, including the right to life, depend. Moreover, although this right is enshrined in several international documents, it is essentially purely declarative given today's realities.

The human rights system in its current form was established after World War II. Furthermore, it cannot be said that it did not fulfil its functions or was ineffective during its creation and for some time afterwards. However, the outbreak of regional conflicts and the concerns of world leaders about the possible start of World War III led to the urgent need to restructure the architecture of the existing international law, including the international human rights system (Lacatus, 2024; Kovtunyk et al., 2023).

Indeed, if we refer to the definitive definition, where human rights are interpreted as the opportunities guaranteed by a democratic society for every individual to achieve a decent standard of living, an effective socio-legal system of protection against state arbitrariness, by norms established by international and national standards and procedures (Modern mechanisms for the protection of human rights, 2020), the question arises, the answer to which is obvious: is it possible to ensure them without peace? Only by observing and maintaining peace, both in each state and the world as a whole, will it be possible to improve living standards, gradually develop human rights, and provide more effective protection (Cahill-Ripley, 2016). This is why the human right to peace is in a stage of active development, and its study is highly relevant to the development of the general human rights doctrine.

If we refer to doctrinal sources, the right to peace can be characterised as an international collective right, which is based

on ensuring the prerequisites for the safe, stable, and dignified life of human societies away from the dangers and calamities of wars as well as the consequences and dangers of armed conflicts, in light of the basic requirements stemming from the idea of ensuring the security of human rights, renouncing violence, achieving development, protecting the environment, and other elements that cannot be separated from the right to peace (Byelov & Sukhan, 2023; Korolchuk et al., 2023). The peaceful coexistence of citizens in the state is a prerequisite for developing mechanisms to ensure and protect other human rights and freedoms. It is worth recalling the opinion of Sands (2017), who considered it impossible to justify the killing of millions of people by the principle of state sovereignty.

The article aims to substantiate the necessity of enshrining every individual's right to peace and to determine the possibility of adapting such enshrinement to modern realities and normative transformations.

The authors of this article set the following research tasks, which were resolved during the analysis process: to describe the human right to peace within the system of moral values, intellectual and philosophical appeals, and theories; to characterise the human right to peace in Ukrainian and international law; to describe the declarative enshrinement of the right to peace at the international level in declarations; to analyse court cases to establish the interconnection between the right to peace and human rights; and to highlight the legal mechanisms for guaranteeing the human right to peace.

The problem of war and peace has always been an exciting subject of research for scholars around the world, given the philosophical aspect of the issue. However, in recent years, particularly after the full-scale invasion of the Russian Federation into Ukraine, the issue of peace has moved from a general theoretical dimension to a practical reality. Ukrainian legal doctrine is currently actively engaged in the theoretical development of this issue. Among the researchers in this field, D. Bielova, N. Onishchenko, I. Peresha, S. Suniehina, I. Sukhana, and others should be highlighted.

European researchers emphasise verbalising the human right to peace and its codification in normative legal acts (Parlevliet, 2017; Bell, 2017). Some researchers consider the right to peace fundamental, upon which other rights depend, such as life and health. As scholars Perry et al. (2015) point out, the right to health depends on other rights; therefore, conditions such as life, food, housing, and dignity are necessary to achieve health. However, many of these are destroyed by violent conflict. Thus, to protect these critical human needs and realise the right to health, it is essential to prevent armed conflicts and ensure the human right to peace. Violence has devastating consequences for people's health, affecting both combatants and civilians (Waldman, 2005; Lopatynskyi et al., 2023).

There is a determinism between the right to peace and the right to life. Some international courts consider the right to life as having achieved the status of *jus cogens* in international law (Yamin, 2003). The rights to life, health, and peace are interconnected. According to these principles, Article 1 of the draft Declaration on the Right to Life in Peace states: "Every human being has the right to the promotion, protection, and respect of all human rights and fundamental freedoms, particularly the right to life, in the context of the full realisation of all human rights, peace, and development" (United Nations Human Rights Council, 2014).

Researchers Guzman and Ali (2008) and Kryshstal (2023) rightly point out that peace education should be about freedom of the law. A person needs to learn how to use their freedom peacefully. In Kofi A. report, expanding the concept of freedom leads to freedom from poverty, fear, and dignity (Kofi Annan, 2005). The human rights movement's experience, particularly in

the West, has focused on opposing one-party states in Eastern Europe and military regimes in Latin America (Manikkalingam, 2008).

The scholar Turan (2023) conducted a critical analysis of the Declaration on the Right to Peace, as the liberal and positive elements of peace and the frameworks outlined in the Declaration are insufficient to eliminate horizontal inequality between all relevant identity groups as groups, which is necessary for establishing sustainable peace. The researcher also proposes guidelines for diagnosing and combating inequality between collectives, complementing the individualistic human rights approach.

Richmond (2006) examines the development of liberal peace, identifying its internal components and the tension between them, which is often overlooked. According to this researcher, the main components of liberal peace – democratisation, the rule of law, human rights, free and globalised markets, and neoliberal development are increasingly subject to criticism from various perspectives. This criticism has focused on the incompatibility of certain stages of democratisation and economic reforms, the possible incompatibility of post-conflict justice with stabilising society and human rights, the problem of crime and corruption in economic and political reforms, and the establishment of the rule of law (Richmond, 2006).

According to Rakesh Kumar Singh (2020), the essence of human rights jurisprudence is human dignity, which can only be realised in peaceful times. Peace is necessary for human development, human survival, and human happiness. The right to peace must be enshrined at the global, regional, and national levels. Upadhyaya (2018), speaking metaphorically, notes that an umbilical cord connects human rights and peace, and their interrelationship is an example of a two-way street. There is no peace if human rights are denied, and human rights cannot be realised without peace. The mere absence of armed conflict does not constitute peace if there is no healthy respect for human rights. The combination of peace and security with human rights and development emphasises the critical role of human rights in the UN's approach to peace.

The theoretical justification for the need to enshrine the individual's right to peace and its adaptation to modern normative transformations has so far remained outside the attention of scholars, which determines the relevance of our research.

2 Material and methods

The study material comprised normative legal documents, declarations, and the European Convention on Human Rights.

In the course of the research, the following methods were applied:

- the method of analysis and the method of synthesis – for conducting a critical review of scientific literature and analysing court cases in the practice of the European Court of Human Rights and Ukrainian judiciary;
- the descriptive method – for describing the verbal enshrinement of the human right to peace in various international declarations and the European Convention on Human Rights, in which this right is acknowledged but, due to their declarative nature, these instruments cannot implement the provisions enshrined within them;
- the comparative method – for comparing the legal enshrinement of the human right to peace in Ukrainian and international law;
- the structural-classification method – for distinguishing the components of legal guarantees, the requirements that each state must adhere to under modern conditions when determining the content and forms of legal guarantees;

- the method of generalisation – for formulating the scientific-theoretical conclusions of the research.

3 Results and discussion

The main problem of the human world has always been, and remains, the issue of war and peace. Wars of various scales have been continuously waged since the emergence of human society. The entire history of our civilisation can be quite rightly called the history of wars just in the last century, humanity had to endure two world wars, and local armed conflicts continue to erupt in various parts of the planet. According to sources, from 3500 B.C. until now, humanity on Earth has lived only 292 years without wars, while 15,513 major and minor wars have claimed 3.64 billion human lives (Valiullina, 2017). International law itself received its first division into the law of war and peace from Hugo Grotius. However, as is evident from the previous thesis, the state of war has historically been much more prolonged than the state of peace.

Human rights are typically divided into three generations according to their historical development and institutional formation at the foundation of modern global architecture. According to this classification, the right to peace belongs to the third generation of rights (the rights of communities and groups). Analysing local conflicts, the escalation of which is increasingly alarming global proportions—including the Russian-Ukrainian war – we believe human rights have already surpassed the boundaries of collective rights and require additional enshrinement, particularly the separation of the right to peace for each individual. Such enshrinement is essential at the national (constitutional) and international levels, as it will enable each individual to protect their right by legislative norms. We will attempt to illustrate these dimensions (international and national) in the context of enshrining the individual's right to peace.

It should be noted that the right to peace itself emerged from the realm of intellectual conceptions and philosophical theses, which represent ideas and notions of peace as a legal category and a necessary guarantee and goal that must be respected. Therefore, this right moved from the sphere of moral values, intellectual and philosophical appeals, and theories into the domain of legal protection and normative regulation through the recognition of this right in numerous international charters and statutes of various international organisations, which confirmed the existence of this right and its legal basis, as well as called upon states to respect and preserve it (Al Saadi, 2022).

At the international level, the right to peace has found its enshrinement in documents such as the Declaration on the Promotion Among Youth of the Ideals of Peace, Mutual Respect, and Understanding Between Peoples (1965), the Declaration on the Preparation of Societies for Life in Peace (1978), the Declaration on the Right of Peoples to Peace (1984), the Declaration on the Establishment of Facts by the United Nations in the Field of the Maintenance of International Peace and Security (1991), the Declaration on Strengthening Cooperation Between the United Nations and Regional Organisations in the Maintenance of International Peace and Security (1994), the Declaration and Programme of Action on a Culture of Peace (1999), and the Declaration on the Right to Peace (2016). However, it should be reiterated that such enshrinement is, firstly, collective and, secondly, purely declarative, and, therefore, considering the realities of today, it requires modernisation. This modernisation should primarily encompass responsibility for violating the human right to peace and creating an appropriate mechanism for holding violators (aggressors) accountable for this right. In this context, it is necessary to mention the activities of the International Criminal Court, which operates based on the Rome Statute and deals with war crimes and crimes against humanity. Considering the specifics of its activities, the International Criminal Court may consider cases related to the violation of the right to peace, as when we talk about the violation of this right, in most cases, we are referring to war and armed conflicts.

In protecting the human right to peace, it is appropriate to mention the European Convention on Human Rights, in which the right to peace is not explicitly enshrined. However, when examining certain cases related to effective control over territory and some inter-state complaints, one can conclude that the court recognises that human rights violations may result from violating the right to peace. In order to gain a deeper insight, it is essential to examine several cases to establish the interconnection between the right to peace and human rights. For example, in “Al-Skeini and Others vs the United Kingdom”, the Court recognised a violation of the procedural aspect of the right to life (Article 2). The applicants argued that their relatives, at the time of their deaths in Iraq, were under the jurisdiction of the United Kingdom and that due to the violation of Article 2 of the ECHR, there had been no effective investigation into the circumstances of their deaths. In order to gain an understanding of the international legal aspects of this case, it is essential to note that the coalition for the disarmament of Iraq, in which the United Kingdom participated, was established by United Nations Security Council Resolution 1441 of November 8 2002. Thus, the United Kingdom, whose representatives were in Iraq with the permission of the UN Security Council, is responsible for the violation of the right to life of Iraqi citizens on Iraqi territory. The conflict gained international significance due to violating the human right to peace, which led to violating other human rights.

The opinion of Peresh and Barna (2022) seems essential, as they, analysing the practice of the ECHR, traced a clear trend in the use of Convention tools for protection not directly contained in the Convention itself, including the right to peace. As an example, the scholars cite the Chechen cases. As of March 2009, Russia had been held accountable in 60 cases related to forced disappearances, 22 cases of extrajudicial executions, four cases of indiscriminate attacks, four cases of torture, one case of death due to negligence, and the destruction of property (in some cases for more than one violation). The Court also found that in many cases, the family members of the victims suffered inhumane treatment due to government actions or inaction in response to violations. In each case, the European Court recognised that Russia had not conducted an adequate investigation. Most of these cases concern torture, forced disappearances, and extrajudicial executions, which were used in Russian counteroffensive actions in the North Caucasus.

In considering the characterisation of the human right to peace in the context of Ukraine, it is essential to recognise that such a right is unlikely to be enshrined in law until the war's conclusion. It is also important to emphasise that such enshrinement is not a whim of scholars or individuals but a necessity in light of the challenges faced by Ukrainian society.

Despite the direct absence of such enshrinement in Ukrainian legislation, there are already isolated cases of national court decisions recognising the violation of the human right to peace. For example, on February 28, 2024, the Khmelnytskyi Regional Court ruled in favour of a plaintiff in a civil case for compensation for moral damages caused by the violation of her rights due to the military aggression and occupation of part of Ukraine's territory by the Russian Federation, the violation of her rights to peace, and the lawful, good-faith, and qualified activities of the Ukrainian state authorities concerning good faith (Decision of the Slavutsky City District Court of the Khmelnytskyi Region dated February 28, 2024). A similar decision occurred a few days earlier, on February 20, 2024, where the plaintiff sought compensation for moral damages, explicitly requesting that 1,200,000 UAH be recovered from the Russian Federation for moral damages caused by the violation of his rights due to armed aggression and the occupation of part of Ukraine's territory, as well as 1 UAH from the state of Ukraine for moral damages caused by the violation of his rights to peace and the lawful, good-faith, and qualified activities of the Ukrainian state authorities concerning good faith (Resolution of the Khmelnytskyi Court of Appeal dated February 20, 2024).

As we can see, legal precedents for protecting the human right to peace exist even though this right is not yet enshrined at the Ukrainian or international levels. Courts proceed from the interpretation that the right to peace is the most important legal institution around which all other human rights and freedoms are united. This further demonstrates the need for the direct enshrinement of such a right.

Based on this, we believe that ensuring every individual's right to peace at the international and national levels will “trigger” the overall renewal of the entire human rights system and further development of international law to establish peace as the highest value. The institutional establishment of such a right for each individual will in no way affect the already established right of humanity to peace at the level of declarations, except perhaps to complement it. The right to peace has a collective and individual character, as it is vital to the observance of all human rights. At the national level, such enshrinement can, or more accurately should, become the foundation of post-war legislation. It is important to stress that such enshrinement of the human right to peace will not yield the desired result and will be of little effect without the appropriate legal guarantees for its provision.

Indeed, any human right requires provision. One of the most important human rights guarantees is legal, carried out by the state. The state is the subject of society that has the most effective means for ensuring human rights. The set of legal means (guarantees) to realise, protect, and defend human rights constitutes the legal mechanism for ensuring human rights. In other words, legal guarantees (means) are the foundation of the legal mechanism for ensuring human rights. In order to comprehend the essence of legal safeguards about rights and freedoms, it is imperative to acknowledge that they facilitate the inter-relationship and interconnection between the individual and the state. In these relationships, the state acts as the obligated party, whose legal nature is manifested through the category of responsibility, which can only be legal. Therefore, the object of the legal guarantee mechanism is the realisation of human rights and freedoms and the obligations of the state.

We propose three components of legal guarantees:

1. Institutional guarantees;
2. Procedural guarantees;
3. Material guarantees.

However, it is essential to emphasise that the actual provision of such a right primarily depends on societal and political factors. After all, if every given guarantee were fulfilled, society would be peaceful and safe, our legal system would be fair and provide equal protection, and political processes would serve the people's interests and be transparent and democratic.

The main requirements that each state should adhere to in modern conditions when determining the content and forms of guarantees are as follows:

1. taking measures within the limits of available material and other resources that contribute to the fullest possible realisation of all human rights and freedoms;
2. ensuring the rights and freedoms of the individual without any discrimination;
3. establishing a minimum of restrictions, solely based on law and only to promote the general welfare and order in a democratic society;
4. adhering to fundamental principles and minimum standards in the field of human rights protection and defence;
5. utilising procedures that most effectively “work” towards the realisation of individual rights and freedoms;
6. creating control mechanisms to ensure compliance with the rights and freedoms of individuals;
7. holding governments accountable for implementing agreed-upon and signed international obligations in human rights

and freedoms (Modern mechanisms for protecting human rights: a collective monograph, 2020).

We agree with Hillert's opinion that improving synergy between human rights and peacebuilding institutions in Geneva and New York is crucial for bridging the overall gap between human rights and peacebuilding – both in policy and practice (Hillert, 2024).

It is also essential to consider that there is some tension between the realities and discourse of human rights and the discourse of peacebuilding at the international level. These discourses are expressed in different ways and different contexts. In some situations, it is easier to encourage the observance of human rights through peacebuilding. In contrast, in others, it is easier to do so through human rights discourse (for example, referring to international humanitarian law) (Kantowitz, 2020).

4 Conclusions

Thus, the following conclusions can be drawn:

1. With the Russian Federation's invasion of Ukraine, the issue of securing the right of every individual to peace has become more urgent, as its violation leads to the infringement of all other fundamental rights. The insufficient regulation of this right and the lack of adequate legal guarantees for its observance have resulted in gross violations of international law and, therefore, require revision.
2. The institutional establishment of the right of every individual to peace in both international and national dimensions appears justified for the following reasons: First, in a world where general democratic values are actively developing, peace is, of course, the foundation for all individuals and each person to engage in certain activities; second, the right of an individual to peace, provided there is political will and proper philosophical and legal justification, can be ensured on a global level; third, the enshrinement of such a right will activate a legal mechanism to address violations of an individual's right to peace.

Literature:

1. Al Saadi, W.: Right of peace in international human rights law. *ResearchGate*, 2022. https://www.researchgate.net/publication/362270513_RIGHT_OF_PEACE_IN_INTERNATIONAL_HUMAN_RIGHTS_LAW
2. Bell, C.: Peace Settlements and Human Rights: A Post-Cold War Circular History. *Journal of Human Rights Practice*, 2017, 9(3), 358–378. <https://doi.org/10.1093/jhuman/hux025>
3. Byelov, D. M., & Sukhan, I. S.: The right to peace: modern approaches to legal understanding. *Analytical and comparative jurisprudence*, 2023, 5, 687–691. <https://doi.org/10.24144/2788-6018.2023.05.122>
4. Cahill-Ripley, A.: Reclaiming the Peacebuilding Agenda: Economic and Social Rights as a Legal Framework for Building Positive Peace – A Human Security Plus Approach to Peacebuilding. *Human Rights Law Review*, 2016, 2, 223–246. <https://doi.org/10.1093/hrlr/ngw007>
5. Decision of the Slavutsky City District Court of the Khmelnytsky Region dated February 28, 2024, court case No. 682/3067/23. Unified state register of court decisions. <https://reyestr.court.gov.ua/Review/117322455>
6. Guzman, V., & Ali, F.: Education for a Human Right to Peace from the Perspective of a Philosophy for Making Peace(s). *Cuadernos Constitucionales de la Cátedra Fadrique Furió Ceriol*, 2008, 62/63, 197–201. <https://dialnet.unirioja.es/des/carga/articulo/3684854.pdf>
7. Hillert, L.: Human Rights and Peacebuilding: Bridging the Gap. *Journal of Human Rights Practice*, 2024, 16, 1, 302–324. <https://doi.org/10.1093/jhuman/huad037>
8. Kantowitz, R.: Advancing the Nexus of Human Rights and Peacebuilding. *Development dialogue*, 2020, 2. https://www.dghammarskjold.se/wp-content/uploads/2020/02/dd-paper_no27_hr-peace.pdf

9. Kofi Annan: In Larger Freedom: Towards Development, Security and Human Rights for All. Report of the Secretary-General, A/59/2005, United Nations, New York, 2005. <https://www.un.org/spanish/largerfreedom> (accessed on 01.08.2024).
10. Korolchuk, O., Zyma, I., Khrapatyi, S., Vikhliayev, M., & Zavalko, K.: Current issues of state regulation of psycho-social support in the conditions of war in Ukraine. *Neuropsychiatria i Neuropsychologia*, 2023, 18(1-2), 76–84. <https://doi.org/10.5114/nan.2023.129075>
11. Kovtunyk, I., Ishchenko, Y., Yuvsechko, Y., Tychyna, V., & Datsko, T.: Social Changes that Occurred on the European Continent Due to the War in Ukraine. *Revista de Cercetare si Interventie Sociala*, 2023, 82, 38–49. <https://doi.org/10.33788/rcis.82.3>
12. Kryshal, H. O.: The Role of Logistics in the Development of Agriculture of Ukraine in the War Conditions. *Science and Innovation*, 2023, 19(2), 73–82. <https://doi.org/10.15407/sci-ne19.02.073>
13. Lacatus, C.: Balancing Legalism and Pragmatism: A Qualitative Content Analysis of Human Rights Language in Peace Agreements. *Journal of Human Rights Practice*, 2024, 16(1), 325–341. <https://doi.org/10.1093/jhuman/huad038>
14. Lopatynskyi, Y., Belei, S., Kapelista, I., & Pavlyshyn, M.: The Effectiveness of the Management System in the Conditions of War and its Influence on the Development of Agribusiness. *Review of Economics and Finance*, 2023, 21, 932–940.
15. Manikkalingam, R.: Promoting Peace and Protecting Rights: How are Human Rights Good and Bad for Resolving Conflict? *Essex Human Rights Review*, 2008, 5, 1. <https://www.corteidh.or.cr/tablas/r25828.pdf>
16. Modern mechanisms for the protection of human rights: a collective monograph. Halytska Publishing Union, 2020. <https://lpnu.ua/sites/default/files/2023/6/19/paragraphs/50930/m-onografiyakelmantokarskayarmolcebenko.pdf>
17. Parlevliet, M.: Human Rights and Peacebuilding: Complementary and Contradictory, Complex and Contingent. *Journal of Human Rights Practice*, 2017, 9(3), 333–357. <https://doi.org/10.1093/jhuman/hux032>
18. Peresh, I. Ye., & Barna, O.: The right to peace in the system of human rights. *Analytical and comparative jurisprudence*, 2022, 5, 88–89. <http://journal-app.uzhnu.edu.ua/article/view/270336/265696>
19. Perry, D., Fernández, C., & Puyana, D.: The Right to Life in Peace: An Essential Condition for Realising the Right to Health. *Health and Human Rights*, 2015, 17/1. Published June 11. <https://www.hhrjournal.org/2015/06/the-right-to-life-in-peace-an-essential-condition-for-realizing-the-right-to-health/>
20. Resolution of the Khmelnytskyi Court of Appeal dated February 20, 2024, court case 686/21400/23. Unified state register of court decisions. <https://reyestr.court.gov.ua/Review/117208926>
21. Richmond, O.: The problem of peace: understanding the 'liberal peace'. *Conflict Security and Development Security & Development*, 2006, (3), 291–314. <http://doi.org/10.1080/14678800600933480>
22. Sands, F.: East-West Street. Return to Lviv / trans. from English Pavlo Mihal. Lviv: Stary Lev Publishing House, 2017. 652 p. <https://read-books.club/page-133-1075-shidno-zahidna-vulicija-povernennja-do-lvova-filip-sends.html>
23. Singh, R. K.: Right to peace as a human right. *Uttarakhand Judicial & Legal Review*, 2020, 9(1), 39–47. <https://ujala.uk.gov.in/files/Ch5.pdf>
24. Turan, T.: The 2016 UN General Assembly Declaration on the Right to Peace: A Step Towards Sustainable Positive Peace within Societies? *Human Rights Law Review*, 2023, 23, 2. <https://doi.org/10.1093/hrlr/ngad007>
25. United Nations Human Rights Council. Report of the Open-Ended Intergovernmental Working Group on a Draft United Nations Declaration on the Right to Peace; held June 30–July 4, 2014, UN A/HRC/27/63 (July 4, 2014). <https://document.s.un.org/doc/undoc/gen/g14/186/39/pdf/g1418639.pdf?token=kaIChOIIQesR0wrBfr&fe=true>
26. Upadhyaya, P.: Human Rights for Sustaining Peace: Emerging UN perspectives. *Journal of the National Human*

Rights Commission, India, 2018, 17, 147–163. <https://www.prio.org/publications/11162>

27. Valiullina, Z.: Military theory of K. Clausewitz in theoretical discourse. *Efficient economy*, 2017, 11. <http://www.economy.nayka.com.ua/?op=1&z=5881>

28. Waldman, R.: Public health in war: Pursuing the impossible. *Harvard International Review*, 2005, 27/1, 60–63. https://www.researchgate.net/publication/292626058_Public_health_in_war_Pursuing_the_impossible

29. Yamin, A.: Not just a tragedy: Access to medications as a right under international law. *Boston University International Law Journal*, 2003, 21/2, 325–371. <https://www.bu.edu/law/journals-archive/international/volume21n2/325-372.pdf>

Primary Paper Section: A

Secondary Paper Section: AD, AG

THE STATE AS A FOEDERATIO AND ELEMENTS OF THE INTERNATIONAL LEGAL PERSONALITY OF THE ROMAN EMPIRE DURING THE DOMINATE ERA

^aVIKTOR MELNYK

Taras Shevchenko National University of Kyiv, Kyiv, Ukraine.
 email: "melnyk1996ethnology@gmail.com"

Abstract: The article characterises the interaction between the "lex foedus" as a legal regime of the Roman *ius publicum* (public law) and the state identity of Imperial Rome in the era of dominion. The author's position is that the Roman Empire was de jure a republic by the form of government and a federation by the form of territorial structure. At the same time, the international legal subjectivity of any State is a formal manifestation of its legal identity in the system of international relations through the prism of conclusion, implementation and cancellation of acts of international law. The aim of the study is to characterise the State as a foederatio and to identify the elements of the international legal personality of the Roman Empire in the dominion period. The object of the study is the Roman Empire of the dominion period. The subject of the study is the interaction between the "lex foedus" as a legal regime of the Roman *ius publicum* and the state identity of Imperial Rome in the era of dominion. The article uses the following research methods: description, analysis and synthesis, comparison, generalisation, periodisation, historical and comparative method, and historical and systematic method. The article notes that contrary to the traditional theses of the Germanic legal historiography, foedus agreements between Roman emperors and barbarian tribes did not have the features of interstate agreements. They reflected acts of internal Roman law and regulated relations based on the principle of patronage and client relations. Thus, the Roman People (*Populus Romanus*), through the person of the Roman Emperor, acted as a patronus about the barbarian tribes "federated" by such agreements - *clientes*. This aspect of the federal form of the territorial structure of the Roman Empire became the prototype of modern federal states, where each federation subject enjoys limited sovereignty and sometimes has signs of political independence. At the same time, the Roman Empire was internally differentiated into the Eastern part of the Roman Empire and the Western part of the Roman Empire. This state and legal aspect, called in historiography "divisio regni", was based on the acts of the Emperors Diocletian (286), Valentinian I (364), and Theodosius I (395). This article articulates that all three legal manifestations of the "divisio regni" became the fundamental basis for the Roman Empire's federal worldview of the surrounding political entities constituted in accordance with the "lex foedus" agreements. In other words, the "barbarian kingdoms" of Western Europe in the IV-VI centuries were understood as integral parts of the federal Roman Empire, despite the real signs of their political independence. At the same time, the division of the Eastern and Western parts of the Roman Empire also did not indicate the establishment of legally sovereign state entities. It was only a matter of internal political, administrative, and territorial reform. In the author's opinion, such principles of the federal structure of the Roman Empire are reflected in the body of international legal agreements between Rome and Iran (298, 337, 363, 387, 422). In other words, the Roman Empire positioned itself through these treaties as a patronage metropolis that had the right to dispose of its dependent client entities and a twofold federation of eastern and western provinces. Such legal norms received exceptional ideological and theoretical support from the widespread Christian political and legal concepts.

Keywords: Administrative division, State, Dominion, Foederatio, Lex foedus, Public law, Roman Empire

1 Introduction

In the context of the Diocletian administrative reform, the federalism of the Roman Empire was ensured by the autonomy of the tetrarchs' regions (Waldron, 2022, p. 78). We are talking about prefectures and dioceses, well-known for the administrative practices of Galerius (305-311) and Constantine the Great (306-337). Of course, the system of the "tetrarchy" as a quadruple power of two senior emperors (Augustus) and two junior co-rulers (Caesars) reflected the realities of a soft territorial union under the auspices of the Empire (Cameron, 1993, p. 23).

During 324-337, Constantine the Great restored personal imperial rule, but de jure, the Roman Empire was considered a tetrarchy (Pohlsander, 2004, p. 54). More legal clarity in the relationship between the "prefectures of Praetoria" and "dioceses" as administrative-territorial units was brought by the reform initiated on 28 March 364 by the brothers-emperors Valentinian I (364-375) and Valens II (364-378) (Gibbon, 1932, p. 847). While in the capital of Constantinople, with the participation of the supreme legislature (the Senate), the emperors legally established the "East" and "West" as officially defined areas of their co-rulership (Drijvers, 2015, p. 89). They declared each other "equal" emperors (Melnyk, 2024a, p. 4). The division of the Empire into "East" and "West" was purely administrative. Accordingly, all decisions of the Eastern emperor were valid for the West and vice versa. This system of legal innovations was based on the legislation on the "dummvirate of the West and the East" of the Diocletian period.

Furthermore, the Administrative Edict of 395, published by Theodosius the Great (379-395), was not so much an independent set of norms as a simple confirmation of the reform mentioned above by Valentinian and Valens. It is noteworthy that the first of them (Valentinian) died during the conclusion of a peace treaty with the Quads (Ammianus, 1974, p. 901; Hughes, 2013), and the Visigoths killed the second (Valens) in the battle of Adrianople (Errington, 1996, p. 16). In his turn, Theodosius I stopped the Visigothic uprising (Curran, 1998; Yilmazata, 2018, p. 27) and restored the border limes along the Right Bank of the Danube. However, the realities of administering the Rhineland limes, where the Vandals, Sves and Burgundians appeared, and the constant assaults on the Danube limes by Hun cavalry required the presence of the Roman emperor simultaneously on two sections of the potential front.

At the end of the fourth century, the "federation" could no longer contain the barbarians, who feared total massacres by the Huns (Hughe, L., 2013, p. 21). These barbarians were forced to break through the border with the Roman Empire and invade the provinces. Such a military and political situation required the Roman emperor to be constantly at the epicentre of the expected breakthrough. Thus, the sons of Theodosius Honorius (395-423) and Arcadius (395-408) had to lead the West and East of the Empire to respond quickly to the barbarian invasions. Before publishing the Edict, Theodosius I had briefly been the sole ruler of the entire Empire and was well aware that he could preserve his own political achievements only by dividing the single office of the emperor (the magistracy) in two.

One way or another, the Roman Empire from 364, and not only from 395, was a single state, administratively divided into the Eastern part (*Imperium Romanum Pars Orientale*) and the Western part (*Imperium Romanum Pars Occidentale*) (Drijvers, 2015, p. 85). These "parts" (*partes*) were not considered independent states. The "parts" were "aggregates of provinces" where the emperors could exercise "immediate", i.e. operational military and political administration (Grant, 1998, p. 46). In the end, the norms of 364 and 395 justified themselves, as in 480, Roman statehood was preserved due to the existence of the Eastern part of the Roman Empire (Melnyk, 2024b, p. 90). My author's thesis is that this Eastern Roman Empire, called "Byzantium" by modern historians, assumed legal supremacy over all political entities of the barbarian federation that emerged in the lands of the Western Roman Empire after the breakthrough of the Rhine limes (31 December 406) (Canepa, 2020, p. 23). The de jure "acceptance of the supremacy" of the Byzantine East became possible only because the Empire, even when divided into West and East by the reforms of 364 and 395, was perceived by contemporaries, including philosophers and lawyers, as a single legal entity.

2 Literature review

A number of researchers have considered the interaction between the "lex foedus" as a legal regime of the Roman *ius publicum* (public law) and the state identity of Imperial Rome during the dominion period (Banchich, 2015). Thus, M. Canepa, in his work "The Iranian Expanse: Transforming Royal Identity Through Architecture, Landscape, and the Built Environment", draws attention to the fact that in the pre-Islamic period in the Middle East, local dynasties interacted with cultural and ideological monuments. In this way, they united with local tribes and formed strong ties that allowed them to form their power technologies. The author also draws attention to the essence of royal discourse as a systemic phenomenon (Canepa, 2020, p. 23).

The scientist V. Melnyk, in his work "The Roman Empire and the Legal Status of the Visigoths: The Context of the Lower Danube War of 365-369", draws attention to the fact that

diplomatic relations of the Roman Empire were a vital aspect of the development of statehood in a certain period. Thus, Emperor Valens was not only a supporter of peace treaties but also developed strategies for developing relations between the parties in the future. In addition, the author examines the unique experience of the Roman Empire's relations with the states of Eastern Europe. In building interaction between different parties, it is determined that an important role was given to the analysis of the economic and political situation, which determined the strategies of the participants in the diplomatic process (Melynk, 2024c, p. 1).

Researcher H. Elton, in his work "The Roman Empire in Late Antiquity: A Political and Military History", draws attention to the construction of statehood in the last centuries of the Roman Empire. In his vision, despite the crisis of the Roman Empire in the third century, Christianity flourished due to church councils. In addition, the relationship between the government and the people reached a new level, when debate became possible and the people were given the right to express their opinions. He also draws attention to new administrative division mechanisms that affect the defenders' activities and the prototype of the military police (Elton, 2018, p. 219).

Therefore, the analysis of the above-mentioned scientific works and other literature suggests that this issue has been thoroughly considered and fully reflected in the relevant literature.

The aim of the study is to characterise the State as a *foederatio* and to identify the elements of the international legal personality of the Roman Empire in the *Dominatio* period. The essence of the goal is to establish the main aspects of state-building in the Roman Empire during the *dominatio* period.

3 Research methods

The following research methods were used in the study: description, analysis and synthesis, comparison, generalisation, periodisation, historical and comparative method, and historical and systematic method. The description method considers the peculiarities of the period of domination. The analysis and synthesis method reflects the specifics of the unity of the political and legal totality of the Roman Empire. The comparison method compares the factors of the Roman Empire's subjectivity.

The method of periodisation is used to identify the time periods outlined in the paper. The historical-comparative method reflects the correlation of factors on which the unity of the people of the Roman Empire was based. The historical-systemic method presents a consistent description of events related to the research problem. The method of generalisation summarises the results of the study.

4 Results

From the point of view of theoretical and legal methodology, a particular study of the legal regime of "lex foedus" as the institutional basis of Roman public law federalism provides the basis for the study of instruments and mechanisms for constitutionalising the "Western part of the Roman Empire" and the "Eastern part of the Roman Empire".

Although the legal regime of "lex foedus" was applied by the Roman emperors to the barbarian tribes of Europe, North Africa, the Caucasus and the Middle East, its specificity allows us to conclude the federal form of government in general, as well as about the specifics of governing specific provinces and cities in the context of the division of the Empire into Eastern and Western parts (Bayless, 1972, p. 218).

Thanks to the studies of the legal regime of "lex foedus", it becomes possible to prove the federal nature of the entire Empire, which, in turn, allows us to accept the thesis of the federal content underlying the administrative division of the Empire into Eastern and Western parts (Congar, 1954, p. 13).

Accordingly, in the process of studying the history of the international legal personality of the Roman State, *lex foedus* plays not only a unique role in building a historical chronology and determining the self-identification of the Roman Empire in relations with barbarian tribes (Stickler, 2007, p. 500) but also constitutes the methodological basis for determining the political and legal subjectivity of the "East" and "West". At the same time, it should be recognised that the international legal personality of a state as an institution of international law provides for the full range of rights, obligations and opportunities of this state, relating to both legal (including official political and ideological) self-identification of the state body and expression of such legal identity in the system of international relations - formal diplomatic acts, interstate agreements.

A separate factor for characterising the federal system and the international legal personality based on it is introducing the "Pax Christiana" concept in the legal acts of the Roman Empire. It proves that Christianity helped the state to fulfil its federal functions rather than hindered them (Marcone, 2002, p. 129). The old historiographical thesis that Christianity influenced the "disintegration" of the Roman Empire is still quite widespread among researchers. However, through the process of Christianisation, the public law of the Empire received an ideological impetus to cement the provinces and tribes. At a time when Christianity did not have a legal status, the Roman Empire during the crisis of the third century AD had a much greater chance of collapse than when Christianity became the official religion of the state (after 380). It would have been more challenging to persuade barbarian settlements on imperial territory to be incorporated by the Roman state if it had not been for preaching the unity of the Christian Faith. Thus, it must be acknowledged that Christianity played a constructive rather than destructive role in Rome's political and legal history, ensuring the Roman Empire's long-term existence even after the so-called "Odoacra Revolution" in 476 (Elton, 2018, p. 219). At the end of the fifth century, legal ideology overcame political reality.

The period of dominance began during the reign of Diocletian (284–305) and lasted for the Western Roman provinces until the barbarian "kings" recognised the unified imperial power of the Eastern part of the Roman Empire (during 476–480), is interesting for the history of law for its vivid manifestations of direct interaction between socio-political ideology and acts of public law (Rees, 2004, p. 218).

During this period, the citizens and subjects of the Roman Empire mostly adopted Christianity but maintained their commitment to the ancient idea of "oikoumenism" (Heather, 2013, p. 432). The legal consciousness of the Western and Eastern Romans did not undergo cultural and territorial differentiation, which allowed them to look at the whole world as "their property" or as "their property in perspective" (Grant, 1998, p. 46).

The self-identification of the inhabitants of the Empire as bearers of "God's chosenness" was not intra-group but inter-group. The sociological phenomenon of the "Empire as a commonwealth", which emerged at the dawn of the principate, became part of the behavioural stereotype of the Romans under the dominion. Of course, the dominant innovations were significantly strengthened by Emperor Caracalla's Edict of 212 on granting "Roman city citizenship" to all free residents of the Roman Empire. It not only increased the tax base but also made the population of the provinces and tribal elites so loyal to the very idea of the Empire's existence that they stayed within the common political and legal framework (common borders) even in the critical period of 235 – 270 Homo Léon Pol "Essai sur le règne de l'empereur Aurélien" (Homo, 1904, p. 230).

What kept heterogeneous tribes and remote territories in a single political and legal entity? These forces should be considered a single supreme ruler (emperor), a single faith (Christianity) and a single citizenship (Roman), which were superimposed on the

traditions of the unity of the Mediterranean market – a free platform for trade and economic exchange, as well as information and cultural communication. This is demonstrated in Figure 1: The three pillars of the unified political and legal

system of the Roman Empire. Accordingly, the Roman Empire is still an example of a relatively successful functioning of a federal state.

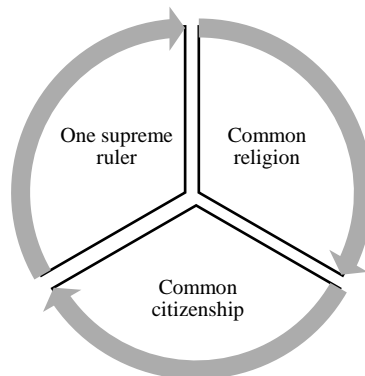


Figure 1. Three Pillars of the Unified Political and Legal System of the Roman Empire

Source: developed by the author

At the same time, speaking about the discourse of the Christian "chosenness" of the Roman Empire, we must not forget that any identity is built on the opposition of "our own – others". Today, studies on this topic are most often found in sociological and especially ethnological literature. Nevertheless, the problem of "friends and foes" remains an essential issue in the sociology of law and the theory of state and law. It relates primarily to the social determination of legal consciousness. It is impossible to deny that the adoption of Christianity and the simultaneous preservation of commitment to "oikoumenism" constitute a social psychology phenomenon.

The opposition of "self" to abstract or concrete "them" is the foundation for any identity. The opposition of a "good" phenomenon to something "evil" already forms an identity. The imperial identity of the Roman Empire, as noted, had a unique dialectical character - the Romans understood their Empire as a one-of-a-kind "ideal" state ("Republic").

The main force for the formation of the Roman Empire's subjectivity as an "opposition" was undoubtedly Iran (Lib. Or., 2017, p. 231). The opposition "us-them" considered the traditions of Alexander the Great's conquest in 332–323 BC and Hellenistic control over West Asia (Chaniotis, 2018, p. 209).

The problem of conquering Iran up to the Indus River was often on the surface of the socio-political struggle within the Empire (Jul. Ep., 2012, p. 211). Iran was a constant military adversary, as well as the leading trade and economic partner in peacetime, a trade intermediary between Rome and the Far East, a competitor of Constantine the Great and other emperors in the matter of "patronage" over the Christian communities of the Middle East (Dignas, 2007, p. 31). It would not be an exaggeration to say that relations with Iran were the primary mechanism for constituting the Roman identity.

The primary sources on the history of the Roman Empire's international legal personality during the period of domination are the treaties with Iran. The terms and clauses of the agreements of 298 (Petrus, P., 2015, p. 185), 363 (Ammianus, 1974, 890), 387 (Williams & Friell, 199, p. 41), 422 (Canepa, 2020, p. 43) (provide space for a comparative study of the titles of Roman emperors and Persian shahs, demonstrate similarities and differences in the ways of legalising and legitimising the form of state government, characterise the peculiarities of the functioning of the federal form of state structure, and show transformations of the ceremonial name of the Roman and Iranian statehoods. Only interstate agreements can provide a legal historian with the necessary solid basis for comparative studies.

The political and legal identity of the Empire in its agreements with Iranian rulers is distinguished by persistent references to historical territorial law. However, the theory of territorial-historical law came to the Mediterranean from Greater Iran, where it flourished during the establishment and consolidation of the Sassanian dynasty (Canepa, 2020, p. 43).

Thus, while Iranian ideas about the legal personality of their state (i.e., their legal identity) are characterised by a strong connection with the dynastic principle and almost complete identification of Iran itself with the family of the ruling Shahinshah, Roman ideas of a similar order are distinguished by an emphasis on the republican foundation and a demonstration of the democratic and electoral principle of imperial power. According to the reconstructions of the agreements, the Roman side's power holder in all cases is the "Roman People", which nominally delegated its powers to the Senate. The emperors acted independently or through intermediaries (legates) but always agreed with the Roman Senate (Ibbetson, 2015, p. 30).

The epoch-making Edict of 311, signed by Emperor Galerius (305–311), outlined the contours of the further Christianisation of the entire Roman Empire. It was this document, and not the Edict of Milan issued two years later by Constantine I and Licinianus Licinius (313), that legalised Christian ecclesias (church communities) in the Roman state (Marcone, 2002, p. 21).

Later, when Constantine the Great realised the ideological and political power of Christianity, the image of Christianitas acquired an institutional and legal nature at the First Ecumenical Church Council in Nicaea (324) (Fernández, 2020, 200). In addition to the emergence of canon law, Emperor Constantine contributed to the relocation of old Rome to a new location. In 324–330, the construction of the New Rome was already underway, solemnly consecrated on 11 May 330. Thus, the city with the unofficial name "Constantinople" appeared (Georgacas, 1947, 355). In the canons that followed the Ecumenical Council of Nicaea, Italian Rome was already mentioned as "Old Rome" (Conciliorum Oecumenicorum decretal, 2002, p. 112). Likely, the primary Roman Senate (the highest legislative body of the Roman Republic) was transferred from Italy to the City of Constantinople, which allows us to assert that New Rome became the official capital of the unified Roman Empire (Skinner, 2008, p. 130). At the same time, Western Roman emperors, after 364, placed their "bets" in different cities (Mediolanus, Augusta Treverorum, Ravenna, Arelatum), only occasionally visiting "Old Rome". By doing so, the Western Roman rulers paid tribute to the only capital of the Empire, which had been located on the Bosphorus Strait since May 330.

Recognition of this fact (the national importance of the capital of the Roman Empire - Constantinople), as an additional aspect of the study of the history of the international legal personality of the Roman Empire, dramatically simplifies the legal reconstruction of the "assumption" by the Eastern part of the Roman Empire of supreme power over the provinces of the Western part of the Roman Empire after the death of the Western Emperor Julius Nepotus (480) (Stein, 1949, p. 45).

Of particular significance was the ceremony of dedication of New Rome (Constantinople) to the Blessed Virgin Mary, which began the capital life of the city on 11 May 330. Among Byzantine scholars, the so-called "Byzantine history" is counted from this date (Lozanova-Stantcheva, 2018, p. 320). Indeed, the transfer of the capital of Constantine the Great from Old Rome (Italian) to New Rome (Bosporus) should be considered a non-trivial event (Eusebius, 1999). However, this move never signalled the foundation of a new state. Rome as a City was now considered the "Second Rome", but the Roman Empire as a Republic was not the "Second Roman Empire". Reasoning about the "decline of the Roman Empire" and its transformation into a kind of "Byzantium" is devoid of political and legal basis and can only be perceived as philosophical and historical interpretations.

After 330, "oikoumenism" received ideological and theoretical support from the theoretical constructions of "Christianitas" (Smith, 2016, p. 12). In one way or another, Christianity officially claimed to be ecumenical, i.e., worldwide. Constantine the Great himself took many steps to ensure its proper formation. His policy was continued by Constantius II, Constantine the Great, Valens II and Theodosius the Great. Subsequently, Christianitas received additional legislative implementations from Theodosius II and Marcian (Odahl, 2004, p. 67).

The Christian faith linked the international legal personality of the Roman Empire with ecclesiological and even Christological doctrines. Among Christian thinkers, the concept of subjectivity was developed purely theologically. They were mainly concerned with the individual's subjectivity, connected with the state, the Church, autonomy or complete independence of the will, and the concept of freedom.

I note that early studies of biblical and apocryphal exegesis introduced the theological discourse of "divine election" into Roman political and legal doctrines (Cook, 2000, p. 76). From there, some conceptual elements of "divine election" penetrated the legal framework of the Empire, borrowed by the emperors in the process of discussing and concluding federal agreements or interstate treaties (primarily peace agreements with Sassanian Iran) (Smith, 2016, p. 122).

In any case, the "chosen people of God" thesis came to Roman rhetoric and jurisprudence from Judeo-Christian theoretical constructions. In this context, the imperial public-legal level of "divinely chosen" rejected the orthodox Jewish perception of "divinely chosen", where only one nation was recognised as worthy "by blood" (Harnack, 1961, p. 34). The principle of the world-historical exclusivity of the Jews was replaced by the principle of the exclusivity of the Roman Empire as a commonwealth of nations. It turned out that "God's chosenness" was open to all groups and individuals who accepted Christianity. Through the prism of the decisions (canons) of the Ecumenical Church Councils and their supplementary Local Synods, every Christian was connected to the church hierarchy of the Roman Empire. Since the Church depended on the imperial power, the Christians themselves, through the Church, depended on the Roman Empire and became its subjects (Congar, 1954, p. 23).

The example of the Roman-Persian confrontation related to Christianity is very revealing. Already in 324, Constantine the Great wrote a letter to the Iranian Shahinshah with a "demand" to stop the "persecution" of Christian ecclesia (Vita Constantini, IV, 9-13, 1999, p. 56). Subsequently, similar "demands" were made by successive emperors, among whom Theodosius the

Legislator is particularly noteworthy (Labourt, 1904, p. 105). Of course, the Roman government perceived such diplomatic appeals as a necessary "rhetorical device". However, from an ideological point of view, the Roman emperors considered themselves the defenders of Christianity on a world-historical scale. "Oikoumenism" and the "Christian World" - important complexes of ideological and political views of late antiquity - merged into a single whole. After the death of Constantine I the Great, none of the Roman rulers, except Julian the Apostate (Ammianus, 1974, p. 78), tried to separate Christianitas from "oikoumenism". The religious and political-ideological order phenomenon was perceived as a result of the imperial divine election of the people subject to Rome.

As a phenomenon that differed significantly from the Jewish discourse of "divine election," the Roman imperial analogue preached the "exclusivity" of every Christian. Only the Sacrament of Baptism could guarantee the salvation of the human soul and repentance of sins (Lookadoo, 2023, p. 23). Joining Christianitas was possible only through the active position of the human will; it could not happen against the will and desire of the individual. Anyone who sincerely and actively accepted the Christian faith could "count" on salvation, provided that they followed the Christian order of life.

After the Thessalonian Edict of Emperor Theodosius the Great (380), it became clear that the only genuinely unifying ideological and theoretical concepts of the Mediterranean would continue to be "Christianity" and "the supremacy of the emperor".

5 Discussion

From a linguistic point of view, both subjects and elites were multilingual - Hellenic-Latin bilingualism was a social norm even for the Italian "core" of the Empire. The moral and ethical components and the norms of customary law also differed depending on the tribe and region and sometimes even differentiated even neighbouring rural settlements. Legally, the cities of Spain and Dacia or the barbarian tribes of Friesland and Crimea were united only by the recognition of the Roman emperor as their supreme ruler. Thus, the political and legal identity of the Roman Empire was based on the authority of the critical institution of the political system. Supplementing this political and legal identity with another joint authority, the Christianitas faith, only strengthened Imperial Rome.

Accordingly, the question arises as to how the Roman Empire, which united many nations, could exist for an extended period and have periods of prosperity. After all, the Roman Empire, which was based on Christianity, also experienced confrontation between representatives of different faiths. In addition, the Roman Empire had periods of crisis, not just prosperity. All this indicates the existence of problematic aspects in the coverage of this issue.

6 Conclusion

Given the review of the context of the functioning of the federal state-territorial structure of the Roman Empire, as well as the ideological attitudes which dominated the educated circles of Roman society of the imperial period, it is clear that the international legal personality of the Roman State covered a relatively wide range of theoretical ideas, concepts and legal norms. In all cases, such ideas, concepts and legal norms must be studied against the background of a comprehensive analysis of socio-political processes. After all, the legal personality of the state itself, reflecting the public interpretation of the state identity, is always a dynamic process. The most striking sign of the dynamism of the socio-political identity and, derived from it, the legally specified legal personality of the Roman Empire was the agreements with barbarians based on the legal regime "lex foedus".

By its very definition, international legal personality is the capacity of an entity to participate in legal relations, which

presupposes that the entity has an identity. At the very least, "subjectivity" already carries the imprint of "identity", as it means that a particular legal entity considers itself "subject" to some "object". The example of the political and legal development of the Roman Empire during the period of domination is obvious: The empire understood itself as subject to barbarian tribes and tribal unions, as well as any political associations not covered by the supreme power of equivalent geopolitical forces. Due to the circumstances, the Roman Empire had to accept the "equivalence" of Iran.

The international legal subjectivity of the Roman Empire during the period of domination was regulated by the discourse of "divine election," but this "divine election" was of an associative nature. The Church Fathers explained the Roman Empire as an "association" of many lands and peoples. Most notably, the Christianisers recognised the cultural differences between the various elements of the Empire. Such differences constituted Rome's civilisational advantage, allowing for better and faster adaptation of Christian doctrines for preaching in a non-Roman political environment.

The synthesis of the idea of the Oikoumena with Christianitas emphasised the federal form of the state territorial structure of Imperial Rome. The prism of Christian teachings helps to assess the degree of "softness" of the Roman federation, where individual cities, colonies, provinces, dependent "kingdoms", and barbarian tribal "polities" had original cultural archetypes and symbolic and ethical features. Initially, even the confession of the Christian faith in different regions and liminal zones of the Empire was original. Only the practice of the Ecumenical Church Councils was able to unify the doctrine to some extent, although it could not overcome the regional and tribal differences in the interpretation of the same theoretical postulates, traditional for the federal system.

Literature:

1. Ammianus, M.: *Das römische Weltreich vor dem Untergang. Sämtliche erhaltene Bücher. Übersetzt von Otto Veh. Eingeleitet und erläutert von Gerhard Wirth.* Zürich und München: Artemis, Die Bibliothek der Alten Welt, 1974. 1950 p. (in German).
2. Banchich, T.: *The Lost History of Peter the Patrician: An Account of Rome's Imperial Past from the Age of Justinian.* London-New York: Routledge, 2015. 185 p. <https://doi.org/10.4324/9781315714585> (in English).
3. Bayless, W.: *The political unity of the Roman Empire during the desintegration of the West.* A. D. PhD thesis Brown University. (395–457). Providence, 1972. 218 p. (in English).
4. Cameron, A.: *The Later Roman Empire (AD 284–430).* Cambridge, MA: Harvard University Press, 1993. 328 p. (in English).
5. Canepa, M.: *The Iranian Expanse: Transforming Royal Identity Through Architecture, Landscape, and the Built Environment, 550 BCE – 642 CE.* Oakland: University of California Press, 2020. 512 p. <https://doi.org/10.1515/9780520964365> (in English).
6. Chaniotis, A.: *Age of Conquests: The Greek World from Alexander to Hadrian.* London and Cambridge MA: Harvard University Press, 2018. 446 p. <https://doi.org/10.4159/9780674982406> (in English).
7. *Conciliorum Oecumenicorum decretal. Edizione bilingue.* A cura di Giuseppe Alberigo, Giuseppe L. Dossetti, Perikles-P. Joannou, Claudio Leonardi, Paolo Prodi, Hubert Jedin. Bologna: Edizioni Dehoniane, Istituto per le scienze religiose, 2002). 1135 p. (in English).
8. Congar, Y.: *Neuf cents ans après: notes sur le "Schisme oriental".* Chevetogne: Éditions de Chevetogne, Monastère de l'Exaltation de la Sainte Croix, 1954. 95 p. (in French).
9. Cook, J.: *The Interpretation of the New Testament in Greco-Roman Paganism.* Tübingen: Mohr Siebeck, 2000. 385 p. (in English).
10. Curran, J.: *From Jovian to Theodosius. The Cambridge Ancient History: The Late Empire. A.D. (pp. 337–425).* Cambridge University Press, 1998, 13, 78–110. <https://doi.org/10.1017/CHOL9780521302005.004> (in English).
11. Dignas, B., & Winter, E.: *Rome and Persia in Late Antiquity. Neighbours and Rivals.* Cambridge-New York: Cambridge University Press, 2007. 347 p. <https://doi.org/10.1017/CBO9780511619182> (in English).
12. Drijvers, J.: Chapter 5: *The divisio regni of 364: The End of Unity? // East and West in the Roman Empire of the Fourth Century. An End to Unity? / Radboud Studies in Humanities.* (pp. 82–97). Leiden: Brill, 2015. https://doi.org/10.1163/9789004291935_007 (in English).
13. Elton, H.: *The Roman Empire in Late Antiquity: A Political and Military History.* Cambridge: Cambridge University Press, 2018. 378 p. <https://doi.org/10.1017/9781139030236> (in English).
14. *Emperor and Author: The Writings of Julian the Apostate.* Edited by Nicholas Baker-Brian and Shaun Tougher. Swansea: Classical Press of Wales, 2012, 384 p. (in English).
15. Errington, M.: *Theodosius and the Goths. Chiron*, 1996, 26, 1–27 (in English).
16. Eusebius. *The Life of Constantine.* Introduction, translation, and commentary by Averil Cameron and Stuart G. HallCameron. New York: Oxford University Press, 1999. 395 p. (in English).
17. Fernández, S.: *Who Convened the First Council of Nicaea: Constantine or Ossius? The Journal of Theological Studies*, 2020, 71, 196–211. <https://doi.org/10.1093/jts/flaa036> (in English).
18. Georgacas, D.: *The Names of Constantinople. Transactions and Proceedings of the American Philological Association*, 1947, 78, 347–367. <https://doi.org/10.2307/283503> (in English).
19. Gibbon, E.: *The History of the Decline and Fall of the Roman Empire.* New York: The Modern Library, 1932, 1, 2537 pp. (in English).
20. Grant, M.: *From Rome to Byzantium: The Fifth Century AD.* London and New York: Routledge, 1998. 203 p. (in English).
21. Harnack, A.: *History of Dogma. Volume 1.* New York: Dover Publications, 1961. 362 pp. (in English).
22. Heather, P.: *The Restoration of Rome: Barbarian Popes and Imperial Pretenders.* London: Macmillan, 2013, XVIII+470 pp.+XVI ill (in English).
23. Homo, L.: *Essai sur le règne de l'empereur Aurélien (270–275). These for le doctorat. Presentee a la Faculte des lettres de L'Universite de Paris.* Paris: Ancienne Librairie Thorin et Fils, 1904. 390 p. (in French).
24. Hughes, I.: *Imperial Brothers. Valentinian, Valens and the Disaster at Adrianople.* Barnsley: Pen & Sword, 2013. 282 pp. (in English).
25. Ibbetson, D.: *Sources of Law from the Republic to the Dominate. The Cambridge Companion to Roman Law.* Edited by David Johnston. (pp. 25–44). New York: Cambridge University Press, 2015. <https://doi.org/10.1017/CCO9781139034401.005> (in English).
26. Labourt, J.: *Le Christianisme Dans l'Empire Perse Sous La Dynastie Sassanide (224-632).* Paris: V. Lecoffre, 1904. 358 p. (in French).
27. Lookadoo, J.: *The Christology of Ignatius of Antioch.* Eugene, Oregon: Wipf & Stock Publishers, 2023. XVIII+230 pp. (in English).
28. Lozanova-Stantcheva, V.: *The Inauguration of Constantinople: Inscenization of the Past. Balkanistic Forum*, 2018, 1, 315–324 (in English).
29. Marcone, A.: *Pagano e cristiano. Vita e mito di Costantino.* Bari: GLF editori Laterza, 2002. 228 p. (in Italian).
30. Melnyk, V.: *The VI Century Eastern Roman Empire: Steppe Allies, Western Turks, and the Herat War. Amazonia Investiga*, 2024a, 13, 89–105. <https://doi.org/10.34069/AI/2024.75.03.8> (in English).
31. Melnyk, V.: *The Creation of the Eastern and Western "Parts" of the Roman Empire in 364 AD: Theoretical Basis and Consequences of Valentinian and Valens Imperial Diarchy. Juris Europensis Scientia*, 2024b, 1, 3–10. <https://doi.org/10.32782/chem.v1.2024.1> (in English).
32. Melnyk, V.: *The Roman Empire and the legal status of the Visigoths: the context of the lower Danube War of 365–369. Multidisciplinary Reviews*, 2024c, 7, 1–2. <https://doi.org/10.31893/multirev.2024spe015> (in English).

33. Odahl, C.: *Constantine and the Christian Empire*. New York: Routledge, 2004. XVIII+400 p. <https://doi.org/10.4324/9780203449950> (in English).
34. Pohlsander, H.: *The Emperor Constantine*. London & New York: Routledge, 2004. 144 p. <https://doi.org/10.4324/9780203622582> (in English).
35. Rees, R.: *Diocletian and the Tetrarchy*. Edinburgh: Edinburgh University Press, 2004. XVI+219 p. <https://doi.org/10.1515/9781474471909> (in English).
36. Skinner, A.: The early development of the senate of Constantinople. *Byzantine and Modern Greek Studies*, 2008, 32, 128–148. <https://doi.org/10.1179/174962508X322641> (in English).
37. Smith, K.: *Constantine and the Captive Christians of Persia: Martyrdom and Religious Identity in Late Antiquity*. Berkeley: University of California Press, 2016. XXII+232 p. <https://doi.org/10.1525/california/9780520289604.001.0001> (in English).
38. Stein, E.: *Histoire du Bas-Empire*. Tome II, De la Disparition de L'empire D'occident a la Mort de Justinien (476–565). Bruges: Desclée De Brouwer, 1949. XXXIV+900 p. (in French).
39. Stickler, T.: *The Foederati*. The Blackwell Companion to the Roman Army. Ed. by Paul Erdkamp. (pp. 495–514). Oxford: Blackwell, 2007. (in English).
40. Waldron, B.: *Dynastic Politics in the Age of Diocletian (AD 284–311)*. Edinburgh: Edinburgh University Press, 2022. XXII+274 p. <https://doi.org/10.3366/edinburgh/9781474498654.001.0001> (in English).
41. Williams, S., & Friell, G.: *Theodosius: The Empire at Bay*. London: Batsford, 1994. XXIII+238 p. (in English).
42. Yilmazata, M.: Notes on the Res Gestae and Historiographical Views towards the Battle of Adrianople (378 A.D.). *Journal of Ancient History and Archaeology*, 2018, 5, 24–34. <https://doi.org/10.14795/j.v5i3.337> (in English).

Primary Paper Section: A**Secondary Paper Section: AB, AD**

THEORETICAL ASPECTS OF FAMILY RIGHTS AND RESPONSIBILITIES

^aVOLODYMYR VATRAS, ^bOLEG OKSANIUK,
^cDENYS SYDORENKO, ^dSERHII SABLUK,
^eSVITLANA YAKYMCHUK

^{a,e}*Leonid Yuzkov Khmelnytskyi University of Management and Law, Khmelnytskyi, Ukraine.*

^b*Advocate, Khmelnytskyi, Ukraine.*

^c*Kommersant Ukraine LLC, Kyiv, Ukraine.*

^d*Vinnytskyi Citi Court of Vinnytsia Oblast, Vinnytsia, Ukraine.*

email: ^avatrasv@gmail.com, ^bOlegoleg028@gmail.com,

^cdenys.sydoenko@proton.me, ^dSablukserg@icloud.com

^es_yakymchuk@univer.km.ua

Abstract: The relevance of the research topic is due to the need to improve the legal regulation of family relations in the context of globalisation and modern social changes. Issues such as the imbalance of rights and duties between spouses, the informational responsibilities of parents, and the effectiveness of mechanisms for collecting alimony require a comprehensive approach and the implementation of international standards into national legislation. The study aims to analyse issues of doctrinal family rights and duties and identify current trends and problems in this area. The research methodology is based on a theoretical analysis of legislative acts, judicial practice, and scientific publications using analysis, synthesis, comparative legal, and historical legal approaches. The results show that the imbalance of rights and duties between spouses is a significant problem that requires legal regulation to ensure equality. The study of the informational duties of parents highlights the need for explicit legal norms to protect children's rights. The effectiveness of alimony collection mechanisms requires the development of stricter measures to ensure compliance with alimony obligations. The influence of international law on national legislation promotes the harmonisation of legal systems and strengthens the family institution. Adapting legislation to modern challenges, such as globalisation and the increase in international marriages, effectively addresses issues arising and protects all participants' interests in family relations. The practical significance of the results lies in proposing directions for improving the legal regulation of family rights and duties, contributing to creating a fairer and more effective legal system that meets modern challenges and international standards.

Keywords: Family law, Rights and duties of spouses, Parental informational duties, Alimony obligations, International standards, Legal regulation, Globalisation, International marriages, Legislative adaptation

1 Introduction

Family law is one of the critical branches regulating relationships between family members. In the context of the modern legal system, issues of doctrinal family rights and duties acquire particular significance. This is because a clear understanding and regulation of the rights and duties of participants in family relationships contribute to their harmonious development and prevent conflict situations. The study's relevance is due to the need to adapt national legislation to changing social realities and international standards. In recent decades, there has been a trend towards more detailed regulation of family rights and duties, which requires a systematic approach to their classification. An analysis of recent research and publications shows that despite many works dedicated to various aspects of family law, the problems of classifying family rights and duties require further in-depth study. This is necessary to ensure more effective legal regulation and protection of the interests of all participants in family relations.

The problem of classifying family rights and duties occupies a central place in modern jurisprudence. In the context of globalisation and changing social realities, traditional approaches to the legal regulation of family relations must be reviewed and updated (Serdechna, 2023). Modern society demands a more flexible and adaptive system of rights and duties that can consider national and international standards (Borisova & Krasyska, 2020). One of the main problems is the imbalance of rights and duties between spouses. This can lead to inequality and conflicts in the family, which negatively affects the stability of marital relations (Apriana & Silvia, 2022). The issues of equality and fairness in the distribution of family duties are vital to ensuring the harmonious development of the family (Güler, 2017). In addition, modern research indicates the need for more detailed regulation of the rights and duties of parents and children (Saliuk, 2022). For example, Tykhomyrov et al. (2023) emphasise the importance of parental informational duties related to providing adequate information and supporting the

development of children. The lack of explicit legal norms in this area can lead to violations of children's rights and a deterioration in their well-being (Jackson, 2021).

Ensuring the fulfilment of family obligations, particularly alimony, is also a significant problem. The insufficient effectiveness of alimony collection mechanisms often leads to children's rights violations and financial insecurity (Pilipson, 2022; Popovych, 2021; Buda & Dhuli, 2024).

The development of stricter measures to ensure the fulfilment of alimony obligations is necessary to protect children's interests (Hammer & Reig, 2022; Oksaniuk, 2024). Modern challenges, such as increased international marriages and migration processes, require harmonising national laws with international standards. In this context, international treaties and conventions play an essential role in forming legal norms to protect the rights of families and children. Thus, the issue lies in the need to review and improve the legal regulation of family rights and duties, considering modern challenges and international standards. Addressing these issues will create a fairer and more effective system for protecting the interests of all participants in family relations.

This article aims to study doctrinal issues of family rights and duties and identify current trends and problems related to the legal regulation of family relations in Ukraine and other countries.

Objectives:

1. To analyse existing doctrinal approaches to classifying family rights and duties.
2. To review legislative acts and regulatory documents regulating family rights and duties in Ukraine and abroad.
3. To identify the main problems and contradictions in the legal regulation of family relations based on an analysis of judicial practice and scientific publications.
4. To determine directions for improving the legal regulation of family rights and duties in the context of modern challenges and societal changes.
5. To formulate recommendations for improving the legal practice in protecting family rights and duties.

2 Literature review

The problem of the imbalance of rights and duties between spouses remains one of the most relevant in modern family law theory. Research shows that an uneven distribution of family duties can lead to conflicts and violations of the rights of one spouse, so it is essential to ensure equality and fairness in the distribution of duties within the family. An analysis of the literature shows that the imbalance of rights and duties between spouses is a significant problem that needs attention. An equal distribution of duties contributes to the harmonious development of family relationships and reduces conflicts (Apriana & Silvia, 2022; Jackson, 2021; Ikbal, 2023; Buda & Dhuli, 2024; Lavrysen, 2014). Modern studies confirm the need for legal regulation to ensure equality.

Parental informational duties are essential in developing and protecting children's rights. Parents must provide children with information that contributing to their comprehensive growth and development. This area's lack of explicit legal norms can negatively impact children's well-being. Studies indicate that parental informational duties are an essential aspect of the legal regulation of family relations (Tykhomyrov et al., 2023; Jackson, 2021; Broderick, 2019; Ikbal, 2023; Munaretto, 2024). Adequate information provided by parents contributes to developing and protecting children's rights. Various studies confirm the need for precise regulation of these duties.

The effectiveness of mechanisms for collecting alimony is a crucial aspect in ensuring children's rights to decent support. Ineffective mechanisms often lead to children's financial insecurity. The importance of developing stricter measures to ensure compliance with alimony obligations is evident (Buda & Dhuli, 2024; Borisova & Krasyska, 2020; Nasirov, 2018; Plushko, 2023; Oksaniuk, 2024). Deficiencies in this area lead to children's financial insecurity. Developing and implementing strict measures to ensure compliance with alimony obligations are necessary to improve the situation.

Alimony is a monthly payment for the maintenance of a child who lives separately (most often with the mother) from one of the parents. According to Article 180 of the Family Code of Ukraine (2002), alimony must be paid until the child reaches adulthood and throughout their higher education. The amount of alimony can be determined by court order and constitute one-quarter of one parent's primary income or be defined explicitly in a fixed monetary amount. The Law of Ukraine "On the State Budget of Ukraine for 2024" sets the subsistence minimum norms for children under six years at 2563 UAH/month and children aged 6 to 18 years at 3196 UAH/month. From the beginning of 2024, the guaranteed alimony amount is 1281.5 UAH/month for children under six years and 1598 UAH/month for children aged 6 to 18. The maximum alimony amount should not exceed 25,630 UAH/month for children under six years and 31,960 UAH/month for children aged 6 to 18 years, i.e., within the limits of 10 subsistence minimums (Government Portal, 2024).

International law and standards play a vital role in the formation and development of national legislation in the field of family relations. International treaties and conventions aim to protect the rights of children and families, ensuring the harmonisation of legal systems in different countries. The importance of integrating international norms into national legislation is undeniable (Council of Europe, 2011). International law significantly influences the formation of national legislation in family relations. The integration of international norms helps protect the rights of children and families, harmonise legal systems, and strengthen the family institution. Implementing international standards helps create a fairer and more effective legal system.

Modern challenges, such as globalisation and increased international marriages, require adapting national legislation. Global changes in society necessitate a review of legal norms and their adaptation to new conditions. It is essential to ensure legal support for addressing emerging issues (Munaretto, 2024; Sarikaya, 2017; Song, 2019; Linik, 2022; Vatrás, 2024; Vatrás et al., 2024; Zaytsev & Pavshuk, 2024).

During wartime in Ukraine, the "marriage in one-day" service has become available to facilitate marriages with foreigners. Marriage certificates can be obtained within one day, especially if the bride or groom is a member of the Armed Forces of Ukraine. According to Article 51 of the Constitution, marriage is based on the voluntary consent of the spouses, and each spouse has equal rights and duties in the family. Article 26 of the Constitution of Ukraine states that foreigners or stateless persons residing in the state's territory have the same rights and freedoms as citizens of Ukraine (Constitution of Ukraine, 2006).

Adapting legislation to modern challenges is essential for legal support in new conditions. Globalisation and the increase in international marriages require a review of legal norms. Adapting the legal system will allow for effective addressing of emerging issues and ensure the protection of the interests of all participants in family relations.

3 Research methods

The main methods used in the research were:

1. **Analysis:** This method studies legislative acts, regulatory documents, judicial practice, and scientific publications related to the legal regulation of family relations. It also

allows for identifying key trends and problems in classifying family rights and duties.

2. **Synthesis:** The synthesis method is applied to generalise the analysis results of various sources and form a holistic view of doctrinal approaches to classifying family rights and duties. This method allows for integrating data from different sources and comprehensively understanding the researched problem.
3. **Comparative legal method:** This method compares the legal regulation of family rights and duties in different countries. Comparative legal analysis allows for the identification of both general trends and specific features of national legislation and the determination of the impact of international standards on national law.
4. **Historical legal method:** This method is used to study the evolution of legal regulation of family relations and the classification of family rights and duties. Historical legal analysis allows for tracing the development of legal institutions and identifying patterns and trends that influence the current state of family law.
5. **Doctrinal analysis:** This method is used to study scientific works and publications dedicated to the theoretical aspects of family law. Doctrinal analysis allows identifying the main scientific approaches and concepts that underlie the classification of family rights and duties.
6. **Classification method:** This method systematises family rights and duties based on various criteria and approaches. It allows for creating a structure that reflects the diversity and variety of legal norms regulating family relations.

Using these research methods allows for a comprehensive understanding of the classification of family rights and duties, identifying key trends and problems in this field, and proposing directions for improving the legal regulation of family relations.

4 Results

Classifying family rights and duties is one of the critical tasks of family law. Scholars and practitioners have developed various approaches to this problem for decades, striving to find the most effective methods for regulating family relations. It is necessary to consider the main approaches.

Doctrine of Positive Obligations: Güler (2017), in his article, examines the doctrine of positive obligations of the European Court of Human Rights, which emphasises the state's duties to protect family rights. This includes ensuring the right to family life and protecting children and vulnerable family members (Berkes, 2021).

Doctrine of Imbalance of Rights and Duties: Apriana and Silvia (2022) explore the imbalance of rights and duties between spouses in the family, highlighting the need for equality and fair distribution of duties. Their research emphasises the importance of harmonious role distribution in the family to ensure marital stability.

Informational Duties of Individuals: Tykhomyrov et al. (2023) consider the prospects for interpreting the informational duties of individuals, emphasising their significance in the context of family relations. An important aspect is the duty of parents to provide adequate information to children and ensure their development.

Obligations to Support Family Rights: Havrik studies methods for protecting family rights and children's interests by law enforcement agencies and organisations (Havrik, 2024). His work stresses the need to develop effective mechanisms for protecting and supporting family rights.

Thus, the analysis of existing doctrinal approaches to classifying family rights and duties shows the diversity of views and approaches to this problem. It is essential to recognise that rights and duties in the family should be balanced and fair, ensuring the harmonious development of family relations. Considering modern challenges and societal changes, continuing research in

this area and improving the legal regulation of family relations is necessary.

The regulation of family rights and duties in different countries is based on national legislative acts and international normative

documents. Table 1 presents vital legislative acts and documents regulating family rights and duties in Ukraine and some foreign countries.

Table 1. Laws and regulations in Ukraine and some foreign countries

Country	Laws and regulations	Brief description
Ukraine	Family Code of Ukraine (2002)	The main legislative act regulating family rights and duties in Ukraine.
	Law of Ukraine "On the Protection of the Rights of the Child" (2001)	Regulates the rights and duties of children and parents.
	Law of Ukraine "On Alimony" (Borisova & Krasyska, 2020)	Defines the procedure and conditions for providing alimony.
Germany	Bürgerliches Gesetzbuch (Civil Code)	Contains sections regulating family rights and duties, including marriage and guardianship.
	Kinder- und Jugendhilfegesetz (1990)	Regulates children's rights and parents' duties, and provides state assistance to families.
USA	Family Law Act (1970)	Includes provisions regulating marriage, guardianship, and alimony processes.
	Child Abuse Prevention and Treatment Act (1974)	Defines measures for protecting children from violence and the state's duties.
United Kingdom	Matrimonial Causes Act (1973)	Defines the conditions for divorce processes and the distribution of duties between spouses.
	Children Act (1989)	Regulates children's rights and parents' duties, including guardianship and adoption.
France	Code Civil (1804)	Includes provisions on family rights and duties, marriage, and divorce.
	Loi relative à la protection de l'enfance (2015)	Regulates the rights of children and the duties of parents, as well as state support for families.
International law	Convention on the Elimination of All Forms of Discrimination Against Women (UN Women, 1979)	Convention on the Elimination of All Forms of Discrimination Against Women.
	Convention on the Rights of the Child (UNICEF, 1989)	Convention on the Rights of the Child.
	Hague Convention on the Civil Aspects of International Child Abduction (Hague Conference on Private International Law, 1980)	Hague Convention on the Civil Aspects of International Child Abduction.
	Hague Convention on Jurisdiction, Applicable Law, Recognition, Enforcement and Cooperation in Respect of Parental Responsibility and Measures for the Protection of Children (Hague Conference on Private International Law, 1996)	Hague Convention on Jurisdiction, Applicable Law, Recognition, Enforcement, and Cooperation in Respect of Parental Responsibility and Measures for the Protection of Children.
	Istanbul Convention on Preventing and Combating Violence Against Women and Domestic Violence (Council of Europe, 2011)	Istanbul Convention on Preventing and Combating Violence Against Women and Domestic Violence.

Source compiled by the author based on: Borisova & Krasyska (2020), UN Women (1979), UNICEF (1989), Hague Conference on Private International Law (1980, 1996), Council of Europe (2011), Family Code of Ukraine (2002), Law of Ukraine "On Protection of Childhood" (2001), Family Law Act (1970), Child Abuse Prevention and Treatment Act (1974), Kinder- und Jugendhilfegesetz (1990), Matrimonial Causes Act (1973), Children Act (1989), Code Civil (1804), Loi relative à la protection de l'enfance (2015).

Legislative acts and regulatory documents that govern family rights and duties vary by country. In Ukraine, the key ones are the Family Code and laws protecting children's rights and alimony. In other countries, such as Germany, the USA, the UK, and France, comprehensive legislative acts regulate family relations, children's rights, and parents' duties. The general trend is to ensure children's rights and the fair distribution of duties among family members.

Family law is a complex and multifaceted area often encountering various problems and contradictions. Analysing judicial practice and scientific publications allows for identifying key issues that arise in this field. It is crucial to consider the main problems and contradictions in the legal regulation of family relations based on the analysis of judicial practice and scientific publications (Figure 1).

The analysis of modern judicial practice and scientific publications shows that family relations regulation faces several serious problems and contradictions. Efforts are needed to improve legal regulation, protect children's rights, ensure equality between spouses, and effectively enforce court decisions. International cooperation and harmonisation of legislation can also help solve many of these problems.

Challenges and changes in society require reviewing and improving the legal regulation of family rights and duties. This includes adapting legislation to new social realities, strengthening legal protection for vulnerable groups, and improving the effectiveness of law enforcement practices. The main focus should be protecting children's rights, especially in divorce and separate parental residence. It is necessary to develop stricter measures to enforce decisions on the child's residence and the order of communication with the parent who does not live with the child. It is also essential to strengthen support for children experiencing parental divorce through psychological and social assistance.

It is essential to ensure equal rights and duties between spouses, allowing each spouse to spend quality time with the child without restricting communication. To achieve this, legislative norms should be reviewed regarding the distribution of duties for child care and household management. It is also necessary to strengthen the protection of women's rights in cases of domestic violence and discrimination in family relations. More effective mechanisms for alimony collection need to be developed. This may include creating a unified database of alimony defaulters, automating the collection process, and increasing the responsibility for non-compliance with alimony obligations. In

the context of globalisation and the increase in international marriages, it is essential to harmonise national legislation with international standards. This includes recognising and enforcing foreign court decisions in family matters and cooperation between states on child and family rights protection. Ensuring the effective and timely enforcement of court decisions in family matters is necessary to increase trust in the legal system. This

includes the establishment of specialised family courts, training judges and law enforcement officials on family law issues, and strengthening the control over the enforcement of court decisions.

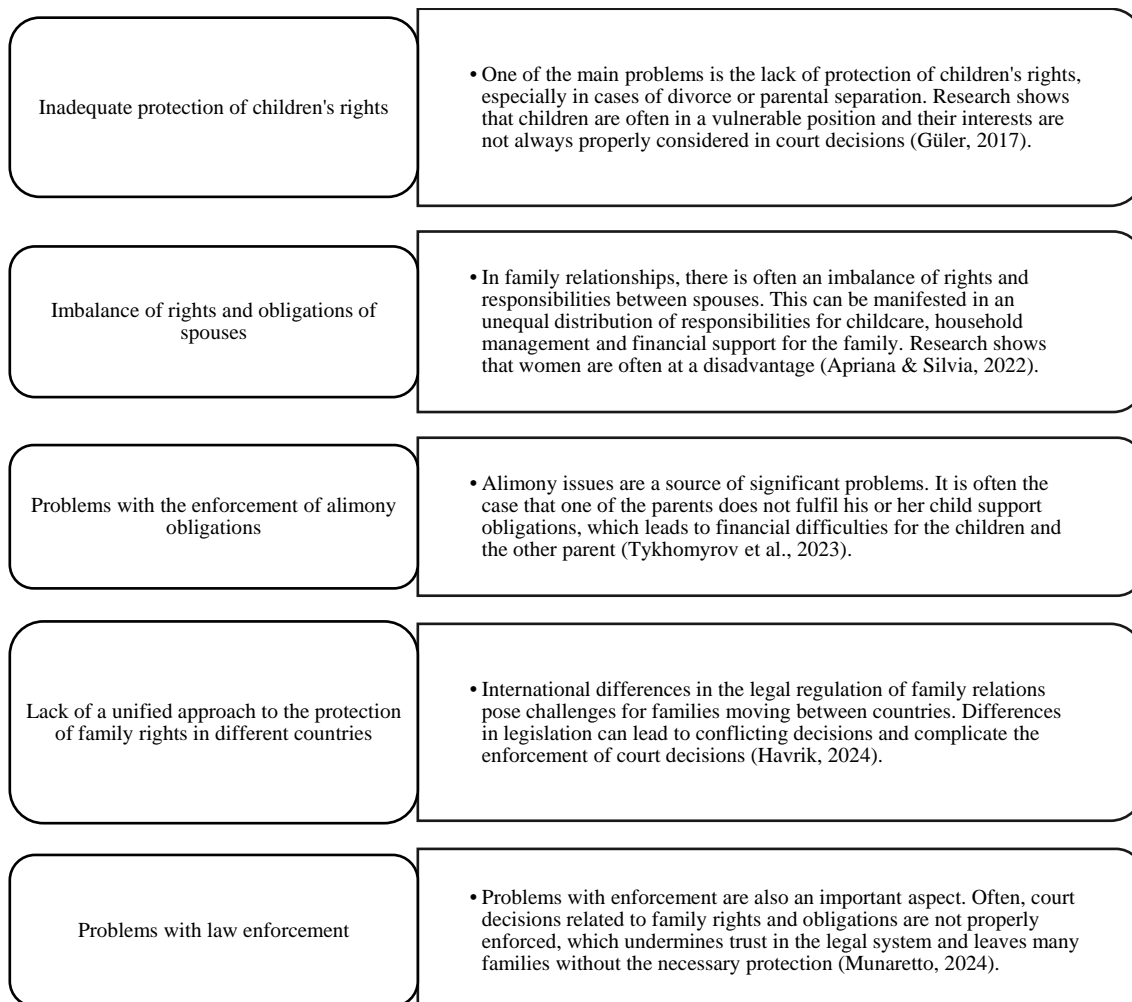


Figure 1. Main problems and contradictions in the legal regulation of family relations based on the analysis of court practice and scientific publications

Source compiled by the author based on: Apriana & Silvia (2022), Jackson (2021), Tykhomyrov et al. (2023), Buda & Dhuli (2024), UNICEF (1989), UN Women (1979), Güler (2017), Lavrysen (2014), Munaretto (2024)

The introduction of modern information technologies not only helps improve communication with children over long distances but also enhances the efficiency of the judicial system. This may include creating online platforms for submitting applications, monitoring the enforcement of court decisions, and using electronic databases for storing and exchanging information.

Improving the legal regulation of family rights and duties in the context of modern challenges requires a comprehensive approach. This includes strengthening the protection of children's rights, ensuring gender equality, improving alimony legislation, harmonising international norms, enhancing the effectiveness of law enforcement practices, and implementing modern technologies. These measures will help create a fairer and more effective system of legal regulation of family relations that meets the needs of modern society.

International law and standards significantly impact the formation and development of national legislation in family relations. Treaties, conventions, and recommendations guide countries in protecting family and children's rights, ensuring

equality between spouses, and strengthening the family institution.

It is essential to consider the main directions of the influence of international law and standards on national legislation in family relations (Figure 2).

International law and standards play a vital role in the formation of national legislation in the field of family relations. They help protect children's and spouses' rights, combat domestic violence, harmonise the legal systems of different countries, and improve international cooperation in family matters. National legislation, by integrating international standards, becomes more effective and fair, contributing to the strengthening of the family institution and the protection of the rights of all its members.

Improving law enforcement's practice of protecting family rights and duties requires a comprehensive approach that includes legal reforms, organisational changes, and professional development. This table presents recommendations for improving law enforcement practice.

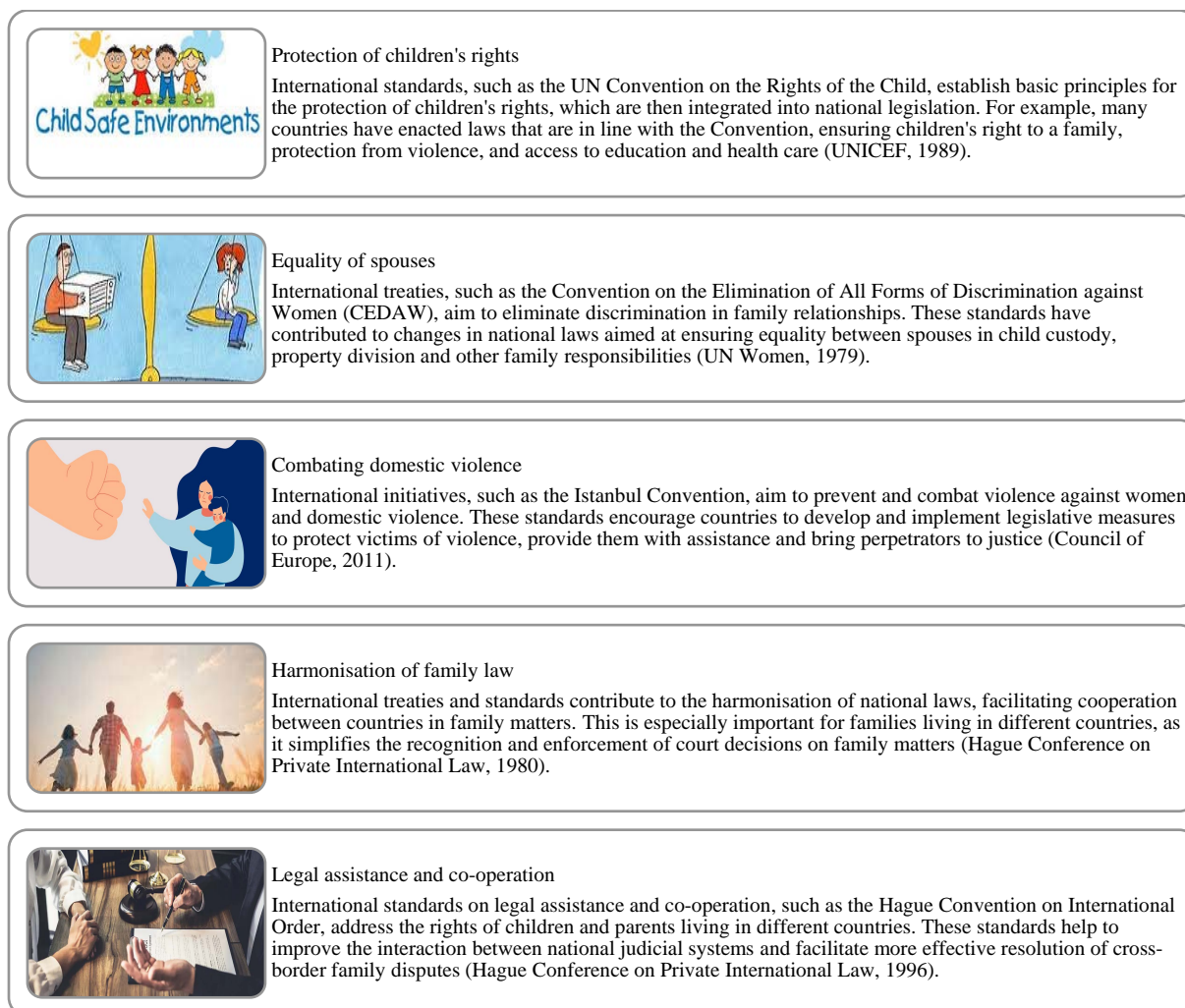


Figure 2. Main directions of influence of international law and standards on national legislation in the field of family relations
Source compiled by the author based on: UN Women (1979), UNICEF (1989), Hague Conference on Private International Law (1980, 1996), and Council of Europe (2011)

Table 2. Recommendations for improving human rights practices

Direction	Recommendation	Expected result
Legislative reforms	Amend legislation to strengthen the protection of children's rights and ensure spousal equality	Improved protection of children's rights and ensuring spousal equality
	Develop stricter measures for alimony collection and the protection of domestic violence victims	Increased effectiveness of alimony collection and protection of violence victims
Organisational changes	Establish specialised family courts	Improved quality of family case reviews
	Introduce electronic systems for filing applications and monitoring the enforcement of court decisions	Enhanced speed and transparency of law enforcement practices
Professional development	Train judges and law enforcement officers on family law issues	Increased professional level of specialists
	Conduct regular seminars and training on international family law standards	Strengthened understanding and integration of international standards
Interdepartmental cooperation	Improve interaction between judicial, law enforcement, and social services	Improved coordination and effectiveness of law enforcement
	Create interdepartmental working groups to address complex family issues	Enhanced quality and speed of resolving family issues
Informational support	Create informational resources for citizens about family rights and duties	Increased public awareness of their rights and duties
	Establish hotlines and advisory centres to provide legal assistance to families	Improved access to legal assistance and support

Source compiled by the author based on: Borisova & Krasyska (2020), UN Women (1979), UNICEF (1989), Hague Conference on Private International Law (1980, 1996), Council of Europe (2011), Family Code of Ukraine (2002), Law of Ukraine "On Protection of Childhood" (2001), Family Law Act (1970), Child Abuse Prevention and Treatment Act (1974), Kinder- und Jugendhilfegesetz (1990), Matrimonial Causes Act (1973), Children Act (1989), Code Civil (1804), Loi relative à la protection de l'enfance (2015)

Implementing these recommendations can significantly improve law enforcement's practice of protecting family rights and duties. A comprehensive approach that includes legislative reforms, organisational changes, professional development, interdepartmental cooperation, and informational support will help create a more effective and fair system for protecting family rights.

5 Discussion

The problem of classifying family rights and duties is one of the critical issues in modern family law theory. The research results show many classification approaches, each with advantages and disadvantages. Firstly, the analysis of existing doctrinal approaches shows that one of the main problems is the imbalance of rights and duties between spouses. As noted by Apriana and Silvia (2022), inequality in the distribution of duties within the family can lead to conflicts and reduce the stability of the marriage. Their study emphasises the need for an equal distribution of roles between spouses to ensure the harmonious development of family relations. Secondly, significant attention is paid to the informational duties of parents related to providing adequate information and supporting the development of children. Tykhomyrov et al. (2023) note that the lack of explicit legal norms in this area can lead to violations of children's rights and deterioration of their well-being. This is confirmed by Jackson's research, which emphasises the importance of parents' moral obligations in the context of the development and protection of children's rights (Jackson, 2021).

Moreover, the issue of the effectiveness of alimony collection mechanisms remains relevant. Buda and Dhuli (2024) argue that the insufficient effectiveness of alimony collection mechanisms often leads to violations of children's rights and material insecurity. Their research points to the need for stricter measures to ensure the fulfilment of alimony obligations to protect children's interests.

Another critical issue is the harmonisation of national legislation with international standards. International treaties and conventions, such as the UN Convention on the Rights of the Child and the Convention on the Elimination of All Forms of Discrimination Against Women, play a key role in shaping national legal norms aimed at protecting family and children's rights. As Güler (2017) and Lavrysen (2014) highlighted, international standards strengthen national legal systems and ensure more just and effective legal regulation of family relations. Research also shows that regulating family rights and duties needs to be adapted to modern societal challenges and changes. In the context of globalisation and the increasing number of international marriages, it is essential to consider the specific features of national legislation and integrate international standards (Munaretto, 2024). This includes recognising and enforcing foreign court decisions in family disputes and cooperation between states on protecting children's and families' rights.

Thus, the research results show that existing approaches to classifying family rights and duties require further refinement and improvement. A comprehensive approach is needed, which includes equality between spouses, precise regulation of parents' informational duties, the effectiveness of alimony collection mechanisms, and the harmonisation of national legislation with international standards.

6 Conclusion

The research revealed that the classification of family rights and duties is an essential and multifaceted problem in modern family law. Existing doctrinal approaches to classifying rights and duties require further development and improvement. The main problems remain the imbalance of rights and duties between spouses, insufficient regulation of parents' informational duties, and the ineffectiveness of alimony collection mechanisms. International standards and legal norms play a crucial role in shaping national legislation, contributing to the harmonisation

and strengthening of the legal systems of different countries. An important aspect is the need to adapt legislation to modern challenges such as globalisation and the increasing number of international marriages. Analysing judicial practice and scientific publications allows for identifying key trends and problems in family rights and duties, providing an opportunity to propose solutions. It is necessary to continue research in this field to ensure more just and effective legal regulation of family relations. A comprehensive approach that includes equality between spouses, precise regulation of parents' informational duties, the effectiveness of alimony collection mechanisms, and harmonising national legislation with international standards will create a more harmonious and just legal system.

A promising direction for further research is developing a comprehensive system of legal regulation of family rights and duties that can consider modern challenges and international standards. This will ensure a sufficiently fair and adequate protection of the interests of all participants in family relations.

Literature:

1. Apriana, D., & Silvia, N.: Imbalance of rights and obligations of husband and wife in the family. *Metro Islamic Law Review*, (2022). 1(2), 214. <https://doi.org/10.32332/milrev.v1i2.6210>
2. Berkes, A.: Compliance of territorially fragile states with international human rights law. *Revue Québécoise de Droit International*, 2021, pp. 11–37. <https://doi.org/10.7202/1079421ar>
3. Borisova, V., & Krasyska, L.: Alimony obligations of family members in the family law of Ukraine: Problematic issues of theory and practice. *Journal of the National Academy of Legal Sciences of Ukraine*, 2020, 27, 28–47. [https://doi.org/10.37635/jnalsu.27\(3\).2020.28-47](https://doi.org/10.37635/jnalsu.27(3).2020.28-47)
4. Broderick, A.: Of rights and obligations: The birth of accessibility. *International Journal of Human Rights*, 2019, 24(4), 393–413. <https://doi.org/10.1080/13642987.2019.1634556>
5. Buda, D., & Dhuli, E.: Marriage and the obligations arising from it. *Interdisciplinary Journal of Research and Development*, 2024, 11(1 S1), 201. <https://doi.org/10.56345/ijrdv11n1s131>
6. Constitution of Ukraine. *Chapter II. Rights, Freedoms and Duties of Man and Citizen*, 2006. <https://www.president.gov.ua/ua/documents/constitution/konstituciya-ukrayini-rozdil-ii>
7. Council of Europe. *Istanbul Convention on preventing and combating violence against women and domestic violence*. 2011. <https://www.coe.int/en/web/istanbul-convention/home>
8. Government portal. *Alimony in 2024: What amounts are paid for children?* Ministry of Justice of Ukraine, 2024. <https://www.kmu.gov.ua/news/alimenty-u-2024-rotsi-iaki-sumy-vyplachuiutsia-na-ditei>
9. Güler, T. S.: 'Positive obligations' doctrine of the European Court of Human Rights: Is it cogent or obscure? *European Journal of Multidisciplinary Studies*, 2017, 6(1), 358–358. <https://doi.org/10.26417/ejms.v6i1.p358-364>
10. Hammer, J., & Reig, S.: From individual rights to community obligations. *Interactions*, 2022, 29(4), 30–34. <https://doi.org/10.1145/3535271>
11. Ikbāl, A.: Rights and obligations of husband and wife according to Islamic law in constructing sakina family. *Al Mashaadir*, 2023, 3(2), 130–142. <https://doi.org/10.52029/jis.v3i2.94>
12. Jackson, E.: Children, fetuses, and the non-existent: Moral obligations and the beginning of life. *The Journal of Medicine and Philosophy*, 2021, 46(4), 379–393. <https://doi.org/10.1093/jmp/jhab012>
13. Lavrysen, L.: The scope of rights and the scope of obligations: Positive obligations. In E. Brems & J. Gerards (Eds.), *Shaping rights in the ECHR: The role of the European Court of Human Rights in determining the scope of human rights*. (pp.162–182). Cambridge University Press, 2014. <https://doi.org/10.1017/CBO9781107337923.010>
14. Linik, E.: Personal non-property rights of persons living in the same family without marriage and spouse: A comparative legal aspect. *Uzhhorod National University Herald. Series: Law*,

- 2022, 1, 145–149. <https://doi.org/10.24144/2307-3322.2022.72.24>
15. *Loi relative à la protection de l'enfance*. French Republic, 2015. <https://www.unicef.org/algeria/documents/la-loi-n-15-12-relative-%C3%A0-la-protection-de-lenfant>
16. Munaretto, L.: Fundamental rights and limited possibilities: The proviso of the possible in European fundamental rights doctrine. *German Law Journal*, 2024, 25(2), 185–209. <https://doi.org/10.1017/glj.2023.114>
17. Nasirov, K.: Family and its place in the structure of civil relationships. *Shs Web of Conferences*, 2018, 50, 1238. <https://doi.org/10.1051/shsconf/20185001238>
18. Oksaniuk, O.: The concept and legal nature of personal non-property rights of the wife in the doctrine of family law. *Uzhhorod National University Herald. Series: Law*, 2024, 1, 220–224. <https://doi.org/10.24144/2307-3322.2024.81.1.34>
19. Pilipson, E.: Joint will recognition as a succession contract: Rights and obligations' status issues. *Baltic Journal of Legal and Social Sciences*, 2022, 2, 150–157. <https://doi.org/10.30525/2592-8813-2022-2-25>
20. Pliushko, D. S.: Regarding certain issues of non-property rights and obligations of spouses after the termination of marriage under the family law of Ukraine and EU countries. *The Age of Human Rights Journal*, 2023, 103(3), 132–141. <https://doi.org/10.33766/2524-0323.103.132-141>
21. Popovych, T.: The classification of obligations according to Samuel von Pufendorf's doctrine. *Uzhhorod National University Herald. Series: Law*, 2021, 65, 38–42. <https://doi.org/10.24144/2307-3322.2021.65.6>
22. Saliuk, P.: Judicial protection of the family rights of parents and children under the family legislation of certain European states. *University Scientific Notes*, 2022, 4(88), 17–29. <https://doi.org/10.37491/UNZ.88.2>
23. Sarıkaya, T.: Positive obligations doctrine of the European Court of Human Rights: Is it cogent or obscure? *European Journal of Multidisciplinary Studies*, 2017, 6(1), 358–364. <https://doi.org/10.26417/ejms.v6i1.p358-364>
24. Serdechna, I.: Implementation of subjective family rights. *Analytical and Comparative Jurisprudence*, 2023, 6, 277–281. <https://doi.org/10.24144/2788-6018.2023.06.46>
25. Song, Q.: A study of the legal issues of stepchildren support their stepparents. In *Proceedings of the 2019 International Conference on Contemporary Education and Society Development (ICCESD 2019)*. *Advances in Social Science, Education and Humanities Research*, 2019, 332, 81–84. <https://doi.org/10.2991/iccesd-19.2019.20>
26. Tykhomyrov, O. O., Tykhomyrov, D. O., Radovetska, L. V., & Vatrak, A. V.: Information human obligations: State and prospects of doctrine interpretation. *The Age of Human Rights Journal*, 2023, 21, e7698. <https://doi.org/10.17561/tahrj.v21.7698>
27. Vatrak, V.: Applied issues for the opening of proceedings in family cases in a civil proceeding. *Uzhhorod National University Herald. Series: Law*, 2024, 1, 151–156. <https://doi.org/10.24144/2307-3322.2023.80.1.21>
28. Vatrak, V., Havrik, R., Antonyuk, N., Sabluk, S., & Bondarenko-Zelinska, N.: Liability for violation of family rights and obligations under Ukrainian and the EU legislation. *Ad Alta*, 2024, 14(1), 181–184. <https://doi.org/10.33543/140139181184>
29. Verkhovna Rada of Ukraine. *Law of Ukraine "On Protection of Childhood"*. 2001. <https://zakon.rada.gov.ua/laws/show/2402-14#Text>
30. Verkhovna Rada of Ukraine. *Family Code of Ukraine*. 2002. <https://zakon.rada.gov.ua/laws/show/2947-14#Text>
31. Zaytsev, O., & Pavshuk, K.: Liability for violation of the obligation of care in the criminal code of the Republic of Poland. *Problems of Legality*, 2024, 164, 199–213. <https://doi.org/10.21564/2414-990X.164.292538>

Primary Paper Section: A**Secondary Paper Section: AG, AN**

TRANSFORMING ENTREPRENEURSHIP AND MARKETING THROUGH DIGITALISATION IN GLOBAL MARKETS

^aOLENA PTASHCHENKO, ^bOLEKSANDR ROZUMNYI,
^cELMAN ALIEV, ^dVOLODYMYR VOVK,
^eOLENA SHERSHENIUK

^{a, b, c}West Ukrainian National University, Ternopil, Ukraine.

^dSimon Kuznets Kharkiv National University of Economics,
 Kharkiv, Ukraine.

^eKharkiv National Automobile and Highway University, Kharkiv,
 Ukraine.

email: ^ao.ptashchenko@wunu.edu.ua, ^brazumnyy.a@ukr.net,

^cAliev_88@ukr.net, ^dVolodymyr.vovk@hneu.net,

^esheralyona@gmail.com

Abstract: The study of the digitalisation of business and marketing in global markets is relevant mainly because enterprises must adapt to the rapid changes in the global business environment caused by the development of digital technologies. The effective integration of digital solutions can increase competitiveness and ensure sustainable business development in market globalisation and digital transformation. The article aims to study the impact of digitalisation on business and marketing in global markets. The article uses several general scientific methods of cognition, particularly synergy, correlation analysis, statistical data analysis, systematisation, and generalisation. The study revealed the possibilities of marketing measures to ensure the financial stability of enterprises, given the negative correlation between the percentage of marketing costs and the growth of enterprise income ($r = -0.458$ at $p = 0.215$) and the positive correlation between marketing costs and the growth of net income ($r = 0.316$ at $p = 0.445$), which indicates an increase in marketing costs due to the growth of net income from business activities. The study found that the effectiveness of marketing activities closely depends on the specific industry, the level of competition, and the general conditions of operation in global markets. Digitalisation significantly increases the need for strategic marketing planning to ensure the sustainable growth of enterprises.

Keywords: digital economy, innovative development, marketing tools, global market, digitalisation, entrepreneurship, sustainable development.

1 Introduction

At the current stage of global market development, companies are forced to adapt to new business conditions quickly due to the high level of uncertainty and volatility in the business environment. Digital technologies, as part of socio-economic and managerial processes, drive the development of new approaches to change management within entrepreneurial activities. It should be noted that the impact of digital transformation on the entrepreneurial activities of companies, both in local and global markets, will continue to grow. This trend is supported by data from the latest Spherical Insights report (2023), which states that the global digital transformation market size reached USD 1,258.4 billion in 2022, with a projected compound annual growth rate (CAGR) of 23.4%. Over the next 10 years, the market size is expected to increase to USD 10,571.7 billion. In this context, the practical adaptation of digital technologies is critical in ensuring companies' sustainable development and competitiveness. To achieve the primary goals of companies in developing entrepreneurial activities in the global market under conditions of digitalisation, it is necessary to provide systematic and purposeful strategic management of transformation processes. These processes include reorganising the functional and organisational structure, optimising business processes, resource management, and considering employees' values. Furthermore, regular improvement of management strategies that foster organisational development enables the company to maintain high operational efficiency with minimal costs.

The article aims to study the impact of digitalisation on business and marketing in global markets. While writing the research article, the process of functioning enterprises in the global market in the context of digitalisation was developed, which involved identifying the key benefits and risks of digital transformation. The article aims to identify the relationship between the percentage of marketing costs and the growth of income and net profit of enterprises to determine the effectiveness of marketing activities for business activities of various sectors of the economy in global markets.

2 Literature review

The current business environment, characterised by the development of globalisation processes, promotes the need for business representatives, in particular international companies, to move to a digital format of activity to ensure sustainable business development, sustainability and optimisation of its critical indicators in the context of the development of the digital economy (Krasnyuk et al., 2022). A large amount of scientific literature is aimed at identifying the essence of the digital transformation of business; for example, Fernández et al. (2023) define it as a comprehensive process of introducing digital technologies into all aspects of business, which leads to fundamental changes in the way businesses do business, manage resources and interact with customers. Instead, Nikitin and Kulchytskyi (2019) analysed the current definitions of the terms "digital business", "digital enterprise", and "digital transformation", which led to the conclusion that there is no precise classification of digital enterprises, which makes it challenging to understand digital transformation in the context of business. In addition, in her research, Kalachenkova (2023) identified the critical aspects of the formation of the digital society and its interaction with the information society and considered the processes of digitalisation, development and use of information technology from the perspective of the digital sphere as an essential component of society's development. In turn, Almeida et al. (2020) note the cross-cutting nature of the impact of digitalisation on every sector of the economy. They will promote innovative development by creating new digital products and services based on flexibility. In this context, Dvornyk (2023) noted that successful digital transformation requires flexibility in implementing technological innovations, a strategic approach, and organisational flexibility. In connection with the intensification of processes related to the digital transformation of business activities, Senyapar (2024) notes that the way companies interact with their audience and personalise their marketing efforts has undergone significant changes and has provoked the emergence of new advantages and opportunities for more effective consumer engagement and effective interaction with the target audience. With this in mind, Kedi et al. (2024) point out that digital platforms, marketing process automation, and personalisation tools for marketing strategies are essential marketing tools in the digitalisation context, which contribute to more accurate audience segmentation and individualised approaches to consumers, and thus increase user efficiency and reduce costs.

In addition, Khan and Siddiqui (2013) pointed out the priority of using search engine optimisation (SEO) and contextual advertising, which increases brand visibility in the digital environment. Raji et al. (2024) pay special attention to content marketing and social media marketing tools. Analytical platforms (e.g., Google Analytics) have become vital to understanding the effectiveness of marketing efforts and further adjusting them (McGuirk, 2023). It is also worth paying particular attention to such advanced digital solutions as the combination of network technologies (SMAC), i.e. social, mobile, analytical and cloud computing (Alt, 2018), CRM systems, Big Data, Blockchain, virtual and augmented reality technologies (Savytska et al., 2023), as well as augmented reality (XR) and quantum computing (QC) (Alt, 2021; Zysman & Kenney, 2018), which not only contribute to digitalisation at the technological level, but also cover the application level with redesigned business processes and models. Particular attention should be paid to the effectiveness of using artificial intelligence tools to develop marketing communication strategies, including AI Optimisation, Predictive Analytics (Senyapar, 2024), Machine Learning Algorithms (Kussainov et al., 2023), Natural Language Processing (Strunhar, 2024), automated systems (Niziaieva et al., 2022) and AI Recommendation Systems (Mykhaylyova et al., 2023). However, when creating such a strategy, it is necessary to consider the general issues of AI applications, namely ethics and privacy (Potwora et al., 2024),

algorithmic bias, and data interpretation (Mykhaylyova et al., 2020). In addition to these innovative technologies, Snehasis & Barsha (2023) also note the effectiveness of human resource information systems (HRIS) in ensuring the efficiency of collecting, storing and maintaining data necessary for human resource organisation.

3 Applied methods

The following methods were used in the research:

- The systematisation method was used to identify the main prospects and risks of digital transformation for business activities in the global market.
- The synergy method combines various aspects of interaction between enterprises and digital technologies to achieve more effective results and ensure competitiveness and long-term development of business activities.
- Statistical data analysis was used to form the initial data for analysing the effectiveness of marketing measures for business activities in various sectors of the economy in global markets.
- Correlation analysis of the efficiency of marketing measures for entrepreneurial activity in various sectors of the economy in the global markets is applied to identify opportunities and reasons for increasing the allocations for marketing measures of enterprises using Pearson's Correlations tool in the JASP statistical software.

- The generalisation method was used to formulate conclusions and identify patterns within the framework of the study.

4 Research results

The development of digital technologies, which have become an integrated part of economic, social, and managerial processes, encourages enterprises to actively adapt to new business conditions. In today's environment, the digital competence of society, the ability to quickly integrate innovative solutions, and the continuous modernisation of business processes are critical factors in ensuring enterprises' sustainable development and competitiveness. Effective adaptation of digital technologies will help overcome the challenges of our time, including rapid changes in the technological environment, growing global competition, and consumer transformation, which is manifested in society's demand for social responsibility and environmental friendliness of enterprises and significantly higher requirements for the quality of services and products, which requires the business sector to take into account the principles of sustainable development. Therefore, in this context, we have formed a scheme for the functioning of enterprises in the global market in the context of the prospects and challenges of digital transformation, as shown in Figure 1.

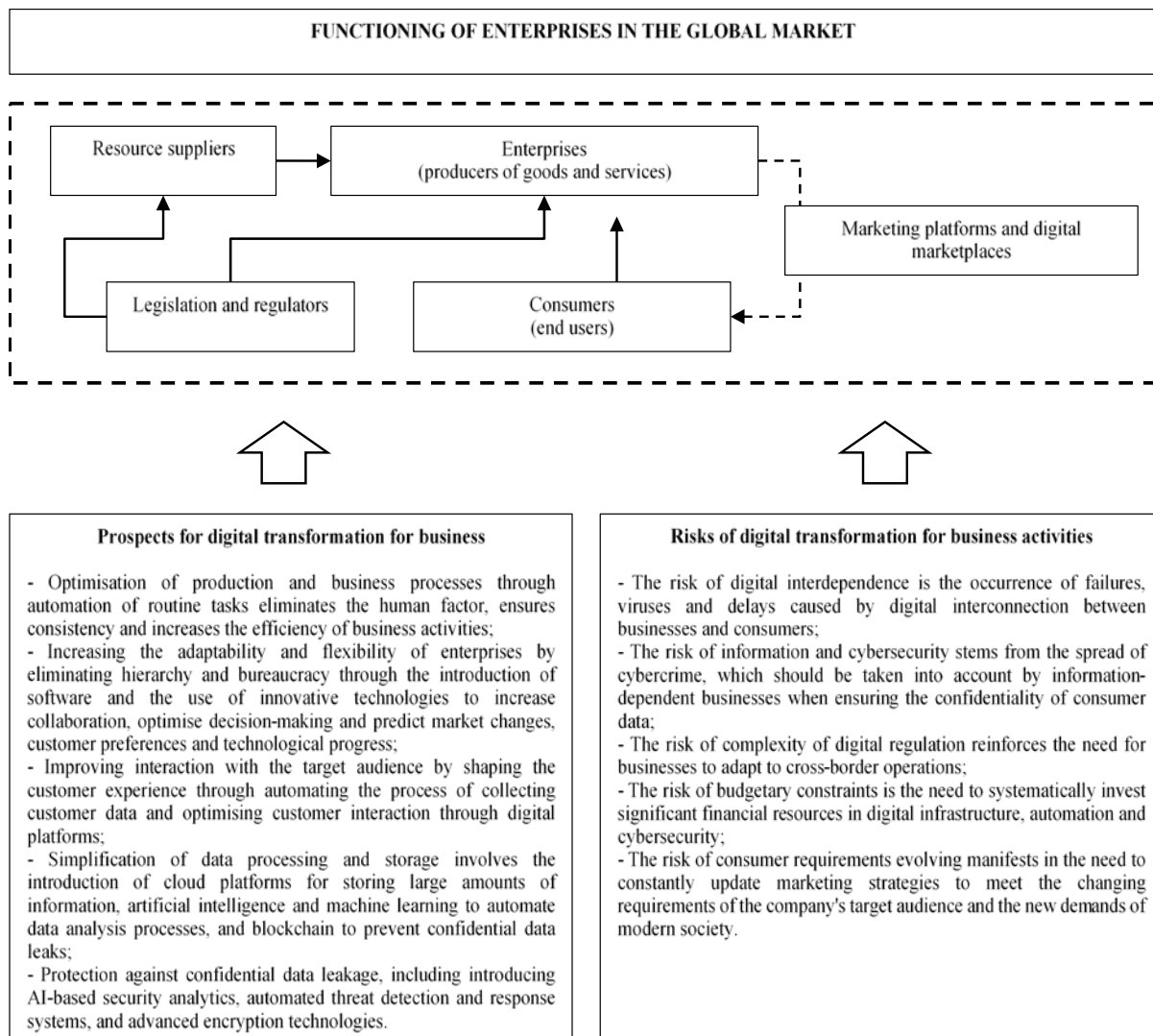


Figure 1: Scheme of Functioning Enterprises in the Global Market under the Prospects and Challenges of Digital Transformation
Source: compiled by the author

Ensuring the proper level of functioning of enterprises in the global market in the context of digital transformation. Digitalisation is a crucial factor in stimulating innovative development, optimising business processes and increasing the competitiveness of companies internationally. Digitalisation helps to reduce geographical barriers, allowing businesses to integrate into global value chains, respond quickly to changes in demand, and create new opportunities for economic growth (Danielsen, 2021). However, along with these benefits, digital transformation is accompanied by severe risks that can negatively affect business efficiency and stability.

One of the critical risks of digital transformation for enterprises in the global market is the growth of digital risks, which are different from traditional (physical) barriers. Digitalisation risks include cybersecurity, technological challenges, dependence on global information flows, and enterprises' vulnerability to damage to digital infrastructure (Luo, 2022). In addition, businesses operating globally must consider the specifics of the

legal framework when operating in different countries, which complicates risk management in the face of changing legal regulation of business activities.

Thus, in today's digital environment, which requires businesses to be flexible and adaptable when operating in the global market, the costs of implementing marketing strategies should consider the specifics of each industry's market to form the optimal level of marketing costs for the company's revenue. Thus, in the services sector, the marketing budget accounts for 13.9% of companies' total revenue, given the high level of competition, which will require active customer engagement and an increase in the volume of services provided. In contrast, in the energy sector, marketing expenditures are significantly lower due to the stability of demand for energy resources, low competition, and the constant need for electricity for domestic and industrial purposes, and thus less need for advertising to drive sales (Desyatnyuk et. al, 2024a). The overall distribution of marketing budget shares across different industries is shown in Figure 2.

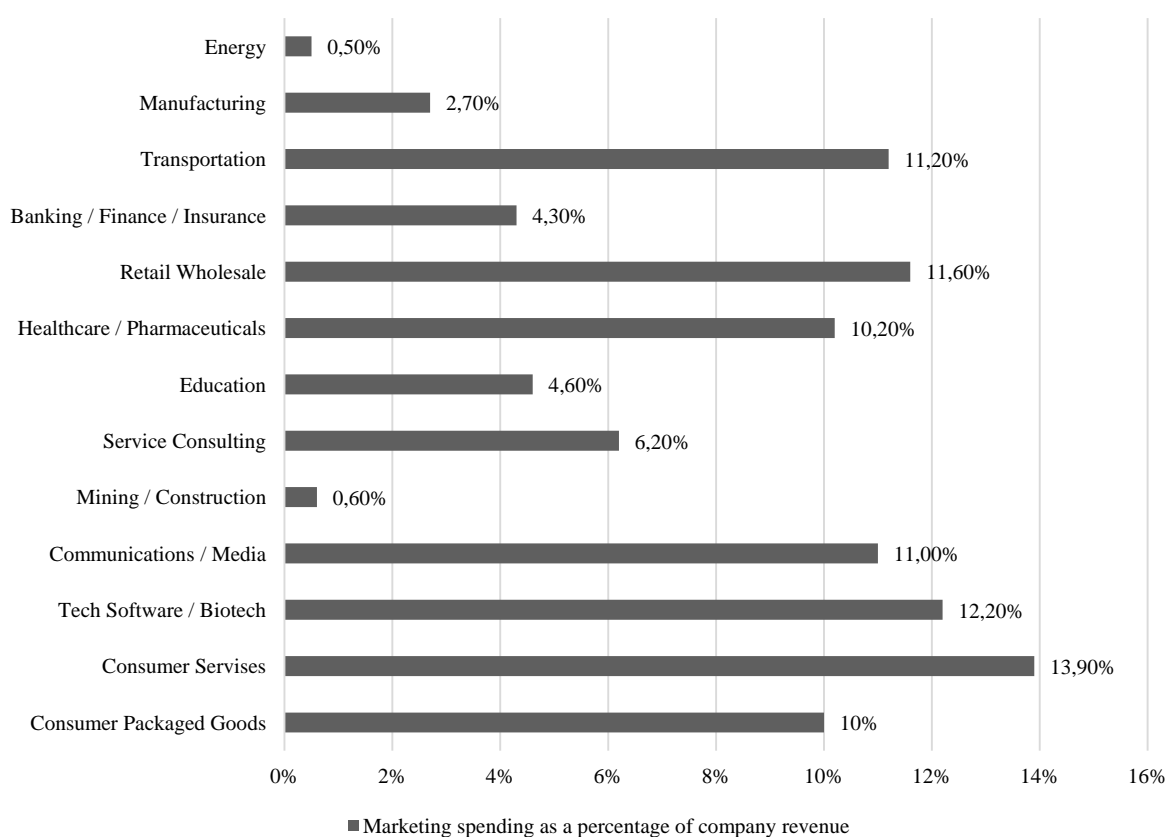
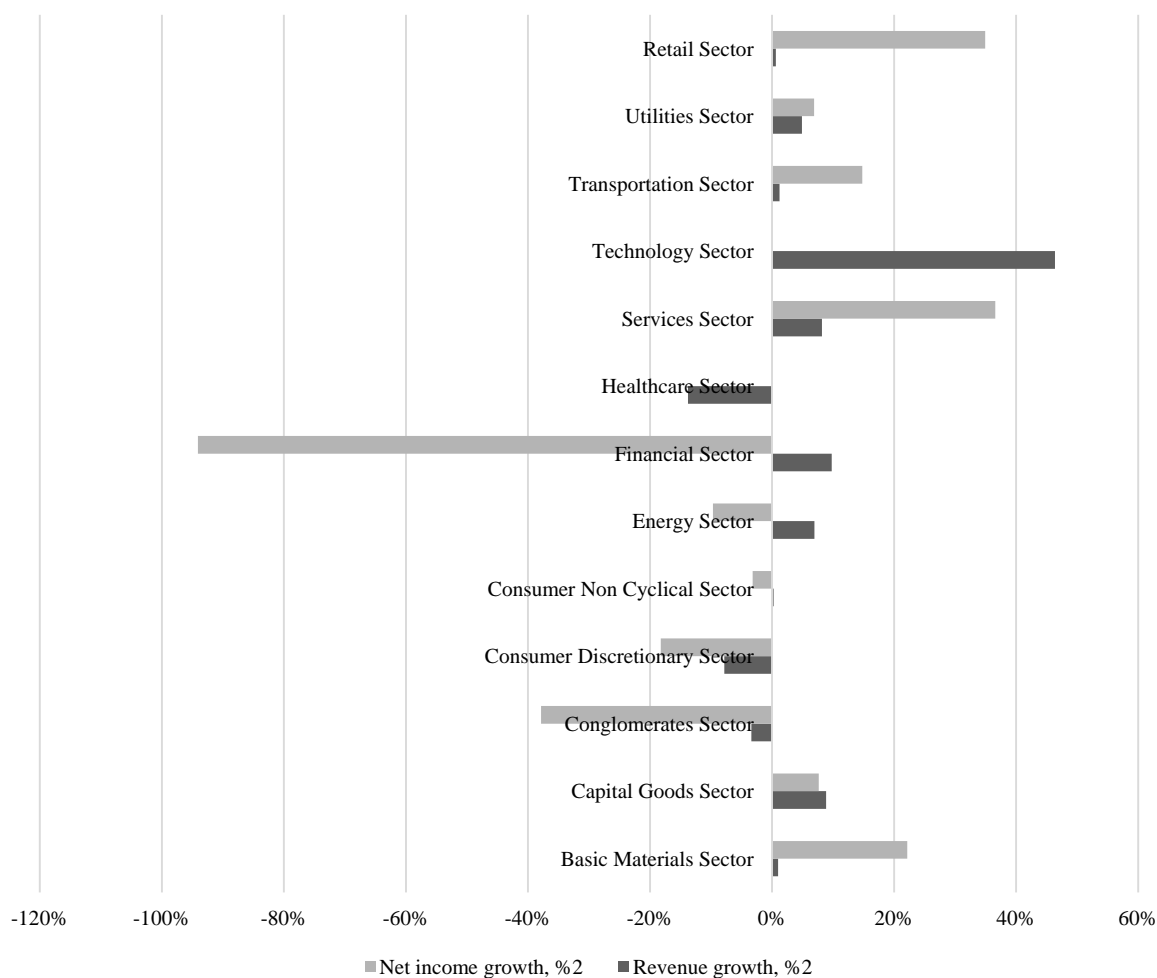


Figure 2: Expenditure on Marketing as a Proportion of Revenue by Industry
Source: Shepetyuk (2024)

Despite the identified risks of digital transformation, innovative approaches to doing business using digital technologies in business have become the main drivers of enterprise development in the global market. Thus, in 2024, the annual revenue growth of enterprises in various sectors of the economy in the global market was recorded at 2.35%, which exceeds the average value set in 2023 (0.16%). However, in a competitive comparison, market revenues decreased by 5.48%, which indicates short-term fluctuations, but they are significantly higher than in the previous period (-0.51%). On the other hand, the net profit of the global market in 2024 increased by 28.75% compared

to the same period of the previous year (12.51%), which indicates a significant improvement in the financial performance of companies in various sectors of the economy. It is worth noting that the net profit growth exceeded the overall market average, which resulted in a 1.27% increase in net profit compared to the previous period (-1.82%). The upward trend in net profit indicates the positive effects of doing business in these industries on the global market (Desyatnyuk et. al, 2024b). The percentage of growth in companies' revenues by type of activity is shown in Figure 3.

Figure 3: Overall Company Revenue Growth by Industry



Source: compiled by the author based on CSIMarket (2024)

To substantiate the effectiveness of implementing marketing measures in business activities in global markets, the article summarises preliminary systematised data on the growth of income and net profit of enterprises in various sectors of the economy in annual and quarterly terms and their budgets for marketing activities. The data obtained are presented in Table 1 as the initial data for further analysis.

The relevant calculations for the correlation analysis were carried out in the JASP statistical software using Pearson's Correlations tool. The results of the analysis are presented in Table 2.

Table 1: Initial Data for Analysing the Effectiveness of Marketing Measures for Businesses in Various Sectors of the Economy in Global Markets

Industry	Marketing expenses, %	Revenue growth, %		Net profit growth, %	
		Y/Y	Sequential	Y/Y	Sequential
Consumer Packaged Goods	10.00	0.62	-9.06	34.93	-21.99
Consumer Services	13.90	8.17	5.64	36.58	47.02
Mining/Construction	0.60	8.85	5.81	7.66	20.53
Healthcare/Pharmaceuticals	10.20	-13.77	-16.29	-	-
Retail/Wholesale	11.60	-7.83	-6.56	-18.22	-21.42
Banking/Finance/Insurance	4.30	9.78	-0.67	-94.08	-89.2
Transport	11.20	1.22	-5.89	14.8	-2.53
Manufacturing	2.70	1.00	0.48	22.17	0.51
	0.50	6.94	6.98	-9.67	1.97

Source: compiled by the author

Notes: Y/Y – year-over-year; Sequential – quarter-on-quarter.

Table 2: Results of Correlation Analysis of the Efficiency of Marketing Measures for Entrepreneurial Activities of Different Sectors of the Economy in Global Markets

Variable		Marketing costs	Revenue growth	Net income growth
Marketing costs	Pearson's r	-		
	p-value	-		
Revenue growth	Pearson's r	-0.458	-	
	p-value	0.215	-	
Net income growth	Pearson's r	0.316	-0.223	-
	p-value	0.445	0.596	-

Source: compiled by the author

The correlation analysis revealed a weak negative correlation between the percentage of marketing expenditures and the growth of enterprise income ($r = -0.458$ at $p = 0.215$); therefore, the primary motivation for enterprises to increase their marketing expenditures is to reduce income growth from business activities. On the other hand, the correlation between marketing expenditures and net income growth is positive ($r = 0.316$ at $p = 0.445$), which indicates a tendency to increase marketing expenditures due to the growth of net income from business activities (Krysovaty et al., 2024).

5 Discussion

The results of Kalachenkova's (2023) study confirmed that the digital society is a new stage of development characterised by the active use of information technology in all spheres of life and processes. In addition, Dvornyk (2023) focused on defining clear goals for developing digital strategies and metrics for the success of these strategies in integrating and using digital tools in business activities and engaging staff in technological progress. In addition, Almeida et al. (2020) noted that digital transformation has created new economic opportunities, including opening up new markets for new products and transforming entire industries by dematerialising commercialised products. Instead, our study found that the critical benefits of digitalisation include optimising business processes, increasing flexibility and adaptability, improving customer experience, simplifying data processing and storage, and enhancing the protection of confidential information. Meanwhile, a study by Danielsen (2021) identified the drivers, benefits, and challenges of digital transformation in the Scandinavian context, which, on the one hand, include opportunities to overcome the turbulent environment and reduce costs, but on the other hand, the complexity of operating in the global market due to the differences in laws and regulations in different countries. We also record the problem of digital regulation in cross-border activities of enterprises as a top priority, but among other challenges of digitalisation, the risks of digital interdependence, information and cybersecurity, budget constraints and the evolution of consumer requirements were also identified as noted by Luo (2022).

According to an analysis by Fernández et al. (2023), in the digital economy, businesses have stepped up the use of new technologies, including data analytics (23%) and artificial intelligence (16%), to effectively implement projects and make decisions. Our research also revealed the high effectiveness of artificial intelligence tools in developing marketing communication strategies. Meanwhile, Savytka et al. (2023) ranked CRM systems (10), Big Data (7), cloud computing (8), and virtual and augmented reality (9) as the most advanced, given their ability to analyse consumer actions, track sales and inventory trends, track customer experience, and increase sales revenue.

Another study conducted by Khan & Siddiqui (2013), on the one hand, shows the effectiveness of using marketing tools to promote products and services, but leads to data privacy issues ($M = 2.54$; $SD = 0.74$); on the other hand, it notes the benefits of such tools for widespread use within the marketing strategies of enterprises ($M = 1.89$; $SD = 0.40$); in addition, digital marketing is effective in terms of cost savings ($M = 2.31$; $SD = 0.72$). The study also noted the potential of marketing activities to ensure the financial stability of enterprises, given the negative

correlation between the percentage of marketing expenditures and revenue growth ($r = -0.458$ at $p = 0.215$), which indicates a proportional increase in marketing expenditures to a decrease in revenue growth; and a positive correlation between marketing expenditures and net income growth ($r = 0.316$ at $p = 0.445$), i.e., an increase in marketing expenditures occurs due to an increase in net income from business activities.

6 Conclusion

Currently, the digital transformation of business and marketing in global markets is an integral part of the modern business environment, characterised by high dynamism and complexity for the functioning of enterprises. Since digitalisation is the primary driver of innovative development of modern enterprises, it contributes primarily to integrating enterprises into global value chains and increasing adaptability to changing market conditions. However, digitalisation is accompanied by a certain level of risk associated with increased vulnerability to cyber threats and dependence on the uninterrupted operation of digital infrastructure. This requires global businesses to develop measures to prevent them and attract additional investments.

The study results show that marketing activities' effectiveness closely depends on the specific industry, the level of competition and general operating conditions in global markets, and digitalisation significantly increases the need for strategic marketing planning to ensure sustainable growth of enterprises. In highly competitive industries, such as services and consumer goods, marketing expenditures effectively attract target audiences and increase net profit. At the same time, in less competitive sectors, such as energy and manufacturing, the need for marketing investments is lower, reflected in the low percentage of marketing expenses and stable revenue growth.

Based on the results of the analysis of the effectiveness of marketing activities for entrepreneurial activities in various sectors of the economy in global markets, it is found that an increase in deductions for marketing activities of enterprises occurs due to a decrease in the growth of income from their economic activities, which is confirmed by the negative correlation between the percentage of marketing costs and the growth of income of enterprises ($r = -0.458$ at $p = 0.215$). In addition, the increase in marketing expenditures is directly related to the growth of net income from business activities ($r = 0.316$ at $p = 0.445$). Thus, marketing investments are one of the most significant factors that facilitate the adaptation of companies to the challenges of digitalisation, increasing their competitiveness and resilience to the impact of adverse external market factors.

Literature:

1. Almeida, F., Santos, J. D., & Monteiro, J. A.: The challenges and opportunities in the digitalisation of companies in a post-COVID-19 World. *IEEE Engineering Management Review*, 2020. 48(3), 97–103. <https://doi.org/10.1109/EMR.2020.3013206>
2. Alt, R.: Electronic Markets on digitalisation. *Electronic Markets*, 2018. 28(4), 397–402. <https://doi.org/10.1007/s12525-018-0320-7>
3. Alt, R.: Electronic Markets on the next convergence. *Electronic Markets*, 2021. 31(1), 1–9. <https://doi.org/10.1007/s12525-021-00471-6>

4. CSIMarket: Total Market Growth. *CSI Market Company*, 2024. https://csimarket.com/Industry/Industry_Growth.php.
5. Danielsen, F.: Benefits and Challenges of Digitalisation: An Expert Study on Norwegian Public Organisations. Proceedings of the 22nd Annual International Conference on Digital Government Research. *Association for Computing Machinery*, 2021. 317–326. <https://doi.org/10.1145/3463677.3463703>
6. Dvornyk, O.: Strategies, challenges and successful practices in the era of digital business transformation. *Development Service Industry Management*, 2023. 4, 107–111. [https://doi.org/10.31891/dsim-2023-4\(17\)](https://doi.org/10.31891/dsim-2023-4(17))
7. Fernández, A., Gómez, B., Binjaku, K., & Meçe, E. K.: Digital transformation initiatives in higher education institutions: A multivocal literature review. *Education and information technologies*, 2023. 28(10), 12351–12382. <https://doi.org/10.1007/s10639-022-11544-0>
8. Kalachenkova, K. O.: Legal aspects of digital society. *Law and Society*, 2023. 2(1), 28–32. <https://doi.org/10.32842/2078-3736/2023.2.1.5>
9. Kedi, W. E., Ejimuda, C., Idemudia, C., & Ijomah, T. I.: AI software for personalised marketing automation in SMEs: Enhancing customer experience and sales. *World Journal of Advanced Research and Reviews*, 2023. 23(1), 1981–1990. <https://doi.org/10.30574/wjarr.2024.23.1.2159>
10. Khan, F., & Siddiqui, K.: The importance of digital marketing. An exploratory study to find the perception and effectiveness of digital marketing amongst the marketing professionals in Pakistan. *Romanian Economic Business Review, Romanian-American University*, 2013. 7(2), 221–228. <https://ideas.repec.org/a/rau/journal/v7y2013i2p221-228.html>
11. Krasnyuk, M., Kulynych, Y., Tuhaienko, V., & Krasniuk, S.: E-Business and E-Commerce Technologies as an Important Factor for Economic Efficiency and Stability in the Modern Conditions of the Digital Economy (on the Example of Oil and Gas Company). *Grail of Science*, 2022. 17, 69–81. <https://doi.org/10.36074/grail-of-science.22.07.2022.009>
12. Kussainov, K., Goncharuk, N., Prokopenko, L., Pershko, L., Vyshnivska, B., & Akimov, O.: Anti-corruption management mechanisms and the construction of a security landscape in the financial sector of the EU economic system against the background of challenges to European integration: Implications for artificial intelligence technologies. *Economic Affairs (New Delhi)*, 2023. 68(1), 509–521. <https://doi.org/10.46852/0424-2513.1.2023.20>
13. Luo, Y.: A general framework of digitisation risks in international business. *Journal of International Business Studies*, 2022. 53(2), 344–361. <https://doi.org/10.1057/s41267-021-00448-9>
14. McQuirk, M.: Performing web analytics with Google Analytics 4: a platform review. *Journal of Marketing Analytics*, 2023. 11(4), 854–868. <https://doi.org/10.1057/s41270-023-00244-4>
15. Mykhaylyova, K., Dub, A., Aleksandrova, M., & Niemtsev, A.: The Impact of Innovations and Technological Development on Modern Society and Global Dynamics. *Economic Affairs (New Delhi)*, 2023. 68(4), 2317–2325. <https://doi.org/10.46852/0424-2513.4.2023.39>
16. Mykhaylyova, K., Voronenko, A., & Lokotkova-Ternova, O.: Cultural barriers in communication as limiters of trust formation in modern society. *European Socio-Legal and Humanitarian Studies*, 2020. 2, 42–50. https://ehs-journal.ro/wp-content/uploads/2021/03/EUROPEAN-HUMANITARIAN-STUDIES-2_2020.pdf#page=42.
17. Nikitin, Yu. O., & Kulchitskyi, O. I.: Digital paradigm as a basis for definitions: digital business, digital enterprise, digital transformation. *Marketing and digital technologies*, 2019. 3(4), 77–87. <https://doi.org/10.15276/mdt.3.4.2019.7>
18. Niziaieva, V., Liganenko, M., Muntyan, I., Ohiienko, M., Goncharenko, M., & Nazarenko, O.: Balancing interests in the field of tourism based on digital marketing tools. *Journal of Information Technology Management*, 2022. 14, 59–77. <https://doi.org/10.22059/jitm.2022.88875>
19. Potwora, M., Vdovichena, O., Semchuk, D., Lypych, L., & Saienko, V.: The use of artificial intelligence in marketing strategies: Automation, personalisation and forecasting. *Journal of Management World*, 2024. 2024(2), 41–49. <https://doi.org/10.53935/jomw.v2024i2.275>
20. Raji, M. A., Olodo, H. B., Oke, T. T., Addy, W. A., Ofodile, O. C., & Oyewole, A. T.: Digital marketing in tourism: a review of practices in the USA and Africa. *International Journal of Applied Research in Social Sciences*, 2024. 6(3), 393–408. <https://doi.org/10.51594/ijarss.v6i3.896>
21. Savytska N., Babenko V., Chmil N., Priadko O., Bubenets I.: Digitisation of marketing tools for business development in the B2C market. *Journal of information technology management. University of Tehran Faculty of Management*, 2023. 15(1), 124–134. <https://doi.org/10.22059/jitm.2023.90740>
22. Senyapar, H. N. D.: Artificial Intelligence in Marketing Communication: A Comprehensive Exploration of the Integration and Impact of AI. *Technium Social Sciences Journal*, 2024. 55, 64–81.
23. Shepetyuk, I.: What is the Average Marketing Budget by Industry? *Merehead*, 2024. <https://merehead.com/blog/average-marketing-budget-different-business-areas/>.
24. Snehais, D., & Barsha, B. S.: Machine learning and AI based human resource management in kgi: an algorithm-based crossover. *Journal of Engineering, Management and Information Technology*, 2023. 2(2), 69–76. <https://doi.org/10.61552/JEMIT.2024.02.003>
25. Spherical Insights: Global Digital Transformation Market Size, Share, and COVID-19 Impact Analysis, By Offering (Solutions, Services), By Technology (Cloud Computing, Big Data & Analytics, Blockchain, Cybersecurity, AI, IoT, Others), By Deployment (Hosted, On-premise), By Industry Verticals (Automotive, BFSI, Retail, Government, Healthcare, IT & Telecom, Manufacturing, Energy & Utilities, Education, Agriculture, Others), and By Region (North America, Europe, Asia-Pacific, Latin America, Middle East, and Africa), Analysis and Forecast 2022–2032. *Spherical Insights*, 2023. 1–200. <https://www.sphericalinsights.com/reports/digital-transformation-market>
26. Strunhar, A. V.: Impact of Artificial Intelligence on Digital Marketing Strategies: Current Opportunities and Development Prospects. *Economy and society*, 2024. 62, 1–10. <https://doi.org/10.32782/2524-0072/2024-62-160>
27. Zysman, J., & Kenney, M.: The next phase in the digital revolution: Intelligent tools, platforms, growth, employment. *Communications of the ACM*, 2018. 61(2), 54–63. <https://doi.org/10.1145/3173550>
28. Desyatnyuk, O., Naumenko, M., Lytovchenko I., Beketov O.: Impact of Digitalization on International Financial Security in Conditions of Sustainable Development. *Problems of Sustainable Development*, 2024a. 1, 104–114 <https://ph.pollub.pl/index.php/preko/article/view/5325/4341>
29. Desyatnyuk, O., Krysovaty, A., Ptashchenko, O., & Kyrylenko, O.: Enhancing financial inclusivity and accessibility of financial services through digital technologies. *AD ALTA: Journal of Interdisciplinary Research*, 2024b. 14(01–XLII), 65–69. https://www.magnanimitas.cz/ADALTA/140142/papers/A_13.pdf
30. Krysovaty, A., Ptashchenko, O., Kurtsev, O., Arutyunyan, O.: The Concept of Inclusive Economy as a Component of Sustainable Development. *Problems of Sustainable Development*, 2024. 1, 164–172 <https://ph.pollub.pl/index.php/preko/article/view/5755/4346>

Primary Paper Section: A

Secondary Paper Section: AH

F MEDICAL SCIENCES

FA	CARDIOVASCULAR DISEASES INCLUDING CARDIO-SURGERY
FB	ENDOCRINOLOGY, DIABETOLOGY, METABOLISM, NUTRITION
FC	PNEUMOLOGY
FD	ONCOLOGY AND HAEMATOLOGY
FE	OTHER FIELDS OF INTERNAL MEDICINE
FF	ENT (IE. EAR, NOSE, THROAT), OPHTHALMOLOGY, DENTISTRY
FG	PAEDIATRICS
FH	NEUROLOGY, NEURO-SURGERY, NUERO-SCIENCES
FI	TRAUMATOLOGY AND ORTHOPAEDICS
FJ	SURGERY INCLUDING TRANSPLANTOLOGY
FK	GYNAECOLOGY AND OBSTETRICS
FL	PSYCHIATRY, SEXOLOGY
FM	HYGIENE
FN	EPIDEMIOLOGY, INFECTION DISEASES AND CLINICAL IMMUNOLOGY
FO	DERMATOLOGY AND VENEREOLOGY
FP	OTHER MEDICAL FIELDS
FQ	PUBLIC HEALTH SYSTEM, SOCIAL MEDICINE
FR	PHARMACOLOGY AND APOTHECARY CHEMISTRY
FS	MEDICAL FACILITIES, APPARATUS AND EQUIPMENT

ENSURING QUALITY AND SAFETY IN MEDICAL SERVICES: APPROACHES TO DEVELOPMENT AND PRACTICAL APPLICATION

^aSERHII PETRYK, ^bVIACHESLAV STEPANENKO,
^cANATOLII SHEVCHUK, ^dKOSTIANTYN YURCHENKO

^aZhytomyr Polytechnic State University, Zhytomyr, Ukraine.

^bLesya Ukrainka Volyn National University, Lutsk, Ukraine.

^cVinnitsya National Pirogov Memorial Medical University, Vinnitsya, Ukraine.

^dInterregional Academy of Personnel Management, Kyiv, Ukraine.

email: ^akebpua_dom@ztu.edu.ua, ^bstlsmu@gmail.com,

^canatoliishevchuk2020@gmail.com, ^dadunkt@gmail.com

Abstract: To study the peculiarities of developing and implementing service quality standards to improve patient safety in healthcare facilities based on the latest research and existing standards. This study's theoretical and scientific approach aims to explore the combination of new patient safety capabilities based on monitoring and surveillance using ISO 9005:2015 and ISO 15189:2022 standards. Based on the analysed literature and current standards, the article considers the possibility of improving and implementing a monitoring system using wireless technologies – medical (contact and non-contact) and peripheral (non-contact) sensors. This is associated with the need for accreditation of medical laboratories and assessment of medical personnel's compliance with the requirements of current standards. The study's scientific novelty is to investigate the sequence of implementing documentation on standardisation and quality of services in healthcare facilities. This will ensure patient safety through a complex of measuring equipment (instruments and devices) and information technology (monitoring, data acquisition, and processing).

Keywords: Quality improvement, Information technologies, ISO 15189:2022, ISO 9001:2015, Sensors, Administration requirements, Technical requirements

1 Introduction

The modern healthcare system is facing rapid development of technologies, pharmaceuticals and innovative methods of diagnosis and treatment. Such a variety of the latest medical technologies, medicines, and medical services require effective methods to control their use, impact on the human body, and appropriateness. For this reason, standards and regulations have been developed to control the provision of medical services, which define the procedure and appropriateness of their use. This ensures the patient's right to receive quality medical care, responsibility, and safety in medical procedures, increasing public confidence in healthcare institutions.

Both patients and doctors have welcomed the standards of medical care. On the one hand, the standards aim to protect patients from side effects and unjustified medical interventions, and on the other hand, they regulate the procedure for providing medical care and serve as a guide for healthcare professionals. Conflict situations are resolved based on medical standards, which contributes to the objectivity of their resolution. Although medical standards are constantly being updated in parallel with changes in the medical field, the COVID-19 pandemic has shown its lack of effectiveness, especially in an emergency. That is why it is essential to study the implementation of standards in the medical sector by identifying criteria for assessing the quality of medical services and effectively monitoring the safety of medical care provided to patients through the introduction of innovative technologies.

The study aimed to determine the main requirements of ISO 9001:2015 and ISO 15189:2022 standards to ensure quality medical care, using the example of a digital model of a trauma centre and the introduction of innovative technologies for monitoring patients' condition.

To achieve this goal, the following tasks were formulated:

- To study the current literature on improving the quality of healthcare services and introducing innovations in medicine.
- Evaluate the requirements of international standards and their role in promoting patient safety in healthcare.

- To model the work of a trauma unit with the implementation of standards at the planning, creation, control and implementation stages.
- Identify the role of modern monitoring systems in ensuring quality patient care.

2 Literature review

The problem of assessing and improving the quality of healthcare provision to the population is an essential issue in the research of scientists from different countries, as quality healthcare ensures the country's well-being (Li et al., 2020; Akter et al., 2022). Improvements in the quality of healthcare services and the functioning of the healthcare system are ongoing due to the introduction of new reforms Pelzang and Hutchinson (2019). At the same time, healthcare reform is global and includes the goal of universal health coverage (UHC), which is defined as part of the Sustainable Development Goals (Debie et al., 2022; Berman et al. (2018). The most critical factor in healthcare reforms is the development of new and optimisation of existing standards of healthcare provision, such as EN ISO 9001, in line with the requirements of modern societal challenges (Kabalan, 2019; McGrath et al., 2021).

The importance of creating universal standards at the global level was demonstrated in the fight against the COVID-19 pandemic when the principles of the standards served as guidelines for the actions of medical personnel in the absence of data on effective treatments and overload of the medical system (Debie et al., 2022; Berman et al., 2018). Since standardisation in public policy contributes to overcoming crises, including the pandemic crisis and post-pandemic recovery, its implementation in the field of governance is essential (Prasetya et al., 2022). Applying standards in healthcare promotes compliance with the principles of patient safety, which minimises the negative impact of medical and diagnostic procedures, reduces the risk of adverse reactions, and thus helps reduce disability and mortality (Vaismoradi et al., 2020).

In the era of digitalisation and innovation, it is necessary to follow the requirements of standards, which primarily involve protecting patients from the rapid introduction of technologies in medical activities while determining the feasibility and validity of their use in individual cases. Legislation based on approved standards determines the population's safety when receiving medical services (Halamoda-Kenzaoui et al., 2019; Lleshi, 2020). Since the medical system is concerned with human life and health and has access to the patient's personal information, the ethical aspect plays a vital role in implementing the implemented standards involving multidisciplinary specialists (Nadziakiewicz & Mikolajczyk, 2019). Ethical issues are included at all stages of preparing a quality improvement strategy to prevent adverse events and iatrogenic errors during medical procedures (Silva et al., 2021).

The introduction of the latest technologies in the healthcare sector has increased citizens' access to healthcare services and contributed to the flexibility of the healthcare system. However, the issue of personal data protection and ethical principles remains controversial (Senbekov et al., 2020). In particular, scientists are investigating the impact on the quality of healthcare services of artificial intelligence, telemedicine, blockchain technologies, and smart devices as potential opportunities in the healthcare sector and assessing the negative consequences (Sittig et al., 2020; Senbekov et al., 2020) Among the opportunities is a new approach to patient monitoring, whereby indicators can be monitored not only by medical staff but also by the patient, which reduces the risk of injury and negative consequences for the patient while reducing the burden on healthcare workers (Han et al., 2023; Giuliano (2017). The medical system operates with a large amount of information in large databases, so it requires applications that can effectively

analyse it. The monitoring system can include devices that determine the patient's condition in real-time, such as bedside devices and computer networks in diagnostic rooms and doctors' offices. Uninterrupted operation and analysis of large databases are required for devices that monitor patient vitals. An example of an application that meets the above requirements is VitalPAD, designed for smartphones, allowing for the rapid transfer of information about a patient's condition and ensuring timely medical care (Flohr et al., 2018). Patient data management systems can collect approximately 1,000 data points per hour in intensive care units, which increases the doctor's workload, who spends more time interpreting the results and less time caring for the patient (Peine et al., 2023). That is why digital technologies should be carefully studied before being applied.

Some digital devices, such as mobile sensors that transmit information in real time, have become indispensable in treatment and prevention. Blood pressure monitors and electrocardiography help cardiologists identify life-threatening conditions and select effective therapy. These devices are valued in outpatient settings, as they allow for monitoring outside the hospital and in conditions close to the patient's daily activities. However, some authors doubt the safety of using wireless devices, especially outside the hospital, and emphasise the need to identify factors of potential harm in their use (Classen et al., 2021). Digital eHealth technologies have gained wide popularity in the healthcare system, facilitating effective communication between patients and healthcare providers, including online consultations, thus improving access to healthcare. Electronic tools make it easier to make an appointment with a doctor, avoid queues, optimise healthcare costs by reducing unnecessary consultations and hospitalisations, facilitate the storage and exchange of data between doctors of different specialities, and engage patients in autonomous manipulations and self-monitoring of medical recommendations (Dymyt, 2020). Despite the benefits of digital technologies, it is essential to ensure control over their appropriate implementation at different levels of healthcare provision and personal data protection.

The COVID-19 pandemic has confirmed the role of digitalisation in ensuring quality healthcare services by providing remote access to medical care as the healthcare system was overwhelmed. Electronic technologies have expanded the capabilities of the medical sector and were critical at the outpatient stage, as they helped to identify mild forms of the disease that did not require hospitalisation, and the use of devices such as pulse oximeters allowed the detection of threatening conditions and reduce the risk of respiratory failure and death, including during outpatient care (Sullivan et al., 2022). An effective monitoring system was also needed at the

hospital stage, as patients' conditions could deteriorate sharply after short-term stabilisation, and the shortage of medical staff, including due to the spread of the disease among healthcare workers, required patients to be involved in monitoring their vital signs (Pronovost et al., 2022). Thus, the healthcare system focused on monitoring capabilities, namely the search for new patient monitoring systems that required accreditation and permits quickly (Noviantoro et al., 2020). Standards, including ISO 15189, which deals with laboratory diagnostics and regulates remote testing, also contributed to the fight against the pandemic, helping to expand laboratory testing capabilities (Pereira, 2020; Ilinca et al., 2023).

The large number of publications on innovative patient monitoring systems and their implementation in healthcare facilities confirms the relevance and timeliness of the topic in the context of rapid digitalisation. That is why it is essential to create standards for assessing the safety of monitoring systems to avoid adverse events and prevent the risk of potential harm. At the same time, the creation of quality standards for the use of monitoring systems will facilitate their widespread implementation in the healthcare sector and improve the quality of medical care.

3 Methods and materials

Our research was based on studying the main aspects of ISO 9001:2015 and ISO 15189:2022 standards and determining their role in improving the quality of healthcare services. We analysed the application of these standards in the healthcare sector and determined their effectiveness. The ISO 9001:2015 standard is universal for various fields of activity, as it regulates improving the quality management system. Thus, this standard defines the critical aspects of ensuring the quality of medical care regarding regulating the management of a healthcare facility. At the same time, the scope of the standard is not limited to management; it also includes technical requirements, such as environmental conditions, equipment, personnel, characteristics of consumables, etc. The principle of ISO 9001:2015 includes the following steps: planning, design, measurement and implementation, and a process approach methodology. Since the basis of this standard is to improve the quality management system by following the recommendations, the implementation of ISO 9001:2015 helps to improve patient safety and reduce the risk of adverse events in the provision of medical services. ISO 15189:2022 is also an international standard that addresses the quality of laboratory and medical services in institutions licensed to provide these services. The main requirements for management and technical characteristics are shown in Table 1.

Table 1. Requirements for management requirements and technical specifications

Stages of the standardisation process	Administrative requirements	Technical requirements
Planning	Strategy development, organisation and management, quality system, preparation of documents and contracts	Environmental conditions, laboratory equipment, testing of materials and reagents
Creation	Organisation and management, document control and contract signing, technical documents, external services and supplies, expert opinions	Expert proceedings, quality assurance of expert procedures
Controlling the results	Document control, identification and control of nonconformities, advisory services, corrective actions, quality improvement	Established guidelines carry out inspections
Implementation	Complaint handling, preventive measures, continuous improvement and quality assurance, internal audit and management review	Reporting on results

Source: Allen (2013)

To plan the implementation of the standards and check the quality of monitoring of patient's vital signs, digital modelling was carried out, including creating a 2D and 3D model of a medical facility providing trauma care. The model was created using computer-aided design software. By implementing standards, we created zoning for different medical services and justified the need to allocate these zones. When developing the

model, we were guided by the principles of optimising the location of wards, diagnostic rooms and staff rooms. The model provided different possibilities for a medical facility's workload, considering resources and staff placement. The programme set the parameters of functional rooms, avoiding places that could impede the mobility of a trauma patient who can be transported on a stretcher or wheelchair. Sensors were placed in the model of

the trauma unit for potential patient monitoring, and the optimal location of wards and diagnostic rooms was determined.

The study included a digital component without the involvement of actual patients. However, we used data from the literature and healthcare facilities on the possibilities of remote monitoring in hospital wards, including intensive care units. We predicted the feasibility of using modern monitoring systems in the developed model to identify threatening conditions of patients and prevent the spread of infections. This demonstrated the importance of the modelling results during the COVID-19 pandemic and the increase in seasonal morbidity, including influenza.

The development of the digital model involved taking into account the specifics of the organisation of medical facilities, including trauma departments. The computer program set the parameters of the premises and monitoring sensors, which were

subject to mathematical calculations to build an accurate model. The parameters of the patient's physiological functions, such as blood pressure, pulse, respiratory rate, temperature, and electrocardiography data taken from the healthcare database and other research databases, were not subject to disclosure. The principles of medical confidentiality and ethical standards were followed when working with patient data.

4 Results

To achieve the study's objectives, we analysed the human resources management standards and ISO 15189:2022 requirements to assess the quality of laboratory tests and the organisation of laboratory work. The data are presented in Tables 2 and 3. The criteria for determining the quality of service provision, instructions, and recommendations for compliance with the standards are described.

Table 2. Requirements for compliance with the management standards of medical institutions performing laboratory diagnostics

Requirement	Criteria that meet them
Organisation and management	Organisation of the workplace, development of job descriptions, provision of certified equipment, familiarisation with equipment operating instructions, occupational safety, prevention of occupational injuries and equipment damage.
Quality control system	All processes are clearly regulated and described in detail in work instructions. Staff are familiarised with job descriptions and sign a commitment to comply with them. Equipment operating instructions contain information on calibration, properties, and reagent handling. Before use, the equipment is tested, and a certificate is issued with a specified period of operation.
Documentation	All laboratory processes are subject to accounting and documentation. This includes instructions, safety rules, logbooks for research, reagents, sanitary procedures, quality certificates, equipment operation procedures, and contracts with maintenance firms, consultants, and partners.
Testing by control laboratories	All trials are documented, but the control laboratories can duplicate them in case of data loss. Control laboratories also play a role in conflict situations, as they ensure that the results are delivered to the patient while maintaining the confidentiality of personal data.
External services and materials	Procurement of reagents and systems, cooperation with partners, regulated by contracts.
Consultancy services	Consultations on the use of equipment, continuing professional development, technical courses, and conferences on introducing innovations in laboratory diagnostics. Medical personnel can provide advice on the collection of biological materials and the procedure for preparing for laboratory tests but are not involved in the interpretation of the results.
Analysis of complaints and suggestions	A log of complaints and suggestions is kept, which are reviewed. Based on the complaints' results, steps are planned to resolve them, which are subject to further documentation.
Correcting inconsistencies	As part of the continuous quality control of laboratory tests, inaccuracies related to improper operation and maintenance of equipment, quality of reagents and systems, professional competence of personnel, etc., are identified.
Controlling/preventing nonconformities	If a nonconformity is identified, it is immediately eliminated and recorded in the continuous quality monitoring log. Nonconformity prevention includes preventive methods, periodic inspections, and test checks.
Internal audit of the quality and management system	It involves checking the compliance of all processes with international standards and internal regulations, which are based on generally accepted standards but contain adjustments depending on the specifics of the equipment, personnel qualifications, working conditions, etc.

Source: Allen (2013)

Table 3. Technical requirements for laboratories by ISO 15189:2022

Staff	The staff performs their activities according to their job descriptions. Staff is provided with access to documentation within their authority's scope. Records and documentation are kept according to the approved rules. Qualification checks, continuous professional development, and compliance with occupational safety rules are provided.
Environmental conditions	Ensuring the requirements for the premises where laboratory diagnostics are carried out, zoning of material collection, diagnostics, documentation, and storage of materials or reagents, the parameters of ventilation, air temperature, humidity, lighting, etc., are considered. Availability of conditions for storing materials and reagents under a special temperature regime.
Equipment	Certified and licensed equipment with available instructions for the regulation of operation and maintenance. A logbook for the number of cycles, sanitary breaks, reagent changes, and calibration. Conducting current and periodic inspections, as well as in case of malfunctions.
Preliminary research procedure	This includes collecting patient data, preparing for specimen collection, providing accessibility to the manipulation room for patients with reduced mobility, providing test systems, storing and transporting specimens, etc. Mandatory documentation of all processes and stages of laboratory diagnostics, including patient's personal data and test results; samples may be temporarily stored until test results are available to allow for retesting in case of equipment

	failure. All samples and results are recorded in the results log and can be recovered in case of loss of results.
Research procedures	All research processes are subject to standardisation and verification. They are recorded at each stage and specified in the instructions on the rules for their conduct, material characteristics, and interpretation of results. All procedures are documented and require replacement or updating in case of deviation from the norms.
Quality assurance of procedures	Adherence to instructions for biological material samples, reagents, research stages, and standardisation of results is essential. Documentation of deviations from the norm is mandatory.
Reporting on results	All processes are recorded appropriately, using generally accepted nomenclature and classification. Reports are generated at specified intervals, taking into account data from accounting documents, discrepancy reports, complaints and problem resolution reports.

Source: Allen (2013)

Figure 1 shows the digital layout of a trauma centre, which includes zoning according to the urgency of care. There are separate departments for routine outpatient and emergency care, an admission department, a waiting room, and diagnostic rooms, including express laboratories, X-ray rooms, and computed tomography. There are manipulation rooms, dressing rooms, and wards for inpatient treatment. The facility can treat 180 to 220 patients with various diseases and injuries daily. Zoning plays a role in the quality management system by separating outpatient

and emergency care, which allows for the simultaneous provision of services at different levels without causing mutual inconvenience. There are separate X-ray diagnostic rooms for patients from the emergency and outpatient units. The staff rooms are located by the zoning for easy monitoring of patients' condition. This model of the trauma unit includes the implementation of quality medical care standards at the stage of patient registration, optimisation of staff placement and management, provision of equipment and work planning.

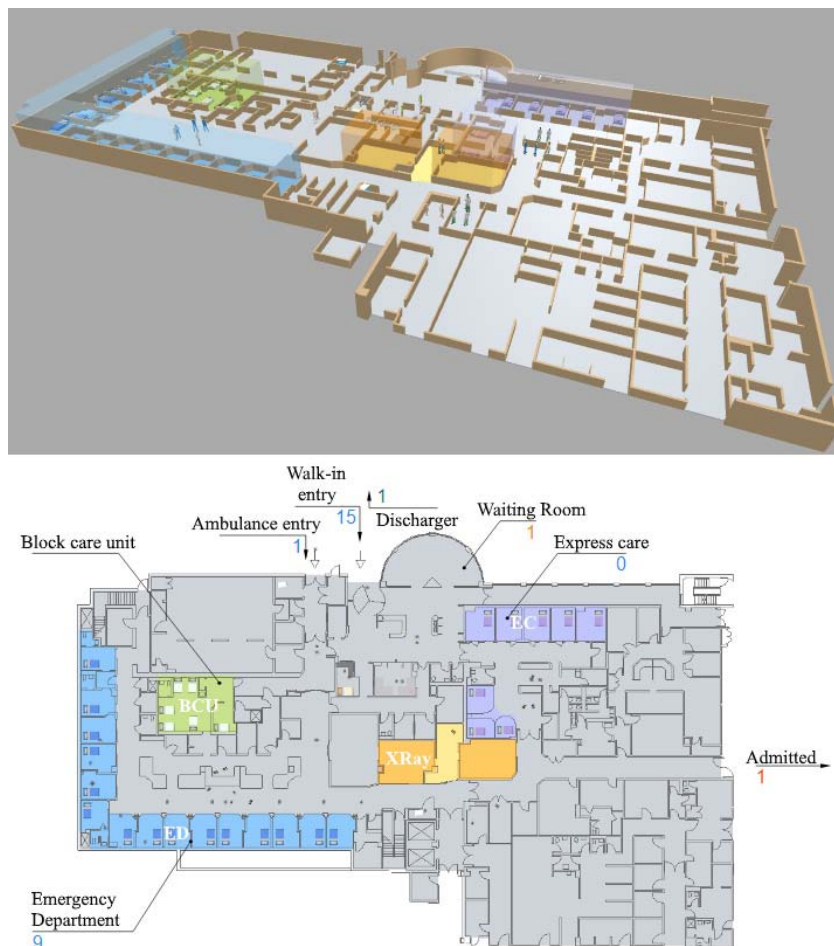


Figure 1. A digital model of the Trauma Profile Medical Centre

Visualisation of the trauma centre model in 2D and 3D images helps to assess the accessibility of trauma care and potential medical services that can be provided within the facility. The central location of diagnostic rooms facilitates access to diagnostics for patients from different departments. The absence of separate diagnostic areas for outpatients and emergency patients is due to the requirements of wall permeability in these rooms. However, it is a positive factor that there are separate X-

ray rooms for outpatients and emergency patients, as this reduces the risk of disease spread among these groups of patients.

Within the walls of the modelled facility, it is possible to provide care to more than 180 patients per day, some of whom may be day or round-the-clock inpatients. Therefore, despite the advantages of zoning with the placement of medical staff, it is difficult to ensure effective simultaneous monitoring of a large number of patients in real-time. The problem of effective

monitoring can be solved by using wireless monitoring devices connected to a single hospital network and providing information on vital signs. The principle of remote monitoring systems is to collect information using touch sensors and transmit it uninterruptedly to hospital computers, which are accessible to doctors at the hospital or to the patient's devices, such as smartphones or smartwatches.

An analysis of the layout of the departments of a trauma centre shows the importance of zoning in achieving the basic principles of quality standards for medical care. The layout of zones of different functionality ensures staff work organisation and appropriate equipment availability. Separation of emergency and outpatient patients prevents the spread of infections between these groups of patients. In addition to zoning planning, it is essential to ensure the conditions for providing medical services, including standards for lighting, air temperature, humidity and ventilation. The departments' regulations should provide for the sanitisation of premises, work surfaces, and equipment, with

mandatory quarantining of wards, manipulation rooms, and dressing rooms by established schedules. The requirements of the standards should be posted in the wards and made available to medical staff. The creation of 2D and 3D diagrams of a medical facility should be carried out at the planning stage with the relevant documentation and taking into account ISO 9001:2015 and ISO 15189:2022 standards.

Patient monitoring system

Figure 2 schematically shows the layout of sensors and devices to which information is transmitted. Depending on their location on the body's topographical points, the sensors are divided into electroencephalography, airflow and respiratory rate, electrocardiography, patient position, blood pressure, pulse oximeter with heart rate and blood oxygen saturation, electromyography, motion sensor, etc.

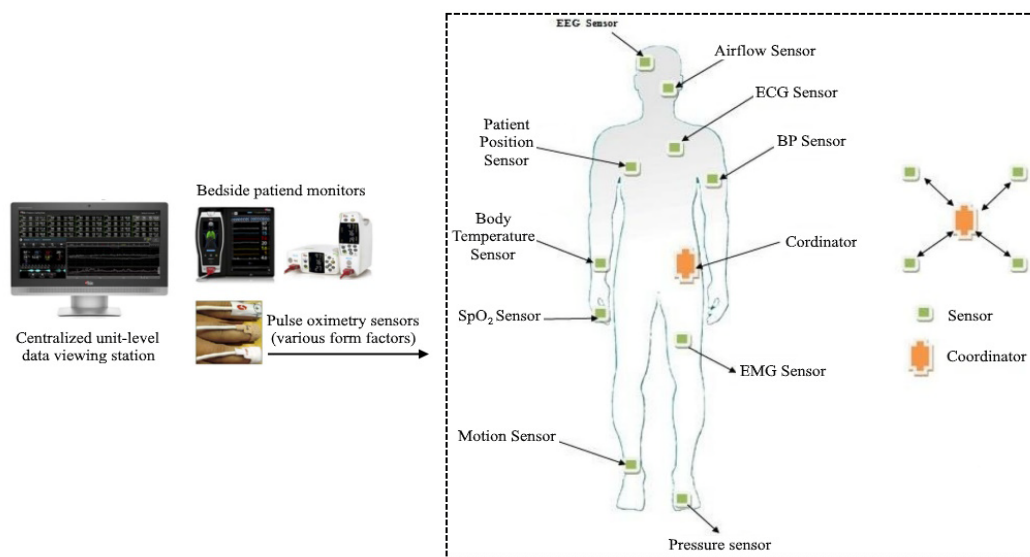


Figure 2. A scheme for placement of sensors and devices for transmission and interpretation of the results of the patient condition monitoring system

Source: Singh et al. (2021)

Remote sensors (Figure 2) are widely used in medical practice. Most of the sensors are not expensive and reduce the burden on medical staff when measuring blood pressure, saturation, body temperature, etc. The monitoring system for inpatient wards is usually represented by bedside monitors with sensors connected to them (Singh et al., 2021). Moreover, such automated measurement can be controlled by setting the multiplicity of measurements and storing information. For example, for intensive care units, it is essential to continuously measure these vital parameters with the ability to respond to changes promptly. For therapeutic and surgical departments, monitors set the parameters for hourly measurement of indicators. This monitoring limitation is essential to extend the equipment's life and reduce unnecessary information that needs to be interpreted. The same applies to the storage of monitoring data, which should be concise to reduce the time spent reviewing and interpreting the results by the doctor. More important, especially for intensive care units, is the presence of a signal of a threatening change in a physiological parameter, such as a drop in saturation, acceleration or deceleration of pulse rate, respiration, increase or decrease in blood pressure, etc.

Wireless monitoring systems also expand diagnostic capabilities for outpatients. Combining a wireless sensor network with a local hospital system makes collecting patient data at home possible, considering the usual loads and stress levels. Such a system is valuable for diagnosing hypertension and angina and determining the effectiveness of hypertension and coronary heart disease therapy. Remote monitoring reduces the time required to

diagnose and select therapy in patients, which is carried out as part of a routine medical examination.

Today, medical sensors have significantly expanded their application scope and perform diagnostic and therapeutic functions. Diagnostic sensors can be connected to monitors, such as pulse oximeters, blood pressure cuffs, and topographic point sensors for electrocardiography, electromyography, and electroencephalography. Therapeutic sensors are patches containing a medicine of a specific concentration delivered to the target tissue over a certain period. Another example of therapeutic sensor functionality is the automatic switching between defibrillators and stimulator sensors for pain management.

The principle of wireless sensors' operation involves sending information about physiological parameters through a body control unit that coordinates data collection. The data is transmitted by connecting the sensors to a medical server via the Internet or a local network. Bluetooth or Wi-Fi is used for data transmission. The first level of data transmission is when the body control unit receives information. The second level involves data transfer to the patient's smartphone or personal computer, which hosts the coordinator app. The third level is the transfer of data to a medical facility, where further analysis and interpretation of the data takes place. The sensors can be synchronised with the patient's smart devices, such as a phone or a watch. Wireless sensors can detect physiological health indicators (physical activity based on motion sensors) and

behavioural patterns (nutrition based on calorie intake and loss, daily routines based on movement, and sleep and activity periods). Other capabilities of the sensors include speech and vision amplification. Thus, the modern capabilities of digital technologies are of great importance in monitoring the patient's physiological parameters and play an essential role in patient safety.

5 Discussion

The ISO 9001:2015 and ISO 15189:2022 standards are international and generally accepted guidelines aimed at patient safety and reducing adverse events related to the human factor or the conditions of medical care. That is why standards are mandatory, and detailed guidelines are provided at medical facilities' planning, creation, control, and operation stages, including laboratories. The development of standards is a continuous process that includes implementing new methods, equipment, and personnel management principles to improve the quality of healthcare services. That is why compliance with the requirements of the standards is not a formality or a limiting factor in the work of medical institutions but rather a developed recommendation to avoid adverse effects on patients, medical staff and the environment (Fedele et al., 2022).

The development of digitalisation also affects the healthcare system, for which the introduction of innovative technologies is promising and requires detailed study before being applied in practice, as the cost of a mistake concerns the patient's safety. That is why IT systems related to patient care must be reliable, safe and high-quality (Burgers et al., 2020; Sittig et al., 2020). Control over the effectiveness of IT systems in healthcare facilities should include a multi-level check to avoid errors and negative consequences for patient safety (Wienert, 2019).

Singh and Sittig (2016) have developed a strategy for predicting the security of digital technologies in the healthcare system called Healthcare IT Security (HITS), which aims to identify potential risks associated with IT systems. This model determines the effectiveness of IT programmes in performing their tasks and simulates situations of different ways of using digital tools, including misuse, to clearly identify potential dangers in the case of misuse of IT. This model of prevention, while costly, allows for the identification of programme deficiencies before they can cause harm to patients.

However, the opportunities offered by digital technologies for the healthcare industry outweigh the potential risks, especially in the case of reporting, quality control, and optimisation of healthcare facilities. Digital technologies allow for the analysis of an extensive database of statistical parameters and the identification of inconsistencies and gaps in the institution's work and personnel management. Automated checks can identify the cause and effect of adverse incidents, improving healthcare service quality (Silva et al., 2021).

Nadziakiewicz and Mikolajczyk, 2019, describe the complexity of determining the effectiveness of medical institutions by individual indicators. After all, statistical reporting parameters allow us to directly determine the economic feasibility of a specific list of medical services and determine the duration and outcome of treatment. However, it is impossible to consider the patient's quality of life after treatment and satisfaction with the facility. Another aspect is the assessment of medical care, which may not justify itself due to low demand for the service and high costs. It is crucial for the lives of patients who need it immediately, such as an urgent operation. In such cases, it is crucial to use the principles of international standards, which primarily assess the benefits to patient safety, regardless of economic feasibility.

Although current monitoring systems have not been subjected to multi-stage testing, most sensors are certified and approved for use in healthcare facilities. Moreover, more convenient, cost-effective and reliable sensors are being sought. Hatamie et al. (2020) describe the prospect of using textile-based physiological monitoring sensors, which will contribute to greater

convenience, accuracy and reliability of parameter recording. Adeniyi et al. (2021) studied the prospect of the Internet of Medical Things (IoMT), which is a combination of a network of body sensors with healthcare devices that allows detecting deviations of physiological parameters from the norm as a disease prevention measure.

Thus, the application of international standards is critical for the work of healthcare facilities to maintain patient safety, as careful adherence to the requirements of the standards minimises the risks associated with unforeseen factors, including human error. Following instructions when implementing IT technologies is also necessary, as the cost of a mistake is high and involves patient personal data, which is a medical secret. Although digitalisation has opened up new opportunities for monitoring patient safety, it still requires the study of long-term results, identification of potential errors and improvement by international standards.

6 Conclusion

Implementing ISO 9001:2015 and ISO 15189 is essential for patient safety, as it provides requirements that address all factors affecting the quality of medical care and laboratory diagnostics. The requirements of the standards are mandatory, as compliance with these requirements reduces the risk of adverse events in the provision of medical services. In the age of advanced digital technologies, it is necessary to consider and adapt standards for the implementation of IT in the healthcare sector. Although digital devices, including sensors for monitoring patients' condition, have significantly improved the quality of medical care by reducing the workload of medical staff, they require detailed analysis before being used in medical facilities.

Developing a digital model of a trauma centre includes planning the creation and operation of a medical facility by the requirements of the standards, including mathematical calculations to optimise space, room quality and zoning. As the model envisages medical care for more than 180 patients, the possibilities and prospects of using modern systems for monitoring patients' physiological parameters were considered. The modelling makes it possible to plan and evaluate the efficiency of patient registration, medical care at various levels, and diagnostics with the effective involvement of medical staff and resources of the medical institution. The developed model has revealed the benefits of effective zoning of functional areas of a medical facility, staff involvement, and patient monitoring systems to prevent the spread of infectious diseases and complications and prevent conditions that threaten the life and health of patients. This observation is essential for an increase in the seasonal incidence of influenza and COVID-19.

Evaluating the performance of medical institutions based on the creation of the proposed digital model is a promising method that can be used at the strategic planning stage, which allows for minimising negative factors and correcting inconsistencies, and at the stage of putting a medical institution into operation. At the same time, modelling can also be applied to existing facilities, for example, before modernising patient monitoring systems or assessing the quality of healthcare services.

Literature:

1. Adeniyi, E. A., Ogundokun, R. O., & Awotunde, J. B.: IoMT-based wearable body sensors network healthcare monitoring system. In *IoT in healthcare and ambient assisted living*, 2021, pp. 103–121. <https://doi.org/10.1007/978-981-15-9897-5>
2. Akter, S., Babu, M. M., Hossain, M. A., & Hani, U.: Value co-creation on a shared healthcare platform: Impact on service innovation, perceived value and patient welfare. *Journal of Business Research*, 2022, 140, 95–106. <https://doi.org/10.1016/j.jbusres.2021.11.077>
3. Allen, L. C.: Role of a quality management system in improving patient safety-laboratory aspects. *Clinical Biochemistry*, 2013, 46(13-14), 1187–1193. <https://doi.org/10.1016/j.clinbiochem.2013.04.028>

4. Berman, L., Raval, M. V., & Goldin, A.: Process improvement strategies: Designing and implementing quality improvement research. In *Seminars in pediatric surgery*, 2018, December, 27(6), 379–385. WB Saunders. <https://doi.org/10.1053/j.sempedsurg.2018.10.006>
5. Burgers, J., van der Weijden, T., & Grol, R.: Clinical practice guidelines as a tool for improving patient care. In *Improving patient care: the implementation of change in health care*, 2020, pp. 103–129. <https://doi.org/10.1002/9781119488620.ch6>
6. Classen, D. C., Munier, W., Verzier, N., Eldridge, N., Hunt, D., Metersky, M., ... & Battles, J.: Measuring patient safety: the Medicare patient safety monitoring system (past, present, and future). *Journal of Patient Safety*, 2021, 17(3), e234–e240. <https://doi.org/10.1097/PTS.0000000000000322>
7. Debie, A., Khatri, R. B., & Assefa, Y.: Successes and challenges of health systems governance towards universal health coverage and global health security: a narrative review and synthesis of the literature. *Health research policy and systems*, 2022, 20(1), 50. <https://doi.org/10.1186/s12961-022-00858-7>
8. Dymyt, M.: The Role of eHealth in the Management of Patient Safety. *Journal of e-health Management*, 2020, 2020, 1–13. <https://doi.org/10.5171/2020.341252>
9. Fedele, A., Avruscio, G., Barison, L., & Scipioni, A.: Standards to Support ISO 15189 Implementation for Medical Laboratories Accreditation. *Clin Case Rep Int.*, 2022, 6, 1310.
10. Flohr, L., Beaudry, S., Johnson, K. T., West, N., Burns, C. M., Ansermino, J. M., ... & Görges, M.: Clinician-driven design of vital pad-an intelligent monitoring and communication device to improve patient safety in the intensive care unit. *IEEE journal of translational engineering in health and medicine*, 2018, 6, 1–14. <https://doi.org/10.1109/JTEHM.2018.2812162>
11. Giuliano, K. K.: Improving patient safety through the use of nursing surveillance. *Biomedical instrumentation & technology*, 2017, 51(s2), 34–43. <https://doi.org/10.2345/0899-8205-51.s2.34>
12. Halamoda-Kenzouai, B., Holzwarth, U., Roebben, G., Bogni, A., & Bremer-Hoffmann, S.: Mapping of the available standards against the regulatory needs for nanomedicines. *Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology*, 2019, 11(1), e1531. <https://doi.org/10.1002/wnan.1531>
13. Han, S., Xu, M., Lao, J., & Liang, Z.: Collecting Patient Feedback as a Means of Monitoring Patient Experience and Hospital Service Quality-Learning from a Government-led Initiative. *Patient preference and adherence*, 2023, pp. 385–400. <https://doi.org/10.2147/PPA.S397444>
14. Hatamie, A., Angizi, S., Kumar, S., Pandey, C. M., Simchi, A., Willander, M., & Malhotra, B. D.: Textile-based chemical and physical sensors for healthcare monitoring. *Journal of the Electrochemical Society*, 2020, 167(3), 037546. <https://doi.org/10.1149/1945-7111/ab6827>
15. Ilinca, R., Chiriac, I., Ațeșdu D. A., Ganea, I., Hristodorescu-Grigore, S., & Dănciulescu-Miulescu, R. E.: Understanding the key differences between ISO 15189:2022 and ISO 15189:2012 for an improved medical laboratory quality of service. *Revista Romana de Medicina de Laborator*, 2023, 31(2), 77–82. <https://doi.org/10.2478/rmlm-2023-0011>
16. ISO 9001:2015 Quality Management Systems – Requirements. 2015. <https://www.iso.org/standard/62085.html> [Accessed 24 July 2023].
17. ISO 15189:2022 Medical laboratories – Requirements for quality and competence. 2022. <https://www.iso.org/standard/76677.html> [Accessed 24 July 2023].
18. Kaban, W.: Implementation of ISO 9001: 2015 quality management system in a clinical [sic] laboratory in the Southern suburb of Beirut. 2019.
19. Li, X., Krumholz, H. M., Yip, W., Cheng, K. K., De Maeseneer, J., Meng, Q., ... & Hu, S.: Quality of primary health care in China: challenges and recommendations. *The Lancet*, 2020, s395(10239), 1802–1812. [https://doi.org/10.1016/S0140-6736\(20\)30122-7](https://doi.org/10.1016/S0140-6736(20)30122-7)
20. Lleshi, S.: The Effectiveness of QMS Implementation in Applying of Quality Health Care for Patients in Health Institutions of Kosovo. *European Journal of Medicine and Natural Sciences*, 2020, 3(1), 26–34.
21. McGrath, S. P., McGovern, K. M., Perreard, I. M., Huang, V., Moss, L. B., & Blike, G. T.: Inpatient respiratory arrest associated with sedative and analgesic medications: impact of continuous monitoring on patient mortality and severe morbidity. *Journal of Patient Safety*, 2021, 17(8), 557. <https://doi.org/10.1097/PTS.0000000000000696>
22. Nadziakiewicz, M., & Mikołajczyk, A.: The quality and safety of health care services. *Management Systems in Production Engineering*, 2019, 27(2), 100–104. <https://doi.org/10.1515/mspe-2019-0017>
23. Noviantoro, R., Maskuroh, N., Santoso, B., Fahlevi, M., Pramono, R., Purwanto, A., ... & Munthe, A. P.: Did the quality management system ISO 9001 version 2015 influence business performance? Evidence from Indonesian hospitals. *Journal Scopus*, 2020.
24. Peine, A., Gronholz, M., Seidl-Rathkopf, K., Wolfram, T., Hallawa, A., Reitz, A., ... & Martin, L.: Standardised Comparison of Voice-Based Information and Documentation Systems to Established Systems in Intensive Care: A Crossover Study. *JMIR Medical Informatics*, 2023, 11, e44773. <https://doi.org/10.2196/44773>
25. Pelzang, R., & Hutchinson, A. M.: Patient safety policies, guidelines, and protocols in Bhutan. *The International Journal of Health Planning and Management*, 2019, 34(2), 491–500. <https://doi.org/10.1002/hpm.2729>
26. Pereira, P.: ISO 15189: 2012 Medical laboratories-Requirements for quality and competence. Westgard QC: Madison, WI, USA, 2020.
27. Prasetya, B., Restu Wahono, D., Yopi, & Prasetya, C.: Innovation Opportunity and Challenge of Standardisation in Response to COVID-19 Pandemic and the Socio-Economic Impact: A Case Study in Indonesia. *Standards*, 2022, 2(1), 66–82. <https://doi.org/10.3390/standards2010006>
28. Pronovost, P. J., Cole, M. D., & Hughes, R. M.: Remote patient monitoring during COVID-19: an unexpected patient safety benefit. *Jama*, 2022, 327(12), 1125–1126. <https://doi.org/10.1001/jama.2022.2040>
29. Senbekov, M., Saliev, T., Bukeyeva, Z., Almabayeva, A., Zhanaliyeva, M., Aitenova, N., ... & Fakhradiyev, I.: The recent progress and applications of digital technologies in healthcare: a review. *International journal of telemedicine and applications*, 2020, (1), 8830200. <https://doi.org/10.1155/2020/8830200>
30. Silva, K. T. D., Filgueiras, R. C., Gamaski, R., & Göttems, L. B. D.: Prototype for monitoring incidents in the health services: innovation for patient safety. *Texto & Contexto-Enfermagem*, 2021, 29. <https://doi.org/10.1590/1980-265x-tce-2019-0185>
31. Singh, H., & Sittig, D. F.: Measuring and improving patient safety through health information technology: The Health IT Safety Framework. *BMJ Quality & Safety*, 2016, 25(4), 226–232. <https://doi.org/10.1136/bmjqs-2015-004486>
32. Singh, P., Raw, R. S., & Khan, S. A.: Development of novel framework for patient health monitoring system using VANET: an Indian perspective. *International Journal of Information Technology*, 2021, 13, 383–390. <https://doi.org/10.1007/s41870-020-00551-4>
33. Sittig, D. F., Wright, A., Coiera, E., Magrabi, F., Ratwani, R., Bates, D. W., & Singh, H.: Current challenges in health information technology-related patient safety. *Health Informatics Journal*, 2020, 26(1), 181–189. <https://doi.org/10.1177/1460458218814893>
34. Sullivan, Z. P., Zazzeron, L., Berra, L., Hess, D. R., Bittner, E. A., & Chang, M. G.: Noninvasive respiratory support for COVID-19 patients: when, for whom, and how? *Journal of Intensive Care*, 2022, 10(1), 3. <https://doi.org/10.1186/s40560-021-00593-1>
35. Vaismoradi, M., Tella, S., Logan, P. A., Khakurel, J., & Vizcaya-Moreno, F.: Nurses' adherence to patient safety principles: A systematic review. *International journal of environmental research and public health*, 2020, 17(6), 2028. <https://doi.org/10.3390/ijerph17062028>
36. Wienert, J.: Understanding health information technologies as complex interventions with the need for thorough implementation and monitoring to sustain patient safety. *Frontiers in ICT*, 2019, 6, 9. <https://doi.org/10.3389/fict.2019.00009>

Primary Paper Section: F

Secondary Paper Section: FQ, FS

UTILISING DESIGN THINKING APPROACH TO ADAPT PUBLIC SERVANTS TO THE CHALLENGES OF COVID-19

^aYURII DZIURAKH, ^bNAZAR PODOLCHAK,
^cNATALIA TSYGYLYK, ^dVERONIKA KARKOVSKA,
^eOLENA BILYK, ^fOLEH SOKIL

^{a,b,c,d,e,f}*Institute of Public Administration, Governance and Professional Development, Lviv Polytechnic National University, Lviv, Ukraine.*
 email: ^ayriu.dziurakh@ukr.net

Abstract: The phenomenon of design thinking has a significant potential to form a synergistic interaction of individual abilities of leaders, managers and civil servants in the context of global challenges caused by the consequences of the COVID-19 pandemic. Against the backdrop of these issues, ensuring the effectiveness of key state institutions and organisations is of particular relevance, which, in turn, requires a detailed analysis of potential measures to counteract negative impacts. The aim of the study is to analyse the potential of design thinking in the context of developing and implementing a comprehensive mechanism for overcoming the effects of COVID-19 on the activities of civil servants. The article focuses on the functionality of design thinking in terms of civil servants' basic professional and personal skills. The possibility of their allocation as separate indicators of the concept is considered. The structural elements of design thinking are outlined, and each of them is described in detail. The imperative for establishing a unified mechanism to address the pandemic's existing and potential adverse consequences is clearly demonstrated. The peculiarities of integrating design thinking based on the Stanford concept into the work of civil servants in Ukrainian public institutions are described. It is assumed that implementing this goal will increase the efficiency of civil servants, forming an effective mechanism for mitigating the risks caused by the pandemic. The author identifies sustainable principles that can facilitate the operational and strategic management of team performance in the civil service. The priorities for further improvement of design thinking skills to improve the efficiency of public institutions are revealed. The specifics of the Stanford model as an effective tool for team development and management decision-making are investigated. The main principles of the mechanism for overcoming the destructive effects of COVID-19 through the introduction of design thinking technology, which helps improve public institutions' efficiency and quality of work and create favourable conditions for team effectiveness, are analysed. The study's results have practical value in the development, improvement and modernisation of the design thinking concept to minimise the impact of the adverse effects of the COVID-19 pandemic.

Keywords: Corporate culture, civil servants, design thinking, hard skills, soft skills, consequences of COVID-19, professional competences of staff.

Funding: This paper was created within the National Research Foundation of Ukraine project "Assessing the impact of the Covid-19 pandemic on Ukraine's human resources and identifying ways to overcome them." Project registration number 2021.01/0433

1 Introduction

The actualisation of the phenomenon of design thinking today makes it possible to actively introduce it into institutions whose functioning requires integrating new creative approaches to levelling the challenges and threats of our time. In this context, public institutions need to improve the efficiency of the management paradigm.

Most management processes in public institutions are implemented by specialists who must have the necessary skills and abilities to formulate solutions as complementary as possible to the tasks and goals set. Implementing design thinking approaches in the context of an innovative approach to the professional training of civil servants has the potential to develop and actively improve hard and soft skills.

In the context of Ukrainian realities, developing and further implementing the methodology and programmes of existing practical successful models of developed countries is necessary. These models are positioned by a system of specific principles and consistent processes of optimising the corporate culture of civil servants. The latter helps to improve performance and encourages the search for non-standard, balanced alternative solutions.

Design thinking focuses on empathy, communication competence and emotional intelligence. These factors synergistically contribute to the active development of the internal environment of a government organisation. The problems caused by the COVID-19 pandemic in 2019 and 2020 are ongoing, provoking significant negative dynamics within the state apparatus and global destruction of management processes.

In order to avoid related risks and mitigate potential threats, it is advisable to use all available opportunities to improve human capital performance.

Civil servants are responsible for formulating and approving effective management decisions. The current situation requires the creation of a mechanism to ensure the high quality of civil servants' performance.

2 Literature review

Scientists have studied the possibilities of the design thinking concept, its structure and bare functionality and analysed its potential in the vector of development and implementation of a comprehensive mechanism for mitigating the consequential impact of COVID-19 (Lewis, 2021). The latter variation has been identified by researchers Dell'Era et al. (2020) as a particularly effective approach in the context of the professional activities of civil servants. This is based on an analysis of the practice of its implementation and improvement in developed countries.

According to scientists (Blomkamp, 2022), design thinking is a concept that synergises creative and non-standard approaches, primarily to develop practical solutions to new challenges. The authors position design thinking as an essential tool for modern management.

Implementing the design thinking system on an international scale is a common practice among government and commercial organisations. This experience is considered significant in the context of maximum implementation in Ukrainian realities, from an educational institution to a government agency. Design thinking activates creative abilities, develops emotional intelligence, and creates conditions for developing practical skills for further effective management. This is the opinion of Lim et al. (2022). Given its status as a driver of both individual and collective advancement, design thinking necessitates a distinctive shift in the methods employed by civil servants. Design thinking in modern government structures is a conceptual element of additional educational programmes, as it allows mastering practical skills and knowledge that can significantly improve civil servants' performance.

According to Masyk et al. (2023), using design thinking stimulates the effectiveness of collective interaction, contributes to forming a favourable business climate and corporate culture, and focuses efforts on specific tasks. In particular, it can be employed to conduct a structural analysis of potential solutions to prevent or mitigate new challenges and threats. Design thinking allows for innovative approaches, mechanisms and solutions for commercial organisations and governmental entities.

Prior training is an essential factor in integrating design thinking into government structures. Podolchak et al. (2022) argue that improving infrastructure, detailing the competence development programme for employees, and stimulating the development of continuous self-education skills can serve as effective means of rapid training and practical application of acquired skills and abilities.

The issue of COVID-19 remains relevant today due to the significant scale of the negative consequential impact on all aspects of public life, including the level of readiness of civil servants to mitigate existing and potential threats (Vassallo et al., 2023). In this context, using the concept of design thinking to adjust work processes within the activities of a public institution contributes to the formation of an effective environment for making high-quality and optimal management decisions.

Modern scholars Vink et al. (2021) argue that forming a mechanism for preventing the consequences of a pandemic in the civil service system based on design thinking requires proper infrastructure preparation, appropriate programme and design

work, and readiness for possible related challenges and obstacles. Despite modern scientists' significant achievements in the aspects of the problem under study, ensuring civil servants' effectiveness in post-COVID crisis conditions remains relevant and requires extended research.

The study aims to analyse the potential of design thinking in developing and implementing a comprehensive mechanism for overcoming the effects of COVID-19 on civil servants' activities.

3 Materials and methods

Several research methods were used to analyse the possibilities of applying design thinking to develop a comprehensive mechanism for counteracting the impact of COVID-19 on civil servants' activities. In particular, analysis and synthesis allowed us to study several scientific materials and modern theoretical and practical publications on the possibilities of implementing design thinking and its potential in unfavourable conditions for government organisations and structures. A systematic analytical approach was employed to examine the results, and recommendations were formulated for the further development and impact of design thinking implementation. The article employs a search method to delineate the distinctive characteristics of design thinking as a conceptual framework that enhances the efficacy of civil servants' activities, mitigates the adverse effects of external influences, and equips them to anticipate and address existing and potential challenges and risks.

The comparative method was employed to analyse the Stanford and 4W models. This revealed that the former is best placed to implement the concept of design thinking in the context of Ukrainian society's development.

The survey methodology was utilised to analyse the level of development of hard and soft skills of civil servants from different organisations and to determine their skill levels.

By employing the abstraction technique, the critical issues about the performance of civil servants and their detrimental impact on the quality of work were successfully identified. These aspects reveal potential ways of improvement through the integration of design thinking technologies based on the Stanford model as a tool to counteract the consequential impact of COVID-19 on performance, focusing on the creation of infrastructure, development of specialised skills, abilities and knowledge, and increasing the emotional intelligence of employees.

The applied research methods enabled us to identify the potential for improving skills to ensure the mechanism's functioning and counteract the pandemic's effects on civil service.

4 Results

The phenomenon of design thinking has a significant potential to increase the efficiency of management decisions, integrate innovative approaches to achieving goals, and solve problems caused by the consequential destructive impact of the COVID-19 pandemic. The concept of design thinking involves the implementation of integrated approaches, methods, and tools that focus on transforming managers' thinking towards the concepts of flexibility, adaptability, and structuredness.

Against modern society's development trends, design thinking is positioned as particularly significant and functional for civil servants who must effectively use their managerial skills to achieve their goals. Design thinking is the dynamics of one's thinking based on creativity, non-standard approaches, critical thinking, high motivation, and continuous self-development.

Based on the concept of design thinking, it is possible to intensify the quality of management of state structures and institutions, which ultimately affects the country's macroeconomic climate (Vinni, 2021). In this context, developing the design thinking concept and its practical implementation are prioritised for government agencies, structures, and organisations.

Today, the most popular design thinking models are the Stanford Design Thinking Model and the 4W model. The former is based on several essential components that define the conceptual programme of its functionality. These include focus (concentrating on a specific issue, achieving a comprehensive understanding), empathy (developing emotional intelligence and working directly with people or issues related to people), prototyping (an essential step in generating ideas, involving the creation of an intellectual or physical product to obtain feedback and understand the quality of the product and its potential use), testing (assessing the quality of work, monitoring processes and finding ways to improve), idea generation (using creative ideas to find solutions, and non-standard approaches that deliver quality results) (Vink et al., 2021).

An alternative model of design thinking is 4W. It is based on the concepts "What is?", "What if?", "What is WOW?" and "What works?" Each stage involves identifying the problem and possible solutions, creating a prototype, developing an effective mechanism for solving the problem, and selecting the most optimal solution.

Implementation of the concept of design thinking in the professional environment of civil servants motivates managers to improve and develop soft skills. Also, it has a qualitative impact on the effectiveness of using hard skills. Soft skills of civil service include a specific categorisation, particularly communication skills, including effective communication, listening and persuasion skills, and the ability to express thoughts and ideas clearly and competently. The second category includes mastering skills in building positive relationships, including the willingness to cooperate and teamwork, conflict resolution, and building trusting friendships. The third category of soft skills contains aspects of personal development, such as self-control and continuous self-development, the ability to work in a stressful situation and overcome its consequences, and an appropriate level of innovative thinking and creativity (Podolchak et al., 2022).

Soft skills are identified as universal personal characteristics that can be effectively implemented in any field of activity. The most important are emotional intelligence, adaptability, communication skills, problem-solving, leadership, teamwork, creativity, and others. In order to analyse the quality of the COVID-19 response, it is necessary to use deep feedback mechanisms, develop emotional intelligence and apply creativity. This is well aligned with the characteristics of the Stanford Design Thinking Model, making it the most appropriate choice for the study. The main principles and advantages of this model are shown in Table 1.

Table 1: Principles of the Stanford Design Thinking Model

Principles	Features	Model advantages
Teamwork	Ensuring a favourable environment for teamwork	The model involves teamwork, with a high-quality system of delegation and distribution of responsibilities
Focus on people	An activity's product should be helpful to people	The model reminds us of the final goal of the activity and helps to improve people's lives
Optimism	Introducing a positive mindset and focus on results	The model encourages positive thinking and effective functioning of the organisation
Ability to ask questions	Searching for an effective solution and the ability to define an issue, as well as the ability to assess it rationally	The model encourages a holistic view of the problem and the search for the most optimal solutions
Creative approach	A non-standard approach to solving administrative and operational service issues	The model emphasises the use of non-standard and effective solutions

Source: compiled by the author

By conducting surveys among a representative sample of government representatives, senior managers and officials, the level of development of hard and soft skills was determined, and the potential effects of the introduction of design thinking based on the Stanford model were predicted. For the analytical study, the following hard skills assessment parameters were proposed, which comprehensively and in detail reflect the quality of civil servants' practical skills: assessment, execution, control, level of

education, operational planning, regulation, design thinking, strategic planning, knowledge of the Ukrainian language, knowledge of foreign languages (Lewis, 2021). The selected categories best describe the mastery of hard skills, and it is proposed that a scale for assessment be used: high, medium, and low. The results obtained on the quality of hard skills are presented in Table 2.

Table 2: Description of hard skills of civil servants of A and B categories in three institutions

Skill	Assessment of the level of skills mastery					
	State institution 1		State institution 2		State institution 3	
	Government representatives	Officials	Government representatives	Officials	Government representatives	Officials
Education level	3	3	3	3	3	3
Strategic planning	3	1	2	2	3	2
Operational planning	2	2	2	2	2	2
Assessment	2	1	2	2	2	1
Execution	3	2	3	1	2	3
Control	2	1	2	3	3	2
Regulation	2	1	3	2	1	2
Design thinking	2	3	2	2	2	2
Ukrainian language proficiency	3	2	3	3	3	2
Foreign language proficiency	3	2	3	2	2	2
Overall level	25	18	25	22	23	21
The total score	43		47		44	

Source: compiled by the author

*3 – high level, 2 – medium, 1 – low

The obtained indicators indicate a high level of professionalism, the quality of mastering practical skills, and the ability of managers to use their professional skills effectively. In addition, all three state organisations demonstrate a high value of the "effectiveness" parameter and an average level of "design thinking", which is typical for operational work and direct workload. Applying the proposed model can help improve the quality of communication, leadership, motivation, and positive thinking and find ways to strengthen this process.

The analysis suggests that government organisations have a reliable work system in the context of the spread of COVID-19 and can create a competitive model for other government agencies. However, despite the high level, it is not the maximum, even considering the positive results. Therefore, there is a need to develop and find practical solutions to improve the quality of productivity and hard skills among civil servants.

Implementing successful communication activities in the professional duties of civil servants is the basis for establishing effective teamwork and collective work for results. The ability to express opinions in a concrete and acceptable manner, represent ideas, listen to opposed positions and resolve conflict situations promptly are essential components of successful communication. The skills of innovation and creativity, which are part of the soft skills category, are often the priority components of a manager's successful development algorithm. A creative attitude allows looking for new approaches to solving current problems and developing innovative competitive products. To assess the quality of soft skills, the following parameters are proposed: emotional intelligence, non-confrontational behaviour, leadership, time management, communication, adaptability, creativity, critical thinking, self-motivation and stress resistance (see Table 3).

Table 3: Description of soft skills of civil servants of A and B categories in three institutions

Skill	Assessment of the level of skills mastery					
	State institution 1		State institution 2		State institution 3	
	Government representatives	Officials	Government representatives	Officials	Government representatives	Officials
Emotional intelligence	3	2	3	2	2	2
Non-conflictuality	2	2	2	2	2	2
Leadership qualities	2	2	3	2	2	1
Time management	2	2	2	2	2	1
Communication	2	2	2	2	2	1
Adaptability	2	2	2	2	1	1
Creativity	1	3	2	2	2	1
Critical thinking	2	2	2	2	1	1
Self-motivation	3	3	2	2	1	1
Stress resistance	3	1	3	2	2	2
Overall level	22	21	23	20	17	13
The total score	43		43		30	

Source: compiled by the author

*3 – high level, 2 – medium, 1 – low

Emotional intelligence, leadership and communication are essential soft skills that are fundamental to the development of hard skills. They have the most significant impact on the potential for developing these skills and play a crucial role in effective and optimal management. Motivation, stress tolerance and adaptability reflect a person's psychological state and ability to make decisions, take advantage of opportunities to continue working, and are the basis for assessing their potential. In the context of career growth for managers, the possession of professional knowledge, skills and practical abilities (hard skills) is no longer the sole determining factor. The readiness for continuous self-development and self-criticism, the ability to establish teamwork, and the capacity to identify and implement creative solutions to overcome professional difficulties while maintaining a focus on personal development are also highly valued. These attributes, which may be described as soft skills, are now an essential component of the managerial toolkit.

Time management and critical thinking are essential for making good decisions and finding the best ways to overcome difficulties in the face of increasing stress. In addition, a high level of soft skills development impacts hard skills development.

The result shows that soft skills are less important than hard skills due to the unstable working conditions caused by the war and the gradual transformation of most work processes. Therefore, in the event of a recurrence of the COVID-19 pandemic, it is necessary to use practical tools to mitigate the consequences, mainly to implement the practice of design thinking. This can affect the quality of development of most soft skills and, accordingly, stimulate the improvement of hard skills. Creating a unified system for sharing experiences and implementing the Stanford Design Thinking Model is extremely important, as it can yield positive results in the work of civil servants in the long run.

Implementing the Stanford Design Thinking Model to mitigate the destructive effects of the pandemic on civil servants' activities requires introducing creative methods and forming a practical, well-established system based on innovative management approaches (see Figure 1).

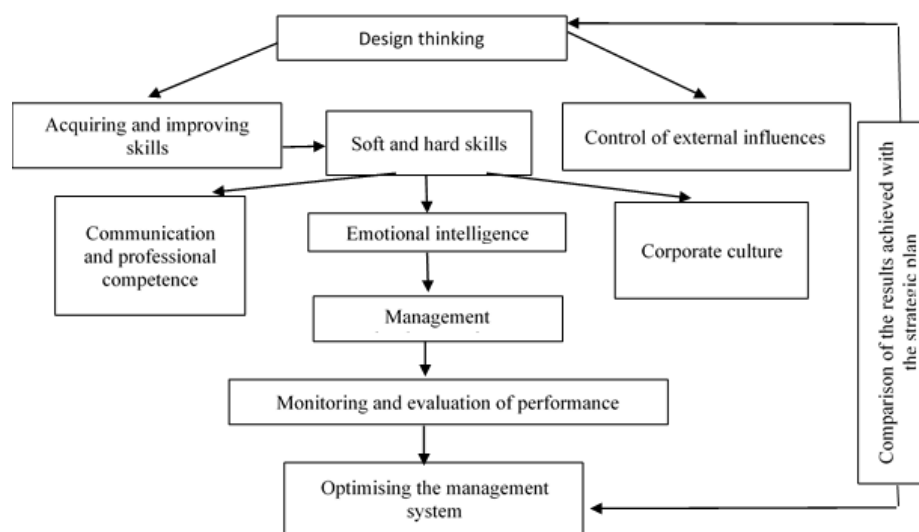


Figure 1: Using the Stanford Design Thinking Model to optimise the performance of civil servants in the Post-Covid period
Source: compiled by the author

Implementation of the Stanford model will stimulate the development of soft communication skills, increase civil servants' effectiveness, develop their emotional intelligence, and promote the growth of hard skills. The study shows that integrating the Stanford Design Thinking Model can maximise the degree of hard and soft skills among civil servants, which will help offset the impact of the pandemic's destructive effects.

5 Discussion

Research by modern scholars Lewis et al. (2020) shows that developing a comprehensive mechanism to counter the consequential impact of COVID-19 on the performance of civil servants requires updating the concept. According to several authors (Petrenko et al., 2022), the integration of design thinking is currently seen as a vital tool for practical management tools within government agencies. These include, first of all, the development of emotional intelligence, motivation and communication.

Another area of research Shpak et al. (2022) is the development of a system for implementing design thinking in the activities of state organisations and structures in the context of responding to existing and future threats. In this context, preparing seminars, specialised consulting events, and conferences are influential. According to scientists, the primary purpose of this preparatory stage is to convey to civil servants and senior management the importance of such practices and the potential for using the most effective solutions in an unstable environment.

Some scholars (Bason & Austin, 2022) see the gradual integration of the experience gained practically as an essential factor in improving civil servants' performance. Research in this context can significantly improve the quality of work in public institutions and enhance each civil servant's skills.

In addition, digital competence is crucial to civil servants' professional relevance and career prospects (Howlett, 2020; Villa Alvarez et al., 2022). Digitalisation skills contribute to successful communication interaction and are necessary for success in modern management. The formation and improvement of flexible skills and digital competence are positioned as an indicator of success in the modern labour market, which is rapidly adapting to digitalisation processes and a vector for ensuring the competitiveness of a specialist. Analysing the quality of digital systems, methods, and communication channels will be crucial for implementing design thinking practices in a dynamic digital environment.

Considering the specifics of society's dynamics, some authors (Trischler & Westman Trischler, 2022) highlight an innovative position on soft skills and digital competence as determinants of a modern approach to managerial professional ethics. The main emphasis in the definition of "soft skills" is the variability of behavioural responses that contribute to successful socialisation and teamwork.

Future research in this area should focus on developing digital literacy among civil servants and digitalising management tools.

6 Conclusion

The concept of design thinking is positioned as a modern and effective tool for developing a system for levelling post-COVID threats and challenges to civil servants' activities. The primary means of fostering design thinking are using non-standard approaches, effective business communication, searching for optimal solutions, and developing emotional intelligence that affects human performance.

The Stanford Design Thinking Model is the best and most cost-effective solution in this context. This model synergises the elements of empathy, focus, ideas, prototyping and testing. The advantages of this model lie in a wide range of parameters related to the skills of civil servants, their adaptability to new challenges, and their ability to make rational decisions in the face of global challenges and threats. The Stanford model can help improve civil servants' performance and encourage them to find creative, non-standard, practical solutions. An essential advantage of this model is the possibility of feedback through increased emotional intelligence, as the main result of work is aimed at people.

The introduction of design thinking technology will help overcome the destructive effects of COVID-19, improve the efficiency and quality of government agencies, and create favourable conditions for team effectiveness.

Literature:

1. Bason, C., & Austin, R. D.: Design in the Public Sector: Towards a Human Centred Model of Public Governance. *Public Management Review*, 2022. 24(11), 1727–1757. <https://doi.org/10.1080/14719037.2021.1919186>
2. Blomkamp, E.: Systemic Design Practice for Participatory Policymaking. *Policy Design and Practice*, 2022. 5(1), 12–31. <https://doi.org/10.1080/25741292.2021.1887576>
3. Dell'Era, C., Magistretti, S., Cautela, C., Verganti, R., & Zurlo, F.: Four kinds of design thinking: From ideating to making, engaging, and critiquing. *Creativity and innovation management*, 2020. 29(2), 324–344. <https://doi.org/10.1111/caim.12353>
4. Howlett, M.: Challenges in Applying Design Thinking to Public Policy: Dealing with the Varieties of Policy Formulation and Their Vicissitudes. *Policy & Politics*, 2020. 48(1), 49–65. <https://doi.org/10.1332/030557319X15613699681219>
5. Lewis, J. M., McGann, M., & Blomkamp, E.: When design meets power: Design thinking, public sector innovation and the politics of policymaking. *Policy & Politics*, 2020. 48(1), 111–130. <https://doi.org/10.1332/030557319X15579230420081>
6. Lewis, J. M.: The Limits of Policy Labs: Characteristics, Opportunities and Constraints. *Policy Design and Practice*, 2021. 4(2), 242–251. <https://doi.org/10.1080/25741292.2020.1859077>
7. Lim, S., Kim, M., & Sawng, Y. W.: Design Thinking for Public R&D: Focus on R&D Performance at Public Research Institutes. *Sustainability*, 2022. 14(13), 7765. <https://doi.org/10.3390/su14137765>
8. Masyk, M., Buryk, Z., Radchenko, O., Saienko, V., & Dziurakh, Y.: Criteria for governance institutional effectiveness and quality in the context of sustainable development tasks. *International Journal for Quality Research*, 2023. 17(2), 501–514. <https://doi.org/10.24874/IJQR17.02-13>
9. Petrenko, V., Dzvin, D., Liutyi, M., & Ozminka, I.: 3S-leadership model as a tool of using design thinking in the system of public governance. *International Journal of Innovative Technologies in Social Science*, 2022. 3(35). https://doi.org/10.31435/rsglobal_ijitss/30092022/7852
10. Podolchak, N., Martyniuk, V., Tsygulyk, N., Skowron, S., & Wołowiec, T.: Mitigating risks for effective personnel management in the organisation of the energy sector due to the COVID-19 pandemic. *Sustainability*, 2022. 14(16) <https://doi.org/10.3390/su141610055>
11. Shpak, N., Vytvytska, O., Martynyuk, O., Kylaec, M., & Sroka, W.: Formation of management and technological maturity levels of enterprises for their dynamic development.

Engineering Management in Production and Services, 2022. 14(3), 1–12. <https://doi.org/10.2478/emj-2022-0022>

12. Trischler, J., & Westman Trischler, J.: Design for experience—a public service design approach in the age of digitalisation. *Public Management Review*, 2022. 24(8), 1251–1270. <https://doi.org/10.1080/14719037.2021.1899272>

13. Vassallo, J. P., Banerjee, S., Zaman, H., & Prabhu, J. C.: Design thinking and public sector innovation: The divergent effects of risk-taking, cognitive empathy and emotional empathy on individual performance. *Research Policy*, 2023. 52(6). <https://doi.org/10.1016/j.respol.2023.104768>

14. Villa Alvarez, D. P., Auricchio, V., & Mortati, M.: Mapping Design Activities and Methods of Public Sector Innovation Units through the Policy Cycle Model. *Policy Sciences*, 2022. 55(1), 89–136. <https://doi.org/10.1007/s11077-022-09448-4>

15. Vink, J., Koskela-Huotari, K., Tronvoll, B., Edvardsson, B., & Wetter-Edman, K.: Service Ecosystem Design: Propositions, Process Model, and Future Research Agenda. *Journal of Service Research*, 2021. 24(2), 168–186. <https://doi.org/10.1177/1094670520952537>

16. Vinni, R.: The potential of design thinking and total quality management in creating public value. *NISPAcee Journal of Public Administration and Policy*, 2021. 14(1), 285–309. <https://doi.org/10.2478/nispa-2021-0011>

Primary Paper Section: F

Secondary Paper Section: FH, FN, FQ

G AGRICULTURE

GA	AGRICULTURAL ECONOMICS
GB	AGRICULTURAL MACHINES AND CONSTRUCTION
GC	PLANT GROWING, CROP ROTATION
GD	FERTILIZATION, IRRIGATION, SOIL TREATMENT
GE	PLANT CULTIVATION
GF	DISEASES, PESTS, WEEDS AND PLANT PROTECTION
GG	ZOOTECHNICS
GH	NUTRITION OF FARM ANIMALS
GI	FARM ANIMAL BREEDING AND FARM ANIMAL PEDIGREE
GJ	BDISEDAISES AND ANIMAL VERMIN, VETERINARY MEDICINE
GK	FORESTRY
GL	FISHERY
GM	FOOD INDUSTRY



THE ROLE OF UNEVEN AGRICULTURAL BUSINESS GROWTH IN SHAPING THE SOCIO-ECONOMIC LANDSCAPE OF RURAL REGIONS

^aSVITLANA BELEI, ^bYURI LOPATYNSKYI,
^cNAZAR LAHODYN, ^dYULIIA NEZHYYD,
^eNINA PETRUKHA

^{a,b,c}Yuriy Fedkovich Chernivtsi National University, Chernivtsi, Ukraine.

^dNational Scientific Centre „Institute of Agrarian Economics“; Institute of Accounting and Finance of the NAAS of Ukraine, Kyiv, Ukraine.

^eKyiv National University of Construction and Architecture, Kyiv, Ukraine.

email: ^as.belei@chnu.edu.ua, ^by.lopatynskiy@chnu.edu.ua, ^clahodyn.nazar@chnu.edu.ua, ^dnezhidjulial3@gmail.com, ^enninna1983@gmail.com

Abstract: The role of the agricultural sector in ensuring food security and the economic development of countries during the post-pandemic period and the spread of the consequences of the Russia-Ukraine war on global markets is crucial for maintaining food security, supporting domestic demand for agricultural products and ensuring a country's economic resilience. Therefore, the asymmetric development of the agricultural business is relevant, given the need to prevent its potential adverse effects on the overall socio-economic condition of rural areas. This scientific article aims to form the conceptual-categorical framework for the asymmetric development of the agricultural business and to study the current state and prospects for developing rural areas in the EU. Literature analysis, comparative analysis, and methods of systematisation and generalisation were among the general scientific methods of cognition used to form the conceptual-categorical framework and substantiate the problem of asymmetric agricultural business development. During the research, statistical data analysis was used to define the initial data for calculating the cumulative shares of income and the area of agricultural land, forming the Lorenz curve and further calculating the Gini coefficient. Based on the calculation of the Gini Index, the overall level of asymmetry in the development of the agricultural sector of European countries was determined. The obtained value of this index, $G = 0.8$, which lies within the range $0 \leq G < 0.3$, indicates a high level of socio-economic equality in the rural areas of EU member states, despite the potential food crisis and disruptions to sales markets due to external damaging factors. The concept of asymmetric development of the agricultural business is characterised by the uneven distribution of critical resources for the production of agricultural products between enterprises that differ in scale or the level of development in their regions of operation. A high level of asymmetry leads to the spread of negative phenomena in the socio-economic environment of rural areas, such as depopulation, unemployment, and a decline in the quality of regional infrastructure. To prevent excessive asymmetry, EU countries are implementing systematic measures to financially support specific agricultural enterprises and improve infrastructure, particularly logistics, in rural areas, which is reflected in the low level of inequality between rural areas in different regions and EU member states.

Keywords: Agricultural business, rural areas, uneven regional development, agriculture, production, productivity, competitiveness..

1 Introduction

Rural areas within the European Union (EU) cover over 83 % of the territory and are home to 137 million people, or 30 % of the EU population (European Commission, 2024). In contrast, rural areas in the United States are somewhat larger, covering approximately 97 % of the total territory, but they are home to only 19.3 % of the total US population (Ratcliffe et al., 2016). In this context, rural areas' unique economic, social, and cultural characteristics make their development a priority to ensure the country's overall economic growth. The main feature of rural areas is their affiliation with the agricultural sector, which serves as the primary source of income for most rural households (Davis et al., 2010). However, the efficiency of entities in this sector is often characterised by asymmetry, which creates imbalances in opportunities for economic growth and the population's well-being in different regions. An excessive level of asymmetry primarily results in income inequality, disparities in access to services, and the overall standard of living across regions. It also affects the development potential of local businesses, which in most cases focus on agriculture, thus having severe implications for both large agricultural enterprises and small farming households (Zahorodna et al., 2021).

This scientific article aims to develop the concept of asymmetry in the context of agricultural business development and to substantiate the impact of such unevenness on the socio-economic condition of rural areas. The article aims to examine the level of asymmetry in the European economy's agricultural

sector by determining the optimal methodological basis for calculating the "asymmetry index" (Gini coefficient). Based on the conducted analysis, conclusions are drawn regarding the problems of rural development in the EU and the prospects for reducing the level of asymmetry in the future.

2 Literature review

Although the issue of asymmetry in the development of the agricultural business covers a wide range of approaches to studying economic inequality in the agricultural sector, there is currently no clear definition (Tyukhtenko et al., 2021). To form the theoretical basis of this research, the problem of asymmetry in modern scientific works and the factors influencing the development of agriculture were analysed. In this context, Scoones et al. (2016) point out that the uneven development of the agricultural business is due to varying levels of access to financial resources, infrastructure, and modern technologies. A similar view is expressed by Kaplinsky and Kraemer-Mbula (2022), noting that countries with low and middle incomes are at the highest risk of increased asymmetry due to barriers to knowledge creation and technological development and the need for constant implementation of systemic changes. Additionally, Okunlola and Ayetigbo (2024) argue that a significant factor in the asymmetry of agricultural businesses is investment disparities, which are concentrated in a few economically developed regions, affecting the socio-economic growth of less funded rural areas.

In contrast, the socio-economic differentiation of agricultural sector entities of various scales was substantiated in the works of Poulton et al. (2010), Hassan et al. (2021), Steensland (2021), Urugo et al. (2024) and Mironova et al. (2022), where the main focus is on the more significant opportunities for large agribusinesses and agricultural enterprises to integrate innovative technologies, quality material and technical support, and new markets, increasing their competitiveness compared to smaller farms. Besides resource and financial provision, geographic and environmental factors influence this asymmetry. For example, Sgroi et al. (2022) note that climatic conditions, soil quality, and water resources cause variations in the productivity of agro-industrial enterprises, as well as specific resources such as production technologies, types, and varieties, and general resources shared by the region such as landscape, environment, and culture. The authors also highlight the necessity of avoiding asymmetry in access to information and the role of reputation in forming the competitiveness of agricultural businesses.

A moderate level of asymmetry in the development of agricultural businesses does not necessitate implementing large-scale state policies to prevent it. According to Van der Ploeg (2012), Yu and Wu (2018), natural asymmetry is a factor that encourages enterprises to seek innovative solutions and increase business competitiveness at the national or global agricultural market level.

The critical aspects of the growth of asymmetry in the agricultural business, according to Mazur (2017), are, first and foremost, poor infrastructure for the development of rural areas, as well as the problem of rural depopulation, increasing unemployment, and decreasing levels of service for rural populations. In turn, Holden and Binswanger (1998) emphasise the importance of political decisions regarding the support of agricultural enterprises, as excessive taxation can worsen poverty and cash liquidity in the agricultural sector of the economy. Therefore, in countries with significant asymmetry, it becomes necessary to create and implement agricultural subsidies and state support for less developed rural areas (Ciaian et al., 2021).

Another factor noted in the work of Kaplinsky and Kraemer-Mbula (2022) is the lack of access to modern technologies in less-developed rural regions. Furthermore, Steensland (2021) points out the parallel issue of uneven access to markets, with regions with better logistical

infrastructure having a significant advantage over other agricultural enterprises. It should also be noted that the impact of excessive asymmetry in the development of the country's agricultural sector mainly manifests in levels of food security (Yatsenko et al., 2019), the reproduction of rural populations and areas (Pronko, 2022), the provision of material and labour resources for the agricultural industry (Ullah et al., 2020), attracting investments and new production technologies (Zgalat-Lozynska et al., 2023), preserving the socio-cultural characteristics of rural areas (Włodarczyk-Marciniak et al., 2020), and maintaining environmental balance in agricultural regions (Sgroi et al., 2022; Kovalko et al., 2022).

Thus, the concept of asymmetry in the development of the agricultural business, which correlates with the condition of rural areas, involves the heterogeneity of economic indicators of agricultural enterprises across different regions and the uneven distribution of critical resources (financial, infrastructural, technological, material and technical). Primarily, such asymmetry is a consequence of disparities in agribusiness access to markets for their products, state support in the form of grants and subsidies, and the use of information and modern technological solutions, which affects the productivity and competitiveness of the agricultural sector. In addition to pressing issues of financing and infrastructure, asymmetry also negatively affects the socio-economic conditions for rural development, leading to depopulation, unemployment, reduced service levels for rural populations, and exacerbating environmental issues. The concept of asymmetry in agricultural business development entails negative consequences, necessitating its minimisation through systematic state measures and local decisions to support specific agricultural enterprises to ensure the balanced development of the agricultural sector.

3 Methods

The following methods were employed in the course of the research:

- analysis of literary sources was used to form the conceptual-categorical framework of asymmetry in the development of the agricultural business;
- comparative analysis was applied to analyse the changes in agricultural production volumes across macro-regions;

- systematisation method was employed to determine the indicators of the agricultural sector development in EU member states;
- statistical data analysis was used to identify and analyse absolute income indices in agriculture and agricultural land areas in EU member states;
- generalisation method was used to determine the primary socio-economic outcomes of the current European Union policy on agricultural business support.

The study of the asymmetry level in the development of the agricultural business is based on official statistical data from Eurostat (2024) on the actual income index of agricultural enterprises and OECD (2023) on the area of agricultural land in EU member states. Countries for the analysis were selected using random sampling to ensure the results' representativeness. Based on previously developed methodological recommendations, cumulative shares of initial values were calculated, upon which the Lorenz curve was constructed, and the overall indicator of inequality in the development of the agricultural sector was determined (Gini coefficient = 0.08). As a result of the analysis, the main issues of current EU policy and prospects for further socio-economic development of rural areas within its member states were identified.

4 Research results

4.1 Substantiation of the problem of asymmetric development of agricultural business

An essential prerequisite for substantiating the problem of asymmetric agricultural business development in the global economic environment is the climatic conditions, which are a variable phenomenon due to the emergence of new weather phenomena. In recent years, the issue of global warming, which in many macro-regions is accompanied by the El Niño weather phenomenon, has had a destructive impact on crop yields in the Latin American and Asia-Pacific regions due to excessive rainfall, while European countries are also losing capacity due to changing drought conditions (Rossato et al., 2024). These trends in the global agricultural market are reflected in the statistical data shown in Figure 1.

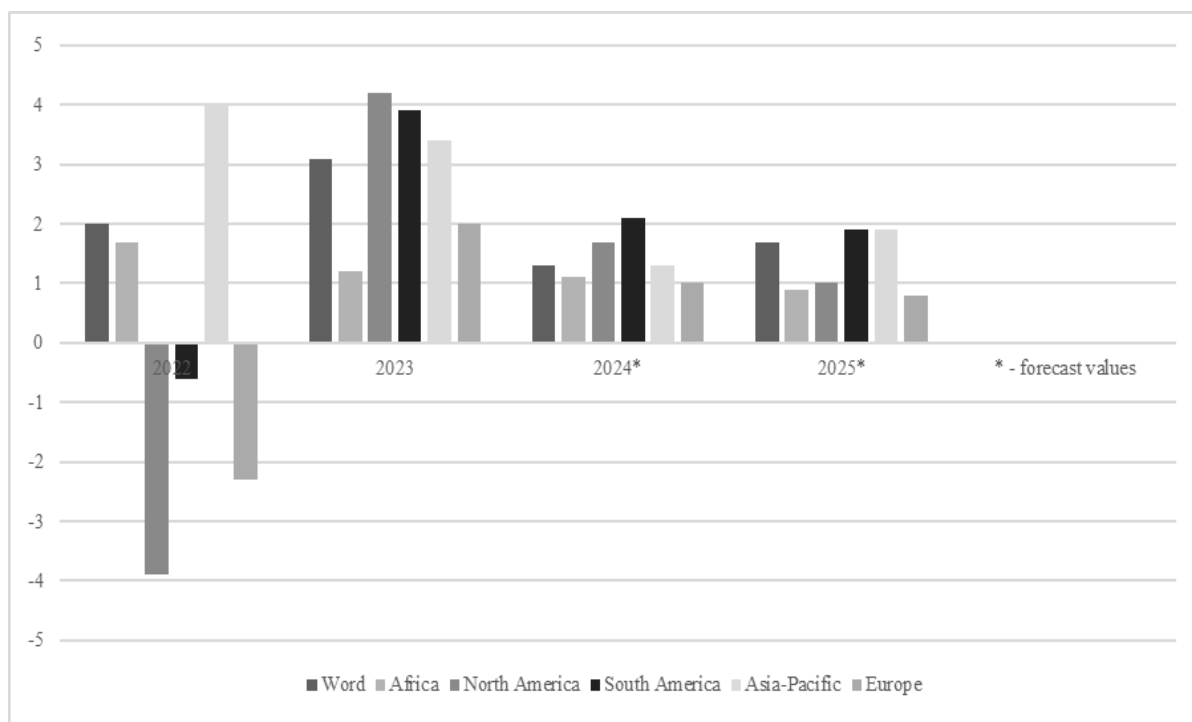


Figure 1: Percentage Change in Agricultural Production by Region in 2022-2025
Source: (Rossato et al., 2024)

Among other factors contributing to the increase in asymmetry in the agricultural sector of the economy, the varying access to financial, material, and human resources should be noted. This situation can arise due to large agribusinesses' monopolisation of the market. At the same time, small farming enterprises have limited land plots, which slows down their ability to scale their business. In this context, there is a need to improve national government policies in countries where the asymmetry between the development of urban and rural areas is growing and to create a support mechanism for agriculture to enhance the overall socio-economic condition of rural areas. Considering the current challenges, including the asymmetric development of the agricultural sector, it is essential to focus on the development and implementation of effective and targeted rural development policies aimed at supporting the economic activities of rural households, emphasising their impact on the socio-economic indicators of the country.

4. 2 Procedure for calculating the level of asymmetry in the development of the agricultural sector of the European Union

The calculation procedure for the level of asymmetry is based on the analysis of critical indicators of the development of the agricultural sector of the European Union (EU), which includes the absolute income indices in agriculture of different member states of the Union and the area of their agricultural lands (Tyukhtenko, 2017). Based on these indicators, to assess the degree of inequality in the development of the intra-European agricultural sector, it is necessary to calculate the Gini Index, which involves calculating the cumulative shares of total income and agricultural land area. The initial data for further calculations are presented in Figure 2.

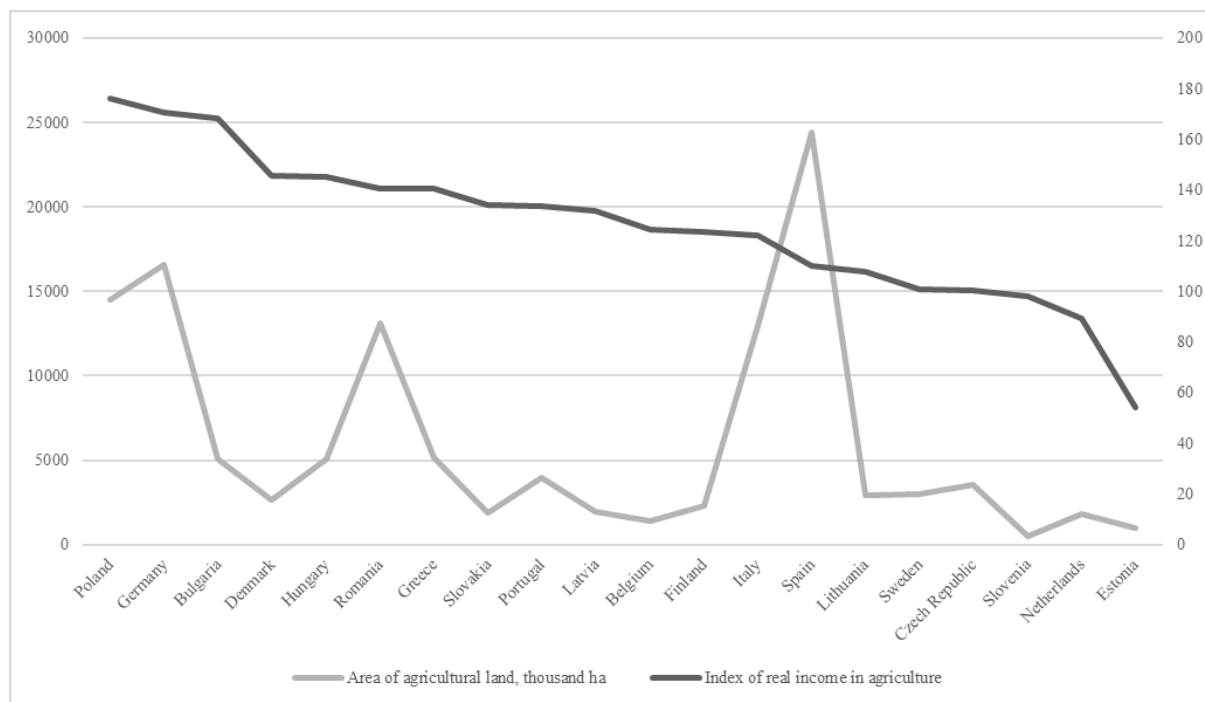


Figure 2: Indicators of Agricultural Sector Development in Selected EU Countries in 2023
Source: Compiled by the author based on (Eurostat, 2024; OESD, 2023)

The first step in determining the level of asymmetry in the development of the agricultural sector is to calculate the share of real income and the area of agricultural land for each of the selected European Union countries. The formula for calculating the share of real income and the area of agricultural land is as follows:

$$S_i = \frac{X_i}{\sum_{j=1}^n X_j} \quad (1)$$

where x_i is the value of i of the i -th unit;
 $\sum_{j=1}^n X_j$ is the total number of units in the data set.

Based on the calculation of shares, conclusions can be drawn regarding the proportion of real income and agricultural land area distribution among the selected EU countries. This formula allows for an assessment of the degree of inequality between the development of the agricultural sector in different countries. It identifies those with the most effective strategies for using agricultural resources. However, the obtained values do not provide a final understanding of the level of asymmetry. Therefore, the next step in the analysis is the calculation of cumulative shares of real income and agricultural land area, which is calculated as the product of the current value and the previous one, using the following formula:

$$CS = CS_{i-1} + \frac{I_i}{\sum I} \quad (2)$$

where CS is the cumulative share of the indicator;
 CS_{i-1} is the cumulative share of the indicator for the previous ($i-1$) line;
 I_i is the indicator for the i -th line;
 $\sum I$ is the total sum of the indicator values.

The obtained cumulative shares are used to construct the Lorenz curve, which is the primary tool for the further calculation of the Gini Index, allowing for the assessment of the degree of inequality in the development of the agricultural sector (Omelchuk et al., 2022). The next step in analysing the European agricultural sector is the calculation of the Gini Index, which is a measure of inequality in the distribution of some value, taking a value between 0 and 1, where 0 indicates absolute equality (the value takes only one value), and 1 indicates complete inequality. The formula for calculating the Gini Index is as follows:

$$G = 2 * A = 1 - 2 * B \quad (3)$$

where G is the Gini coefficient;
 A is the area between the line of equality (45° diagonal) and the Lorenz curve;
 B is the area under the Lorenz curve.

In this case, A is calculated as the sum of the areas of the trapezoids between the points of the Lorenz curve using the following formula:

$$A = \frac{(x_{i+1} - x_i) * (y_i + y_{i+1})}{2} \quad (4)$$

where x_i and y_i is the value of the cumulative share of income and area for the i - the point;

x_{i+1} and y_{i+1} is the value for the $(i+1)$ point.

Thus, based on the results of the Gini Index calculation, the level of asymmetry in the development of the agricultural sector of European countries is determined. A value of this index within the range of $0 \leq G < 0.3$ indicates a high level of social and economic equality; the range of $0.3 \leq G < 0.6$ points to significant inequality in the distribution of resources between the development of agricultural enterprises in different regions; a high degree of asymmetry is defined by an index value within the range of $0.6 \leq G \leq 1$, which may further impact the social and economic levels of the country. This indicator allows for assessing the evenness of resource distribution and the effectiveness of addressing issues related to rural development and agricultural business. A low index value indicates stability and balance in the agricultural sector. In contrast, its sharp increase or consistently high value suggests the need to improve

the region's economic policies and agricultural development strategies.

4. 3 The results of calculating the level of asymmetry in the development of the agricultural sector of the European Union

First, the income and agricultural land area shares for the European Union (EU) countries were calculated. The results of the calculations, presented in Table 1, show a small degree of asymmetry in the development of the agricultural sector. It should be noted that the ratio between the absolute agricultural income index and the area of agricultural land is uneven, meaning there are specific differences in productivity and resource efficiency among EU member states. Moreover, many countries exhibit an imbalance between income and land area share, where some countries with large land areas have relatively low incomes, indicating the insufficient efficiency of their agricultural sector. At the same time, countries with smaller land area shares may show higher income shares, which suggests their ability to achieve higher productivity. The results of the initial analysis highlight the presence of significant structural differences in the development of the agricultural sector among EU countries. Therefore, some regions require comprehensive measures to reduce such asymmetry and ensure the balanced development of the agricultural business.

Table 1: Calculation of Gini Index indicators.

Initial data			Share of income	Share of area	Cumulative share of income	Cumulative area share	The area under the Lorenz curve
Country	Index of real income in agriculture	Area of agricultural land, thousand ha					
Poland	176,18	14521,86	0,070005	0,11745	0,070005	0,11745	0,004111
Germany	170,41	16591,5	0,067712	0,134189	0,137717	0,251639	0,012496
Bulgaria	168,17	5046,6	0,066822	0,040816	0,204539	0,292455	0,018179
Denmark	145,8	2618,4	0,057933	0,021177	0,262472	0,313632	0,017556
Hungary	145,34	5049,01	0,05775	0,040835	0,320222	0,354468	0,019292
Romania	140,71	13078,88	0,055911	0,10578	0,376133	0,460247	0,022776
Greece	140,64	5137,04	0,055883	0,041547	0,432016	0,501795	0,026881
Slovakia	134,26	1856,13	0,053348	0,015012	0,485364	0,516807	0,02717
Portugal	133,67	3980,49	0,053113	0,032193	0,538477	0,549	0,028304
Latvia	131,64	1970,1	0,052307	0,015934	0,590784	0,564934	0,029133
Belgium	124,37	1368,31	0,049418	0,011067	0,640202	0,576001	0,028191
Finland	123,44	2268	0,049049	0,018343	0,689251	0,594344	0,028702
Italy	121,86	12987,42	0,048421	0,10504	0,737671	0,699384	0,031322
Spain	109,91	24420,4	0,043672	0,197508	0,781344	0,896892	0,034857
Lithuania	107,94	2937,81	0,04289	0,02376	0,824233	0,920652	0,038977
Sweden	100,71	3002,91	0,040017	0,024287	0,86425	0,944939	0,037328
Czech Republic	100,21	3529,8	0,039818	0,028548	0,904068	0,973488	0,038194
Slovenia	98,07	479,49	0,038968	0,003878	0,943036	0,977366	0,03801
Netherlands	89,39	1811,91	0,035519	0,014654	0,978555	0,99202	0,034975
Estonia	53,97	986,67	0,021445	0,00798	1	1	0,021359
Total	2516,69	123642,7	x	x	x	x	0,537812

Source: Compiled by the author.

The trend toward growing inequality between rural regions is also reflected in the cumulative shares obtained, mainly due to the concentration of resources and income in a few key regions. The proportional increase in the share of total income and resources concentrated in a few regions, such as Poland, Germany, and Bulgaria, may indicate a high degree of asymmetry between different EU member states. However, based on the calculated cumulative shares, it is necessary to construct a Lorenz curve for further analysis. It visually represents the asymmetry in the distribution of income and resources between different regions. The chart in Figure 3 demonstrates the deviation of the actual distribution from the normative value, highlighting the concentration of income and resources in several EU countries.

Thus, a significant portion of agricultural business income is concentrated in specific regions of the EU, representing a small

fraction of the total number of regions, leading to an imbalance in development and limiting opportunities for less-developed rural areas. In turn, the uneven distribution of resources mainly affects the overall level of rural development and creates negative socio-economic trends between regions. In this case, each country, and the EU's overall policy, requires the development and implementation of a targeted strategy to address the disparities that have arisen due to the asymmetric development of the agricultural business and to create fundamentally new solutions for financial support and resource provision for less productive regions. The overall asymmetry indicator confirms the needs of the modern EU agricultural sector, specifically the Gini Index, which was obtained through the following calculations:

$$G = 2 * 0,537812494 - 1 = 0,075625 = 0,8$$

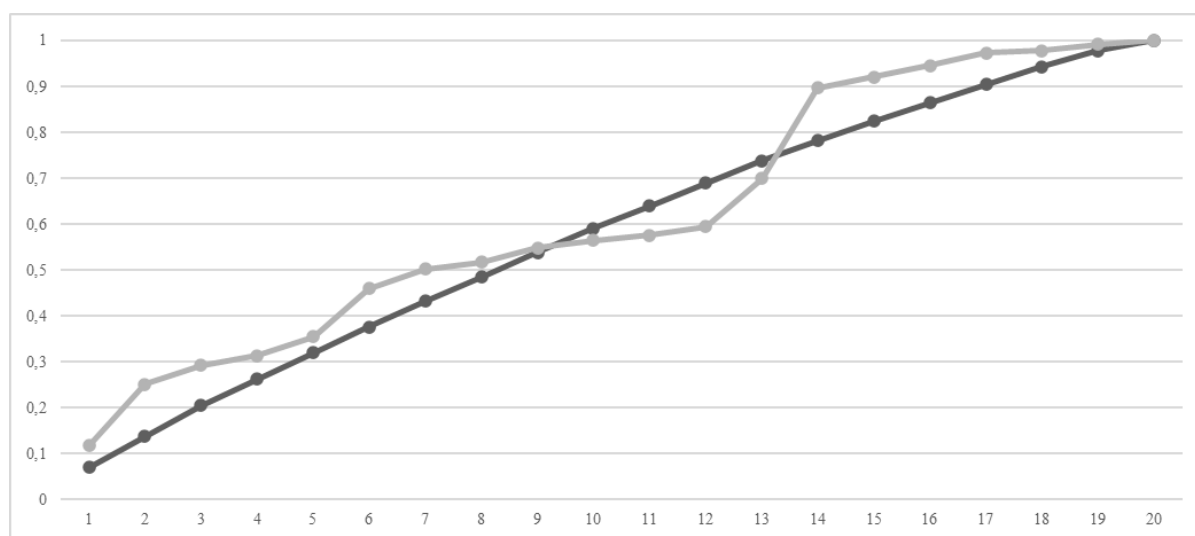


Figure 3: Lorenz Curve for Analysing Resource Allocation in the Agricultural Sector

Source: Compiled by the author.

Given that the Gini coefficient value falls between 0 and 0.3 and is 0.08, the distribution of income and resources among agricultural enterprises in rural areas is relatively even. Therefore, in the agricultural sector of rural regions in the EU, there is no total concentration of resources in one enterprise or area, indicating that sufficient opportunities are provided for developing rural regions and the primary agricultural activities of enterprises in each country. In EU countries, due to balanced government policies and agricultural business support systems, a foundation for the stable development of the agricultural sector has been created, reducing the risks of social and economic inequality across all member states of the union.

5 Discussion

The conceptual-categorical framework of agricultural business asymmetry developed in the article involves the uneven distribution of financial and labour resources, infrastructure, material and technical support, and access to new production technologies. However, Van der Ploeg (2012), Yu and Wu (2018) dispute the harmful nature of agricultural business asymmetry, considering that natural unevenness can stimulate innovation and competitiveness in agricultural enterprises. According to the research conducted, the agricultural sector's asymmetry in Europe, with a Gini coefficient of 0.08, may be a natural phenomenon that does not lead to negative consequences for the well-being of rural areas, or it may be the start of a global crisis accompanied by the decline of domestic agricultural production, depopulation of rural regions, and the loss of a high standard of living for the rural population in EU countries.

Currently, the agricultural sector of European countries has been significantly affected by the start of the full-scale Russian invasion of Ukraine, as Ukraine is one of the largest suppliers of grain and agricultural raw materials to EU countries. Despite Ukrainian programs supporting agriculture during the war, such as compensation for equipment destroyed by missile strikes and micro-grants for new agricultural businesses (Alekseieva et al., 2023), and joint programs with EU member states, supply disruptions of grains and related products have caused a sharp rise in prices and increased costs for domestic production in European countries (Allam et al., 2022). This is especially notable given that Ukraine accounts for almost a quarter of the world's sunflower oil exports. In this context, Ngoc et al. (2022) point out that the bottleneck in the global supply chain is particularly felt in Germany, which is heavily dependent on energy supplies from Russia via Eastern Europe, affecting the ability to supply rural areas and the country's agro-industrial complex with necessary resources, particularly energy. A similar view on the disruption of the global supply chain is noted by Cui et al. (2023), who highlight the problematic nature of the ongoing Russia-Ukraine war in terms of energy price

fluctuations and disruptions in global energy supply and economic and trade orders, which also affect fuel, electricity, fertiliser, and other essential resource prices.

Meanwhile, Carriquiry et al. (2022) found that the Russia-Ukraine war could exacerbate food security issues and carbon emissions. To address the current problems of Europe's agricultural sector, Kovalko et al. (2022) emphasise the need to transition to low-carbon development, which would help reduce greenhouse gas emissions and increase resource use efficiency. Such a transition would also allow EU member states to reduce their dependence on synthetic fertilisers, agriculture's primary carbon footprint source (Zahorodna et al., 2022).

Although there is currently no threat to food availability in the EU, domestic agricultural producers are vulnerable to high prices for fertilisers and energy resources, which increases production costs and economic risks for producers. In this context, the resilience of European agribusiness requires diversification of import sources and markets through reliable multilateral and bilateral trade policies. EU measures to prevent a food crisis include reducing synthetic fertilisers, increasing nitrogen use efficiency, and switching to "green" ammonia for fertiliser application as part of the Horizon Europe project. Also, within the strategic plans of the Common Agricultural Policy (CAP) for 2023-2027, EU member states are enhancing the development of precision farming and joint support to increase the production of protein crops (Miriam & Thérèse, 2022). However, Ihnatenko (2024) notes the inconsistency of these measures in the context of the parallel implementation of the Farm to Fork strategy, as well as the possible slowdown in achieving the goals of green policy and the transition to sustainable agricultural production methods, which, in turn, creates additional risks for the quality and safety of food in the EU.

6 Conclusion

The asymmetric development of the agricultural business is a phenomenon accompanied by the uneven distribution of financial and labour resources, infrastructure support, high-quality production facilities, and opportunities for integrating innovations into production processes among agricultural enterprises of different scales or territorial affiliations. It affects the socio-economic development of rural areas through issues such as rural depopulation, unemployment among the rural population, a decline in regional infrastructure services, and a reduction in the environmental attractiveness of rural areas. Based on the research on the degree of asymmetry in the development of the agricultural sector in EU member states, a sufficient evenness in the distribution of income and critical resources among agricultural enterprises located in rural areas of Europe was identified ($G = 0.8$). Thus, the EU's experience confirms the possibility of achieving a relatively equal level of

productivity and competitiveness among agro-industrial entities through balanced government policies in rural development support and systematic assistance to enterprises in less developed regions.

A critical factor in maintaining rural areas' socio-economic stability is a flexible development strategy that allows for effective forecasting and mitigation of external environmental risks amid challenges such as the COVID-19 pandemic and the full-scale invasion of Ukraine by the Russian Federation. Ukraine is the largest grain exporter to Europe. These challenges have disrupted supply chains, increased production costs, put more pressure on domestic producers, and raised concerns about the environmental sustainability of production in EU member states.

Literature:

- Alekseieva, K., Maletych, M., Ptashchenko, O., Baranova, O., & Buryk, Z.: State business support programs in wartime conditions. *Economic Affairs*, 2023. 68(1s), 231-242. <https://doi.org/10.46852/0424-2513.1s.2023.26>
- Allam, Z., Bibri, S. E., & Sharpe, S. A.: The rising impacts of the COVID-19 pandemic and the Russia-Ukraine war: energy transition, climate justice, global inequality, and supply chain disruption. *Resources*, 2022. 11(11), 99. <https://doi.org/10.3390/resources11110099>
- Carriquiry, M., Dumortier, J., & Elobeid, A.: Trade scenarios compensating for halted wheat and maize exports from Russia and Ukraine increase carbon emissions without easing food insecurity. *Nature Food*, 2022. 3(10), 847-850. <https://doi.org/10.1038/s43016-022-00600-0>
- Ciaian, P., Baldoni, E., Kancs, D. A., & Drabik, D.: The capitalisation of agricultural subsidies into land prices. *Annual Review of Resource Economics*, 2021. 13(1), 17-38. <https://doi.org/10.1146/annurev-resource-102020-100625>
- Cui, L., Yue, S., Nghiem, X. H., & Duan, M.: Exploring the risk and economic vulnerability of global energy supply chain interruption in the context of Russo-Ukrainian war. *Resources Policy*, 2023. 81, art. no. 103373. <https://doi.org/10.1016/j.resourpol.2023.103373>
- Davis, B., Winters, P., Carletto, G.: A Cross Country Comparison of Rural Income Generating Activities. *World Development*, 2010. 38(1), 48-63. <https://doi.org/10.1016/j.worlddev.2009.01.00>
- European Commission: New EU instrument provides targeted support to rural areas. *European Commission*, 2024. https://ec.europa.eu/regional_policy/whats-new/panorama/2024/03/03-06-2024-new-eu-toolkit-provides-focused-support-to-rural-areas_en#:~:text=The%20toolkit%20provides%20exhaustive%20information,to%20calls%20and%20contact%20points
- Eurostat: Economic accounts for agriculture - agricultural income indicators. *Eurostat*, 2024. https://doi.org/10.2908/A/ACT_EAA06
- Hassan, S. Z., Jajja, M. S. S., Asif, M., & Foster, G.: Bringing more value to small farmers: a study of potato farmers in Pakistan. *Management Decision*, 2021. 59(4), 829-857. <https://doi.org/10.1108/MD-12-2018-1392>
- Holden, S. T., & Binswanger, H. P.: *Small farmer decision-making, market imperfections, and natural resource management in developing countries. Agriculture and the environment: perspectives on sustainable rural development*. Washington, D.C.: The World Bank, 1998. 50-71. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=ac2e4e1c17ad04ac128d745643c545f2d5f69388#page=64>
- Ihnatenko, O.: The EU introduced new measures to strengthen food security against the background of the war in Ukraine. *Information Center "Green Dossier"*, 2024. <https://www.dossier.org.ua/news/new-eu-measures-food-security/>
- Kaplinsky, R., & Kraemer-Mbula, E.: Innovation and uneven development: The challenge for low-and middle-income economies. *Research Policy*, 2022. 51(2), art. no. 104394. <https://doi.org/10.1016/j.respol.2021.104394>
- Kovalko, O., Eutukhova, T., Novoseltsev, O.: Energy-Related Services as a Business: Eco-Transformation Logic to Support the Low-Carbon Transition. *Energy Engineering: Journal of the Association of Energy Engineering*, 2022. 119(1), 103-121. <https://doi.org/10.32604/EE.2022.017709>
- Mazur, S. A.: Infrastructure support for the development of rural territories. *Economics. Finance. Management: current issues of science and practice*, 2017. 3, 96-105. <http://efm.vsau.org/files/pdfa/3542.pdf>
- Miriam, G. F., & Thérèse, L.: Commission acts for global food security and for supporting EU farmers and consumers. *European Commission*, 2022. https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1963
- Mironova, N., Koptieva, H., Liganenko, I., Sakun, A., & Chernyak, D.: Modeling the selection of innovative strategy for development of industrial enterprises. *WSEAS Transactions on Business and Economics*, 2022. 8(9), 10. <https://doi.org/10.37394/23207.2022.19.26>
- Ngoc, N. M., Viet, D. T., Tien, N. H., Hiep, P. M., Anh, N. T., Anh, L. D. H., & Dung, V. T. P.: Russia-Ukraine war and risks to global supply chains. *International Journal of Mechanical Engineering*, 2022. 7(6), 633-640. https://www.researchgate.net/profile/Hoang-Tien-Nguyen-2/publication/361701652_Russia-Ukraine_war_and_risks_to_global_supply_chains/links/63e37c1e64252375639924ab/Russia-Ukraine-war-and-risks-to-global-supply-chains.pdf
- OESD.: Agricultural land area. *OESD Data Explorer*, 2023. [https://data-explorer.oecd.org/vis?lc=en&tm=DF_AGLAND&pg=0&snb=1&vw=tb&df\[ds\]=dsDisseminateFinalDMZ&df\[id\]=DSD_AGR_ENV%40DF_AGLAND&df\[ag\]=OECD.TAD.AR&df\[vs\]=&pd= %2C&dq=A.TOTAGR_LAND....&ly\[cl\]=TIME_PERIOD&ly\[rw\]=REF_AREA&to\[TIME_PERIOD\]=false](https://data-explorer.oecd.org/vis?lc=en&tm=DF_AGLAND&pg=0&snb=1&vw=tb&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_AGR_ENV%40DF_AGLAND&df[ag]=OECD.TAD.AR&df[vs]=&pd= %2C&dq=A.TOTAGR_LAND....&ly[cl]=TIME_PERIOD&ly[rw]=REF_AREA&to[TIME_PERIOD]=false)
- Okunlola, O. C., & Ayetigbo, O. A.: Impact of Agricultural Financing on Agricultural Growth Sustainability in Nigeria. *The Journal of Developing Areas*, 2024. 58(3), 171-203. <https://dx.doi.org/10.1353/jda.2024.a929946%20>
- Poulton, C., Dorward, A., & Kydd, J.: The future of small farms: New directions for services, institutions, and intermediation. *World development*, 2010. 38(10), 1413-1428. <https://doi.org/10.1016/j.worlddev.2009.06.009>
- Pronko, L. M.: Features of reproduction of human capital in rural areas. *Food resources*, 2022. 10(18), 266-275. <https://doi.org/10.31073/foodresources2022-18-26>
- Ratcliffe, M., Burd, C., Holder, K., & Fields, A.: Defining Rural at the U.S. Census Bureau. *United States Census Bureau*, 2016. 1-8. <https://web.archive.org/web/20210823132159/http://www.census.gov/content/dam/Census/library/publications/2016/acs/acsgeo-1.pdf>
- Rossato, S., Tan, S., Gubli, Y.: *Global Food Industry Outlook 2024/2025*. Amsterdam: Atradius, 2024. 1-10. <https://atradius.sk/dokumenty/global-and-regional-food-outlook-2024-spread.pdf>
- Scoones, I., Amanor, K., Favareto, A., & Qi, G.: A new politics of development cooperation? Chinese and Brazilian engagements in African agriculture. *World development*, 2016. 81, 1-12. <https://doi.org/10.1016/j.worlddev.2015.11.020>
- Sgroi, F., Piraino, F., Garifo, G., Modica, F., & Ingrassia, M.: Information asymmetry in the agri-food sector and territorial marks: The case of the olive oil Val di Mazara PDO. *Journal of Agriculture and Food Research*, 2022. 9, art. no. 100337. <https://doi.org/10.1016/j.jafr.2022.100337>
- Steensland, A.: *2021 Global Agricultural Productivity Report: Climate for Agricultural Growth*. Virginia: Virginia Tech College of Agriculture and Life Sciences, 2021. 1-56. <http://hdl.handle.net/10919/107701>
- Ullah, A., Arshad, M., Kächele, H., Zeb, A., Mahmood, N., & Müller, K.: Socio-economic analysis of farmers facing asymmetric information in inputs markets: Evidence from the rainfed zone of Pakistan. *Technology in Society*, 2020. 63, art. no. 101405. <https://doi.org/10.1016/j.techsoc.2020.101405>
- Urugo, M. M., Yohannis, E., Teka, T. A., Gemede, H. F., Tola, Y. B., Forsido, S. F., & Abdu, J.: *Journal of Agriculture and Food Research*, 2024. 18, art. no. 101316. <https://doi.org/10.1016/j.jafr.2024.101316>
- Van der Ploeg, J. D., Jingzhong, Y., & Schneider, S.: Rural development through the construction of new, nested, markets: comparative perspectives from China, Brazil and the European Union. *Journal of Peasant Studies*, 2012. 39(1), 133-173. <https://doi.org/10.1080/03066150.2011.652619>

30. Włodarczyk-Marciniak, R., Frankiewicz, P., & Krauze, K.: Socio-cultural valuation of Polish agricultural landscape components by farmers and its consequences. *Journal of Rural Studies*, 2020. 74, 190-200. <https://doi.org/10.1016/j.jrurstud.2020.01.017>
31. Yatsenko, O. M., Yatsenko, O. V., Nitsenko, V. S., & Butova, D. V.: Asymmetry of the development of the world agricultural market. *Financial and Credit Activity Problems of Theory and Practice*, 2019. 3(30), 424-434. <https://eprints.cdu.edu.ua/5963/1/179821-400240-1-PB.pdf>
32. Yu, J., & Wu, J.: The sustainability of agricultural development in China: The agriculture–environment nexus. *Sustainability*, 2018. 10(6), art. no. 1776. <https://doi.org/10.3390/su10061776>
33. Zgalat-Lozynska, L., Kryshchal, H., Drinke, Z., Lych, V., Kulikov, O., & Panin, Y.: Impact of Digital Transformation on Business Structures. *Scientific Bulletin of National Mining University*, 2023. 4, 144-149. <https://doi.org/10.33271/nvngu/2023-4/144>
34. Omelchuk, O., Ivanashko, O., Sipko, L., Virna, Z., Saienko, V., & Tolchieva, H.: Economic behavior of consumers during instability. *AD ALTA: Journal of Interdisciplinary Research*, 2022. Special Issue 12(02), 89-95.
35. Zahorodna, O., Saienko, V., Tolchieva, H., Tymoshchuk, N., Kulinich, T., Shvets, N.: Developing communicative professional competence in future economic specialists in the conditions of postmodernism. *Postmodern Openings*, 2022. 13(2), 77-96. <https://doi.org/10.18662/po/13.2/444>
36. Nenko, S., Tyukhtenko, N., Krasnopolska, T.: Administrative and legal support for the management of integrated economic structures in a globalized business processes. *Baltic Journal of Economic Studies*, 2021. 7(4), 145-152. <https://doi.org/10.30525/2256-0742/2021-7-4-145-152>
37. Tyukhtenko, N., Makarenko, S., Oliinyk, N., Portugal, E.: Innovative approaches to enterprise competitiveness assessment. *Marketing and Management of Innovations*, 2021. 1, 278-288. https://mmi.sumdu.edu.ua/wp-content/uploads/mmi/volume-12-issue-1/467-2021-21_0.pdf
38. Tyukhtenko, N.: Mutual positioning of social and economic strategies. *Scientific bulletin of Polissia*, 2017. 4(12), 125-129. <http://ir.stu.cn.ua/bitstream/handle/123456789/15723/125-129.pdf?sequence=1&isAllowed=y>

Primary Paper Section: G

Secondary Paper Section: GA, GM

I INFORMATICS

IN INFORMATICS

CUTTING-EDGE EDUCATIONAL TECHNOLOGIES AND THEIR INFLUENCE ON RESEARCH IN THE ERA OF DIGITALISATION

^aANDRII TSYNA, ^bVALENTYNA TSYNA,
^cSERHII NOVOPYSMENNYI, ^dMYKOLA BLYZNIUK,
^eALLA RUDENCHENKO, ^fLIUDMYLA CHYSTIAKOVA,
^gVLADYSLAV BOIKO

^{a, b, c, d}*Poltava V. G. Korolenko National Pedagogical University, Poltava, Ukraine.*

^e*Borys Grinchenko Kyiv Metropolitan University, Kyiv, Ukraine.*

^f*Volodymyr Vynnychenko Central Ukrainian State University, Kropyvnytskyi, Ukraine.*

^g*National University "Yuri Kondratyuk Poltava Polytechnic", Poltava, Ukraine.*

email: ^aajut1959@gmail.com,

^bfmf.pedagogy@gsuite.pnpu.edu.ua, ^cnovui_serik@ukr.net,

^dblyzniyk@gmail.com, ^e0977797791@ukr.net,

^fl.o.chystiakova@cuspu.edu.ua, ^gvladislavanatoli4@gmail.com

Abstract: This study is relevant in the context of the rapid development of the modern educational environment, where digital technologies are becoming a vital tool for improving the quality of education and developing students' scientific competencies. The introduction of digital platforms allows for individualising the educational process, providing access to a wide range of information resources, promoting students' active involvement in research, and developing critical thinking necessary for competitive research activities in the modern world. The aim of this study is to assess the impact of the latest learning technologies on research activities in the context of the digitalisation of education, focusing on the analysis of current trends in the use of innovative technologies to improve the efficiency of teaching and research, as well as to identify new opportunities for the development of education. The study used general scientific research methods such as literature analysis, comparative analysis, methods of generalisation, and systematisation to assess the impact of innovative teaching technologies on the development of research skills of teachers using digital platforms in comparison with traditional teaching methods. Expert evaluation was also used to collect the necessary data. The total number of respondents (Total = 20 people) was randomly divided into two groups according to the following criteria: Group 1 teachers used digital platforms and web resources for teaching, and Group 2 teachers used traditional theoretical and methodological approaches. Based on the data obtained, weighted average expert assessments were calculated, and a one-sample t-test was conducted in the JASP software (One-Sample T-Test tool) to determine the impact of innovative teaching technologies on student skills development. The study found that teachers who used digital technologies (Group 1) showed significantly higher results in developing analytical thinking, independent knowledge acquisition, technical skills, data management, and multimedia materials than teachers who used traditional teaching approaches (Group 2). In particular, the statistically significant differences we found confirm the advantage of digital technologies in developing relevant skills among students compared to traditional teaching methods. Based on the results of the analysis, digital technologies create a favourable environment for active learning and developing practical skills critical for conducting high-quality and efficient research activities. They help to increase analytical thinking, independent knowledge acquisition, and technical skills and enhance the ability to work with large amounts of data and multimedia materials.

Keywords: Educational technologies, Digitalisation, Research, Educational process, Innovations

1 Introduction

Innovative learning technologies are now vital in transforming research activities, changing approaches to collecting, analysing, and disseminating information and contributing to a revolution in how we collaborate and innovate. This is especially true in Asia, where web portals, voice services, text messaging, online communities, mobile services and interactive video conferencing set a new standard for sharing knowledge and research results (Zhang et al., 2016). Integrating these technologies significantly increases the efficiency and productivity of scientific research. They allow researchers to find, analyse, and interpret data quickly and collaborate effectively locally and internationally. In addition, such integration facilitates the creation of new forms of collaboration and innovative approaches to addressing global challenges through research. In the context of the rapid development of online learning, implementing these technologies covers a wide range of tools, including computer and telecommunication technologies. These tools provide interactive interaction between participants in the educational process and facilitate access to large amounts of knowledge through specialised computer programs, web platforms, virtual environments and electronic resources (Batista et al., 2020), which not only improves the quality of learning but also increases the effectiveness of research through convenient and

accessible exchange of data and ideas between members of the scientific community.

The paper aims to analyse the impact of innovative learning technologies on research activities in the context of the digitalisation of education. The article seeks to reveal current trends and achievements in using digital platforms and web services to improve the efficiency of teaching and research. The study's objectives are to consider the impact of information technologies and the new opportunities that these technologies open up for cooperation between research teams, increasing access to knowledge and creating conditions for the innovative development of the educational process in the modern digital environment.

2 Literature review

The main features of modern education are the formation and development of a humanistic paradigm that emphasises the importance of the value and dignity of each person in order to increase their activity, freedom and independence. Many researchers, including Biliakovska and Binytska (2023), Bykov and Leshchenko (2016), Dettori et al. (2018), Kyrychenko (2018), have devoted their research to the improvement and implementation of innovative technologies for personality-oriented learning within this paradigm. In this context, it is also essential to take into account the priority of using advanced learning technologies; in particular, interactive learning tools allow the development of communication skills, teamwork and the ability to express thoughts, intrinsic motivation and creativity (Braievskva, 2024; Borysenko et al., 2023; Dhivya et al., 2023; Lin & Wang, 2021; Semenets-Orlova et al., 2023). In addition, these technologies contribute to the development of analytical and cognitive activity (Semenets-Orlova et al., 2022), critical thinking, information literacy, communication skills, self-motivation and self-management (Nikukar, 2024), as well as technical skills, including mastering the methodology, techniques and methods of research activities (Horielov, 2012), which are essential for the efficiency and quality of research activities.

In order to achieve a high level of creativity in the educational process and research activities, it is essential to use elements of creative personality development such as problem-solving, situational modelling, and strategic approaches. These approaches, according to Lüy et al. (2024), Ryoke and Wierzbicki (2007), and Papanis (2020), use forms and methods of organising the educational process, such as business and role-playing games, micro-teaching methods and modelling educational projects, online conferences and seminars, independent work of students and pedagogical practices, which helps both in research and professional activities. In addition, in the current conditions of rapid development of online learning, according to Siddiq et al. (2024), in the information society, there is a need to introduce innovative educational technologies (Byrkovych et al., 2023) in particular, distance learning technologies, including the use of computer and telecommunication technologies, provide interactive interaction between participants in the educational process (Ambe et al., 2024; Garlinska et al., 2023; Nikitenko & Kovalenko, 2024; Rebukha & Polishchuk, 2020).

Thus, innovative learning technologies are critical tools for modernising the educational process and research activities. According to Saif et al. (2022), the latest technologies improve the learning process by creating an electronic environment that harnesses the power of technology and communication to develop specific skills. In addition, they include the use of computer programs, online resources, virtual environments, e-platforms and other innovative tools aimed at improving access to knowledge and increasing the effectiveness of learning and

research (Batista et al., 2020; Popov et al., 2021; Raja & Lakshmi Priya, 2022).

3 Research methods

The following general scientific research methods were used in the study: literature analysis, which was used to theoretically substantiate the critical aspects of the development of innovative teaching technologies; method of generalisation and systematisation, which was used to identify and analyse innovative teaching technologies and the formation of research skills; comparative analysis, which was employed to identify the quality of the skills acquired by students who used digital technologies and traditional methods of teaching.

In addition, expert assessments were used based on the formation of two research groups: control and experimental. Group 1 – lecturers of the Faculty of Management and Marketing of S. Kuznets Kharkiv National University of Economics (10 people) and Group 2 - lecturers of the Faculty of Economics and Business Management of Kryvyi Rih National University (10 people). The groups are distributed so that Group 1 uses digital platforms and web resources to learn the educational material during the educational process. Group 2 uses traditional theoretical and methodological approaches to teaching. Based on the obtained values, weighted average expert assessments were calculated in Excel using the AVERAGE function and a one-sample t-test was conducted in JASP using the T-Test tool to identify the impact of innovative learning technologies on the skills developed by students through the use of specialised digital platforms and web services.

4 Research results

In today's world of rapid digitalisation of education, innovative learning technologies are becoming a critical factor in determining the efficiency and quality of the educational process. The development of technology opens up new opportunities for improving teaching methods and research activities. In particular, personality-oriented educational technologies help adapt curricula to students' needs, ensuring active participation and involvement in research activities. The personality-oriented approach to digital education involves:

- Development of individual and cognitive abilities through the introduction of adaptive learning platforms, such as SmartSparrow or DreamBox, which adapt to individual student needs by offering personalised content and tasks, as well as e-textbooks and interactive materials that promote deeper understanding and engagement of students in the learning process.
- Formation of individual (subjective) experience involves using online platforms such as Google Classroom or Microsoft Teams for collaborative work on projects and exchanging knowledge and experience among students during scientific experiments and research.
- Realising potential and personal educational goals through self-monitoring platforms, such as Moodle or Blackboard, offer self-assessment and personal progress tracking, as well as digital tools for career counselling (Handshake, LinkedIn Learning, etc.).

Given that personality-oriented learning puts personal development at the centre of the educational process, its application enables students to achieve high results in research activities, applying the acquired individual cognitive abilities, identifying and using personal experience, the results of self-knowledge and self-realisation, as well as the culture of life for effective management of personal and professional development. Instead, interactive teaching methods allow you to create a dynamic learning environment that improves the exchange of knowledge and experience between participants in the educational process. By using interactive learning technologies such as Nearpod, Padlet, or Socrative, educational programmes

develop communication skills, teamwork, and expression of opinions, creating a favourable emotional environment for students. In addition, these technologies increase interest in learning and intrinsic motivation and actively unleash students' creativity, contributing to the development of in-depth knowledge of the educational material and critical and scientific thinking.

Technologies for forming a creative personality are critical in the modern information society, as they aim to develop intellectual and creative thinking and the ability to innovate and implement innovative ideas. When applying relevant digital tools (Crello, Crayola Art-Studio, Music Crab, Chrom Music Lab, etc.) in the educational process, it is essential to avoid strict regulation of student activities, promoting the organisation of the educational process with elements of creativity using digital platforms and tools.

In addition, to achieve a certain level of creativity in the educational process, it is advisable to use such technologies to form a creative personality, such as a problem-search approach, situational modelling, and a strategic approach. The primary skills formed when interacting with digital technologies include originality of thinking, independence in acquiring new knowledge, versatility in applying the acquired knowledge, speed in solving non-standard situations, and the ability to find and offer new solutions that differ from existing or previously proposed ones.

The introduction of distance and media learning technologies as innovative tools in the educational process ensures the availability of knowledge and resources regardless of the location of students, creating new opportunities for research and sharing results. They include modern tools and technical solutions for the effective conduct of the educational process with remote access to educational resources, namely personal computers, network equipment, servers for video conferencing, and software for learning management and interaction between participants in the educational process. In turn, the information and communication technology provides the necessary bandwidth for uninterrupted access to web resources and web services (e.g. Google Classroom, Classdojo, Edmodo, etc.) in synchronous and asynchronous modes, including software for people with special needs. In addition, web-based resources for distance learning (e.g. PhET Interactive Simulations, Labster, Kahoot!, PubMed Central, etc.) include teaching materials, curricula, video and audio lectures, multimedia materials, practical exercises, virtual laboratories, simulators, tests, business games, digital libraries and other resources to support the learning process and meet learning objectives.

The results of analysing case studies in digital education and innovative teaching technologies formed the skills necessary for conducting research activities (Table 1).

Based on the analysis, two groups of experts were involved: Group 1 – lecturers from the Faculty of Management and Marketing of the Kharkiv National University of Economics named after S. Kuznets (10 people) and Group 2 – lecturers from the Faculty of Economics and Business Management of the Kryvyi Rih National University (10 people). It should be noted that in Group 1, digital platforms and web resources are used in the educational process to master the educational material. In contrast, in Group 2, the teacher used traditional theoretical and methodological approaches to teaching.

As part of the study, expert teachers assessed the level of skills acquired by students based on their research activities in writing term papers and diploma papers on a scale from 0 to 100 points, taking into account their current academic performance and their own experience of communicating with students. The results of calculating the average weighted expert assessments in Excel using the "AVERAGE" function are shown in Figure 1.

Table 1. Impact of innovative teaching technologies on developing research skills

Skills	Features	Means
Analytical thinking	Ability to critically evaluate information, identify patterns and conclude.	MATLAB, R, Excel
Independent acquisition of knowledge	Ability to find, analyse and use new information to solve research problems.	Coursera, edX, Google Scholar
Originality of thinking	Ability to generate new ideas and approaches to solving scientific problems.	MindMeister, Miro, Trello
Communication skills	Ability to effectively communicate research results and collaborate with other researchers.	Slack, Zoom, Microsoft Teams
Ability to work in a team	Ability to collaborate on research projects and solve problems together.	Asana, Monday.com, Basecamp
Project management skills	Ability to plan, organise and monitor the implementation of research projects.	Microsoft Project, Jira, Trello
The speed of solving tasks	Ability to respond quickly to changes and uncertainties in the research process.	Notion, Evernote, OneNote
Technical skills	Proficiency in modern digital tools and platforms required for research.	Python, Jupyter Notebook, SPSS
Skills in working with large amounts of data	Ability to collect, analyse and interpret large amounts of data for research.	Hadoop, Spark, Tableau
Skills in using multimedia materials	Ability to create and use video, audio and other multimedia materials for research presentation and educational purposes.	Camtasia, Adobe Premiere Pro, Audacity

Source: compiled by the author based on Braievska (2024), Borysenko et al. (2023), Dhivya et al. (2023), Lin & Wang (2021), Nikukar (2024), Raja & Lakshmi Priya (2022), Semenets-Orlova et al. (2023)

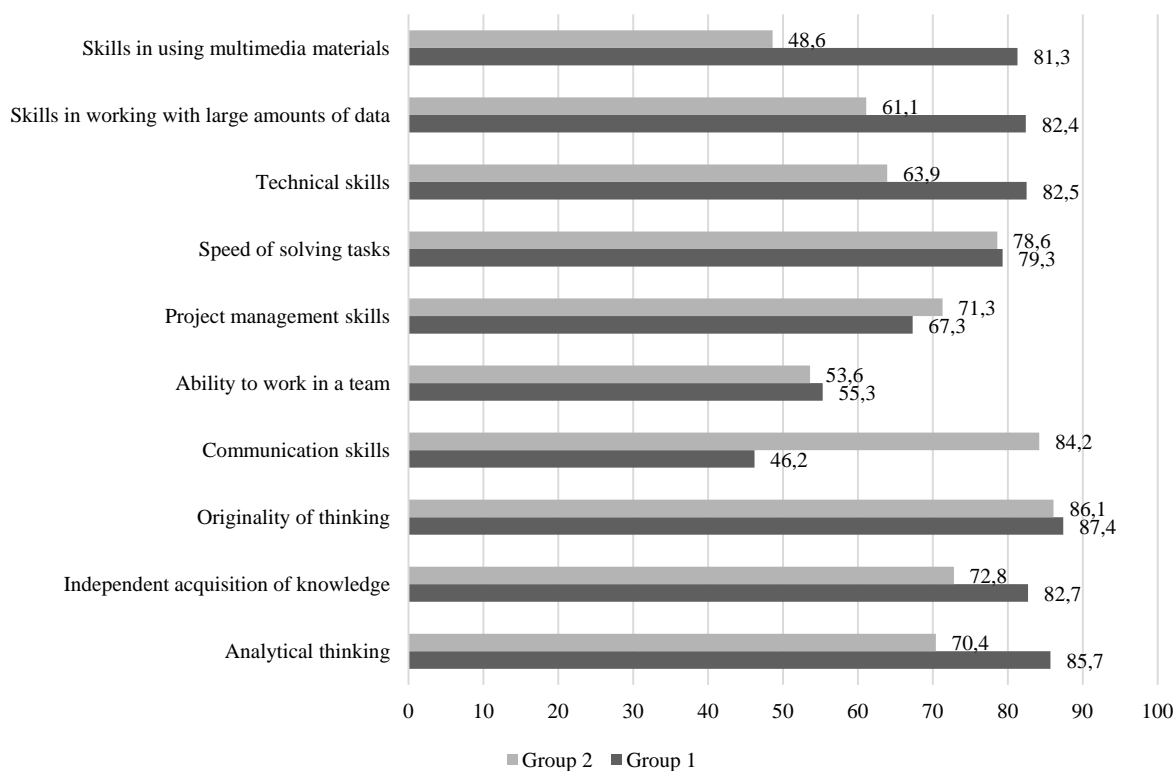


Figure 1. Assessment Results of Students' Skills in Using Digital Technologies and the Traditional Approach to the Learning Process
Source: compiled by the author

A comparative analysis of students' skills using digital technologies and the traditional approach to the learning process shows a significant gap between the scores in each group. Students who use digital technologies demonstrate a high level of analytical thinking (Group 1 = 85.7; Group 2 = 70.4), which indicates the effectiveness of digital methods in developing analytical skills. They are also better at acquiring knowledge independently (Group 1 = 82.7; Group 2 = 72.8), which can be explained by access to a wide range of online resources. In addition, the originality of thinking in both groups is high, but students using digital technologies still have a slight advantage (Group 1 = 87.4; Group 2 = 86.1). At the same time, the traditional approach to learning provides better development of communication skills (Group 1 = 84.2; Group 2 = 46.2), which

emphasises the importance of verbal interaction in the learning process. The ability to work in a team is almost the same in both groups (Group 1 = 55.3; Group 2 = 53.6), which indicates that one approach has no significant advantage over the other. Project management skills are better developed among teachers using the traditional methodology (Group 1 = 71.3; Group 2 = 67.3), which may result from a more structured approach to project activities. However, the skills in using multimedia materials are significantly better among those teachers who use digital technologies (Group 1 = 81.3; Group 2 = 48.6), which reflects the effectiveness of digital tools in this area. Digital technologies contribute to developing analytical, technical, creative, data and multimedia skills, while the traditional approach is more

effective in developing communication and project management skills.

In the course of the study of critical aspects of modern education and innovations in the educational process, it is essential to compare the effectiveness of digital technologies and the traditional approach in modern higher education institutions. A one-sample t-test in the JASP software (One-Sample T-Test tool) was used to assess students' skills acquired through digital technologies objectively. This statistical method of analysis allowed us to identify the nature of the impact of innovative

teaching technologies on the skills developed by students through the use of specialised digital platforms and web services. Based on preliminary expert opinions in two groups, the t-test compares the average values of the sample data with theoretical or standard indicators that determine students' abilities and competencies in various aspects of the curriculum. The results of the One Sample T-Test presented in Table 2 allow us to determine how effectively digital technologies contribute to developing specific skills compared to traditional teaching methods.

Table 2. Determining the impact of innovative teaching technologies on developing students' research skills

One Sample T-Test						
	t	df	p	Mean Difference	Lower	Upper
Group 1						
Analytical thinking	29.109	9	< .001	85.700	80.303	∞
Independent acquisition of knowledge	14.816	9	< .001	82.700	72.468	∞
Originality of thinking	29.757	9	< .001	87.400	82.016	∞
Communication skills	10.303	9	< .001	46.200	37.980	∞
Ability to work in a team	7.403	9	< .001	55.300	41.607	∞
Project management skills	10.848	9	< .001	67.300	55.927	∞
The speed of solving tasks	14.222	9	< .001	79.300	69.079	∞
Technical skills	17.614	9	< .001	82.500	73.914	∞
Skills in working with large amounts of data	16.009	9	< .001	82.400	72.965	∞
Skills in using multimedia materials	17.835	9	< .001	81.300	72.944	∞
Group 2						
Analytical thinking	12.444	9	< .001	70.400	60.030	∞
Independent acquisition of knowledge	10.609	9	< .001	72.800	60.222	∞
Originality of thinking	36.791	9	< .001	86.100	81.810	∞
Communication skills	38.273	9	< .001	84.200	80.167	∞
Ability to work in a team	7.389	9	< .001	53.600	40.302	∞
Project management skills	10.887	9	< .001	71.300	59.295	∞
The speed of solving tasks	24.187	9	< .001	78.600	72.643	∞
Technical skills	9.639	9	< .001	63.900	51.748	∞
Skills in working with large amounts of data	7.765	9	< .001	61.100	46.675	∞
Skills in using multimedia materials	7.308	9	< .001	48.600	36.409	∞
<i>Note.</i> For the Student t-test, the sample mean difference d gives the location difference estimate.						
<i>Note.</i> For the Student t-test, the alternative hypothesis specifies that the mean is greater than 0.						
<i>Note.</i> Student's t-test.						

Source: compiled by the author

Based on the results of a one-factor t-test between two groups of students using digital technologies (Group 1) and a traditional approach (Group 2) in the learning process, a comparative analysis of their skills was carried out. Group 1 showed a statistically significant higher level in many skills than Group 2. In particular, Group 1 teachers demonstrate significantly better results in analytical thinking ($t = 29.11$, $p < 0.001$), independent knowledge acquisition ($t = 14.82$, $p < 0.001$), technical skills ($t = 17.61$, $p < 0.001$), skills of working with large amounts of data (difference in mean = 16.01, $p < 0.001$) and skills of using multimedia materials (difference in mean = 17.84, $p < 0.001$). On the other hand, Group 2 teachers showed significantly better results in communication skills ($t = 38.27$, $p < 0.001$). Although both groups have similar levels of teamwork skills ($t_{\text{Group 1}} = 7.4$; $t_{\text{Group 2}} = 7.39$, $p < 0.001$) and project management skills ($t_{\text{Group 1}} = 10.85$; $t_{\text{Group 2}} = 10.887$, $p < 0.001$), the advantage in certain aspects of skills is determined by the type of teaching approach used. The analysis of the t-test results shows that teachers who use digital technologies in the teaching process have higher scores in many skills compared to those who follow a traditional approach. Thus, the primary thesis of the study is confirmed, as the results indicate the significance of the impact of digital technologies on the development of relevant research skills among students.

5 Discussion

According to Nikitenko and Kovalenko (2024), the complexity of distance education is due to the possibility of introducing 5G digital technologies. These technologies include the fifth generation of wireless networks, which make it possible to deploy devices densely and provide direct interaction between different satellites, reduce energy consumption, use enhanced connectivity to Internet resources, and provide rich multimedia learning experiences (Nikitenko & Kovalenko, 2024).

According to Nikukar (2024), using the latest flipped classroom method and introducing innovative teaching technologies in research activities is possible. This teaching method allows students to listen to online lectures or read literature in their free time. Then, during classes, they do engaging exercises and puzzles according to the material they have studied, developing logical thinking and creating an excellent learning atmosphere that encourages them to study new material more thoroughly (Nikukar, 2024). At the same time, Papanis (2020) emphasises the importance of teaching in small portions that can be digested by the learner (the so-called portioned microlearning). This model was evaluated during distance learning at the University of Democritus, Greece (Papanis, 2020).

Popov et al. (2021) studied the peculiarities of applying innovative technologies in the work at nuclear power plants.

They determined that the introduction of artificial intelligence helped to reduce the time spent by employees at the workplace, increase the efficiency of plant management, and reduce the cost of electricity consumed for the operation of the plant and electronic devices. Station personnel can train and develop professionally remotely using innovative technologies in conditions close to natural and safe for participants (Popov et al., 2021).

During the COVID-19 pandemic, Raja & Lakshmi Priya (2022) evaluated the use of virtual reality and artificial intelligence tools to improve the quality of education in a changing academic environment. They found that this significantly improved the quality of higher education programmes. The introduction of innovative technologies such as remote meetings, online exams, virtual reality, and augmented reality can improve the quality of education. However, according to their observations, with age, teachers have mixed opinions about incorporating virtual reality trends into their daily routines. After surveying 140 education professionals from different parts of India, they concluded that teachers agree with integrating virtual reality and augmented reality to improve the quality of education. The analysis showed that students from rural areas need help getting to grips with the technology.

The evaluation of innovative technologies at Ternopil National Economic University concluded that the technically correct organisation of distance learning maintains a balance between theoretical and practical training of specialists. The students communicated in a distance format on the online platform Moodle. However, Rebukha and Polishchuk (2020) concluded that the virtual educational environment must partially replace the direct learning contact between teachers and students in the classroom.

Recent advances in information technology, supported by high-speed internet, have removed territorial barriers to communication (Saif et al., 2022). As Semenets-Orlova et al. (2022) note, Russia's war against Ukraine has spurred the development of innovative technological processes. However, this does not reduce the need for higher education institutions to develop their capacity using digital tools. Education development creates new opportunities for developing human potential in social media (Semenets-Orlova et al., 2022).

The effective use of information technology is highly appreciated not only in education but also in agriculture. For example, a study of China's agricultural Sector over the past 30 years has identified seven models of information dissemination. These technologies facilitate the growth of various crops and milk production by introducing intelligent plant and animal care methods, which will help transfer knowledge to future generations (Zhang et al., 2016).

Thus, based on the results of the comparative analysis between students using digital learning technologies (Group 1) and the traditional approach (Group 2), digital tools significantly impact the development of skills required for research activities. Students who use digital learning technologies demonstrate a higher level of analytical thinking, independent knowledge acquisition, technical skills, working with large amounts of data and using multimedia materials compared to those who use the traditional approach, which is confirmed by statistically significant differences in mean values and t-test results ($p < 0.001$). On the other hand, students with a traditional approach showed an advantage in communication skills. Thus, digital technologies create a favourable environment for active learning and development of student skills, which are critical for conducting high-quality and effective research activities in the modern world.

6 Conclusions

Innovative learning technologies are significantly changing modern education in the context of digital transformation; in particular, the personality-oriented approach is a critical aspect aimed at individualising learning and adapting curricula to each

student's unique needs and capabilities. Interactive learning technologies designed to create a dynamic learning environment support the active exchange of knowledge and experience between participants in the educational process. These tools contribute to developing communication skills, working in a team, and creating a favourable emotional environment for learning. In addition, using digital technologies opens up new opportunities for distance learning and research. They allow students to access learning resources anywhere and anytime, contributing to the flexibility and accessibility of the educational process.

Literature:

1. Ambe, B. A., Agbor, C. E., Amalu, M. N., Ngban, A. N., Bekomson, A. N., Etan, M. O., Ephraim, I. E., Asuquo, E. E., Eyo, O. E., & Ogunjimi, J. O.: Electronic media learning technologies and environmental education pedagogy in tertiary institutions in Nigeria. *Social Sciences & Humanities Open*, 2024, 9, 100760. <https://doi.org/10.1016/j.ssaho.2023.100760>
2. Batista, A. F., Thiry, M., Gonçalves, R. Q., & Fernandes, A.: Using technologies as virtual environments for computer teaching: A systematic review. *Informatics in Education*, 2020, 19(2), 201-222. <https://doi.org/10.15388/infedu.2020.10>
3. Biliakovska, O. O., & Binytska, K. M.: Student-centred approach as a new paradigm of the quality of the educational process in higher education institutions. *Humanitarian Forum*, 2023, 1(1), 10-15. [https://doi.org/10.60022/1\(1\)-2GF](https://doi.org/10.60022/1(1)-2GF)
4. Braievskaya, A.: Modernisation of Ukrainian Higher Education: Integration of Digital Technologies as a Means of Orientation of Foreign Language Learning by Students of Higher Education Institutions. *European Science*, 2024, sge27-02, 44-70. <https://doi.org/10.30890/2709-2313.2024-27-00-035>
5. Bykov, V., & Leshchenko, M.: Digital humanistic pedagogy of open education. *Theory and practice of social systems management*, 2016, 4, 115-130. http://nbuv.gov.ua/UJRN/Tipuss_2016_4_13
6. Byrkovych, T., Humenchuk, A., Kobyzcha, N., Akimova, L., Grinberg, L., & Akimov, O.: Economic effectiveness of state policy in reforming higher library and information education in Ukraine. *Economic Affairs (New Delhi)*, 2023, 68(1), 599-616. <https://doi.org/10.46852/0424-2513.1.2023.28>
7. Dettori, A., Caboni, F., & Giudici, E.: New Education Perspective: The Humanistic Management Paradigm. In *Conference Proceedings. The Future of Education 8th Edition 2018*, 28-29 June, pp. 1-3. Florence, Italy, 2018. <https://conference.pixel-online.net/files/foe/ed0008/FP/4925-SOE3269-FP-FOE8.pdf>
8. Dhivya, D. S., Hariharasudan, A., & Nawaz, N.: Unleashing potential: multimedia learning and education 4.0 in learning professional English communication. *Cogent Social Sciences*, 2023, 9(2), 2248751. <https://doi.org/10.1080/23311886.2023.2248751>
9. Garlinska, M., Osial, M., Proniewska, K., & Pregowska, A.: The influence of emerging technologies on distance education. *Electronics*, 2023, 12(7), 1550. <https://doi.org/10.3390/electronics12071550>
10. Horielov, V. O.: Scientific and research activity of students in a higher educational institution. *Ways of extracurricular work of students: Materials of the VI Interuniversity Regional Methodical Conference*, pp. 60-61. Sumy State University, 2012. <https://core.ac.uk/download/pdf/14057611.pdf#page=61>
11. Kyrychenko, M. O.: The information technology and humanistic paradigm of the ideology of the information society in the age of globalisation and the information revolution. *Bulletin of Kharkiv National University named after V.N. Karazin. Series: Philosophy. Philosophical vicissitudes*, 2018, 58, 37-45. <https://doi.org/10.26565/2226-0994-2018-58-4>
12. Lin, Y. J., & Wang, H. C.: Using virtual reality to facilitate learners' creative self-efficacy and intrinsic motivation in an EFL classroom. *Education and Information Technologies*, 2021, 26(4), 4487-4505. <https://doi.org/10.1007/s10639-021-10472-9>
13. Lüy, Z., Bakirci, F., Artsin, M., Karataş, S., & Çakmak, E. K.: Innovative technologies to trigger creative thinking in micro-lessons. In *Optimising education through micro-lessons*:

Engaging and adaptive learning strategies, pp. 118-140. IGI Global, 2024. <https://doi.org/10.4018/979-8-3693-0195-1.ch007>

14. Nikitenko, V., & Kovalenko, V.: Innovative Modes of Distance Education in the Context of 5G Digital Technologies Implementation. *TEM Journal*, 2024, 13(2), 1192-1202. <https://doi.org/10.18421/TEM132-33>

15. Nikukar, F.: A Review of the Effectiveness of the Flipped Teaching Method on Self-directed Learning and Information Literacy. *The New Approaches in Humanities*, 2024, 1(3), 19-29.

16. Papanis, A.: The Importance of Microteaching with the Use of Multimedia by Students of the Democritus University of Thrace, Greece. *International Journal of Social Science and Economic Research*, 2020, 05(10), 2792-2802. <https://doi.org/10.46609/IJSSER.2020.v05i10.004>

17. Popov, O. O., Iatsyshyn, A. V., Iatsyshyn, A. V., Kovach, V. O., Artemchuk, V. O., Gurieiev, V. O., Kutsan, Yu. G., Zinovieva, I. S., Aliksieieva, O. V., Kovalenko, V. V., & Kiv, A. E.: Immersive technology for training and professional development of nuclear power plants personnel. *Paper presented at the CEUR Workshop Proceedings*, 2021, 2898, 230-254. <https://doi.org/10.31812/123456789/4631>

18. Raja, M., & Lakshmi Priya, G. G.: Using virtual reality and augmented reality with ICT tools for enhancing quality in the changing academic environment in COVID-19 pandemic: An empirical study. In *Technologies, artificial intelligence and the future of learning post-COVID-19: The crucial role of international accreditation*, pp. 467-482. Springer International Publishing, 2022. https://doi.org/10.1007/978-3-030-93921-2_26

19. Rebukha, L., & Polishchuk, V.: Ukrainian Society and Covid-19: the Influence of the Pandemic on Educational Processes in Higher School. *Postmodern Openings*, 2020, 11(2), 120-127. <https://doi.org/10.18662/po/11.2/165>

20. Ryoke, M., & Wierzbicki, A. P.: Gaming and role playing as tools for creativity training. In *Creative Environments: Issues of Creativity Support for the Knowledge Civilisation Age*, 2007, 59, 255-280. Springer. https://doi.org/10.1007/978-3-540-71562-7_11

21. Saif, S. M., Ansarullah, S. I., Ben Othman, M. T., Alshmrany, S., Shafiq, M., & Hamam, H.: Impact of ICT in modernising the global education industry to yield better academic outreach. *Sustainability*, 2022, 14(11), 6884. <https://doi.org/10.3390/su14116884>

22. Semenets-Orlova, I., Kushnir, V., Rodchenko, L., Chernenko, I., Druz, O., & Rudenko, M.: Organisational development and educational changes management in public Sector (case of public administration during war time). *International Journal of Professional Business Review*, 2023, 8(4), 01-15. <https://doi.org/10.26668/businessreview/2023.v8i4.1699>

23. Semenets-Orlova, I., Shevchuk, R., Plish, B., Moshnin, A., Chmyr, Y., & Poliuliakh, R.: Human-centred approach in new development trends of value-oriented public administration: Potential of education. *Economic Affairs (New Delhi)*, 2022, 67(5), 899-906. <https://doi.org/10.46852/0424-2513.5.2022.25>

24. Siddiq, F., Olofsson, A. D., Lindberg, J. O., & Tomczyk, L.: What will be the new normal? Digital competence and 21st-century skills: critical and emergent issues in education. *Education and Information Technologies*, 2024, 29(6), 7697-7705. <https://doi.org/10.1007/s10639-023-12067-y>

25. Sydorenko, N., Denysenko, V., Grytsenko, I., Borysenko, N., & Terletska, L.: Methodological foundations for the formation of professional qualities in primary school teachers. *Eduweb-Revista de Tecnologia de Informacion Y Comunicacion en Educacion*, 2023, 17(2), 1-10. <https://doi.org/10.46502/issn.1856-7576/2023.17.02.10>

26. Zhang, Y., Wang, L., & Duan, Y.: Agricultural information dissemination using ICTs: A review and analysis of information dissemination models in China. *Information processing in agriculture*, 2016, 3(1), 17-29. <https://doi.org/10.1016/j.inpa.2015.11.002>

Primary Paper Section: I

Secondary Paper Section: IN, BD



PAPERS PUBLISHED IN THE JOURNAL EXPRESS THE VIEWPOINTS OF INDEPENDENT AUTHORS.

