

USING OF INFORMATIVE AND COMMUNICATIVE TECHNOLOGIES IN MUSIC EDUCATION

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Abstract: Contribution processing and analyzing possibilities of using informative and communicative technologies in teaching music. It also indicates the importance of implementing informative and communicative technologies (ICT) to the process of teaching in light of current tendencies and trends in teaching music and educational subjects. It provides answers to the question if ICT really motivates students to be more active in music lessons. We notice if there is a bigger difference in student's motivation to musical activities for students taught with classic educational approaches than in new approaches with using means of ICT in education.

Keywords: informative and communicative technologies (ICT), music education, motivation.

1 THEORETICAL BACKGROUNDS OF THE RESEARCH PROBLEM

One of the education problems today is the low level of the student's motivation to learn. Motivation to learn is by Vagnerova internal mental state, which stimulates the activity to achieve good performance and its application, and keeps it for some time. The motif can be seen as the reason for student learning, but also to show what he learned. If the child is motivated to learn, does not operate at its capacity. It is important to know what are the students thinking about school and learning, what it means for them. (Vágnerová, M., 2001). Motivation is one of the fundamental dimensions of personality. Motivating pupils to learn affects many factors. One is the necessity for new initiatives, curiosity.

Morozov sees removing the problems in student's motivation to learn just wit using ICT. But he also sees the existing problems, which are related to their use in teaching. One of the main causes of wrong using the ICT in education is a surfeit of the curriculum with plenty of information on web resources, even in existing training programs on CD-ROMs. It emphasizes the proper presentation of electronic teaching materials, which is engaging in activities for students. This means that it must be activity, that student wants to perform without external incentives, just for himself, it means activity invoking the student activity internal motivation for learning, enjoyment. In English exists the term "learning is fun." (Morozov, 2005).

Kučerová and Pálušová consider motivation as one of the characteristics of ICT. Using these technologies, according to them more often motivates students to acquire new knowledge, because these technologies are closer to them and also closer from everyday life and they are interested in them. Motivation through ICT leads to increase efficiency of teaching. (Kučerová, A. - Pálušová, M., 2006).

Čelinák speaks about motivational function of informative and communicative technologies. Text, graphics, audio and animation information mediated by ICT according to him strongly influenced by their authenticity and documentation to the recipient (student), to raise his keen interest, curiosity, satisfaction and will to learn. (Čelinák, 2006).

1.1 Objectives and hypotheses of the research

In our research we wanted to examine the effectivity of the education with using ICT in music education and measure the gained knowledge through didactic tests. We were interested in student's motivation to study on lessons of music education supported by resources of the informative and communicative technologies.

As basic research objectives we have set:

- map the attitude of students to teaching music education,
- determine with using the questionnaire method, as students perceive teaching music education supported by resources of the informative and communicative technologies,
- determine by the experiment method, how the using of ICT in education affects themotivation of students to teaching music education and their rating the music activities compare to a group of students, which educated with the traditional way of teaching,
- map, which musical activities supported by the ICT are students interested in the most.

From the objectives follows the hypotheses:

Hypothesis interest

H1 We assume that students, whose are taught by using the ICT, will consider music education more attractive (more interesting) than students whose music education go on by traditional form.

Hypothesis willingness to participate in music education

H2 We believe that students under the influence of ICT will be more interested in active participating in learning than students taught by traditional form.

Hypothesis the evaluation of musical activities

H3 We assume that students in taught by using the ICT will evaluate music activities supported by ICT better than students, whose musical activities will be supported by traditional didactic means.

Hypothesis sex

H4 We believe that teaching music education supported by ICT resources will be more interesting for boys than for girls.
H5 Under the influence of the using the ICT in education will boys be more active in teaching than girls.

1.2 The research sample

Research that was conducted in ictober 2008 and 2009 in Elementary school with kindergarten Horná Kráľová was conducted with two groups of students. Both samples weren't selected randomly, for realize of our research we chose a school and environment that we knew well and we knew how to orientate in the material schol equipments, particularly in the cabinet collection of music education and didactic techniques. Both groups were represented by a group of students from the 5th, 6th, 7th, 8th and 9th class. Since we could not ensure the participation of all students in all measurements, the number of students who filled out a questionnaire, is not consistent with the planned sample of the research. The number of students who participated in research, we presented in the following table. Regarding the composition of the groups, weren't found statistically significant differences in the composition of the groups, which would include the variables sex and class.

Table 1 basic stats of the experiment

Control group			Experiment group		
Class	Measurement	Number of students	Class	Measurement	Number of students
5. class	1.measurement	16	5. class	1.measurement	14
	2.measurement	12		2.measurement	11
6. class	1.measurement	14	6. class	1.measurement	19
	2.measurement	13		2.measurement	18
7. class	1.measurement	17	7. class	1.measurement	19
	2.measurement	17		2.measurement	13

8. class	1.measurement	19	8. class	1.measurement	15
	2.measurement	18		2.measurement	13
9. class	1.measurement	14	9. class	1.measurement	24
	2.measurement	13		2.measurement	20

1.3 Methodical procedure

In our research we used pedagogical experiment to verify the hypothesis. Research was conducted with two groups of students. With experimental group, where the teaching process on music lessons happened took a place in a computerlab with using ICT and with a control group, where the educational process follows the classical method. Both groups represented a group of students from the 5th, 6th, 7th, 8th and 9th class. Later on we used the questionnaire method to verify our hypotheses, which we seemed the most appropriate way of obtaining data about the attitudes of students to teaching music. This method seemed to us appropriate in view of the statistical processing methods, which we decided to prioritize.

Research was conducted in the following phases:

1. The course of instruction of the experimental group was conducted in a computerlab, where was music education supported by ICT for ten lessons. Education in the control group took place in the classic way and were taught the same topics as in the experimental group, and when it the traditional didactic resources allowed with the same actions.
2. After the implementation of a block of taught lessons in one and the second group, we verified the hypothesis by questionnaire, which students from control and from experimental groups filled out after each taught hour.
3. We analyzed the collected data by χ^2 test.

1.4 Theoretical background construction of the questionnaire

We designed the questionnaire understandable for pupils. We did not use terminology of the musical activities, because we assumed that students will likely understand the term "singing" than "vocalwork" (in the analysis of the results we are using the terminology).

The questionnaire included the questions, of which we tried to determine if a student thought the taught lesson interesting, if was the music activities interesting for him, if he joined them. In the open question number 7, the students should indicate which activity was the most interesting for them. The scale questions number 8 and 9, we tried to find out the attitude of the students to different music activities conducted in music lessons. Question number 9 completed only experimental group of students and we found out which ICT supported music activities in the classroom was most impressed.

In the control group, we received 153 completed questionnaires and in the experimental group 166 questionnaires.

1.5 Methodology of creation of the lessons with using Microsoft PowerPoint programme

To create a lessons of music education in computerized form, we decided to use Microsoft PowerPoint programme. This program allows to create effective and dynamic presentations. It is part of MS Office software package and allows to share information easily with others.

In terms of motivational aspect we came out in creation of presentations from the key requirements, which should have the educational environment in relation to the learners (Bonk, Dennen, 2004). We also tried to create presentations as it supports the students creativity and led to an activity and to live students music-making activity.

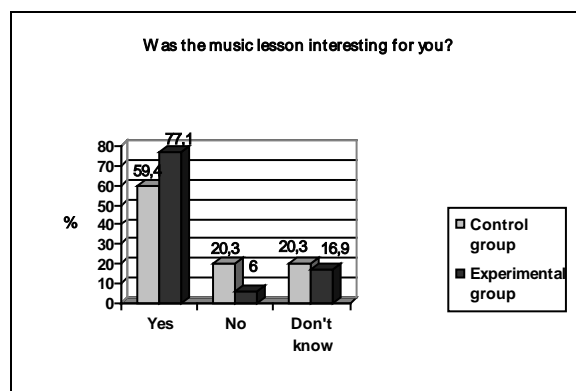
1.6 Statistical verification of the hypotheses

Testing the hypothesis was conducted on the results of the calculations of χ^2 test of homogeneity with which we investigated the significance of differences between the research variables.

Hypothesis the interest

We wondered if students are under the influence of learning supported by information and communication technologies, consider an hour of music education as more interesting. In that hypothesis, we assumed that "pupils, teaching involving the use of ICT, will be teaching music education more attractive than students whose music lessons runs with classical method." Hypothesis H1 is confirmed by us.

In the experimental group considered the music lesson as interesting 77.1% of students, in the control group only 59.4% of students. The results of the χ^2 test indicates a high statistical significance. The value of $\chi^2 = 16.66$, $p < 0.001$.



Graph 1 Student's attitude to taught hours of music lessons

Interesting is that in the experimental group we approached mainly boys (see Table 2), of whose 72% considered music education with the use of ICT as interesting, in the control group considered music education as interesting for only 50% of boys. This difference is highly statistically significant at the significance level $\alpha = 0.001$ ($\chi^2 = 15.92$, $p < 0.001$).

Table 2 Boys attitude to taught lesson

Boys		Control group		Experimental group	
		AS	RS	AS	RS
Was the music lesson interesting for you?	Yes	45	50,0	67	72,0
	No	25	27,8	6	6,5
	Don't know	20	22,2	20	21,5
Total		90	100,0	93	100,0

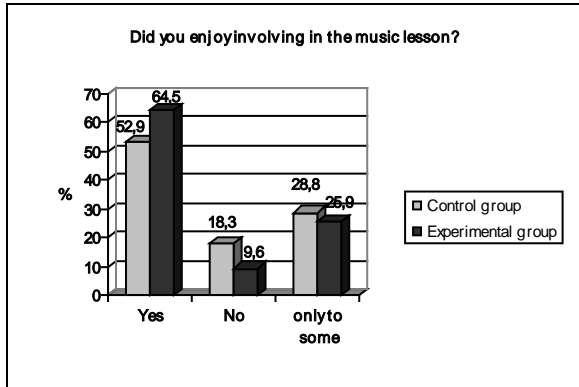
Hypothesis willingness to participate in music education

As we already mentioned above, many teachers consider means of ICT as very attractive. Even their presence in the classroom can pacify also classes, which sometimes behave problematic. It can not be overlooked the fact, that students sense the technology like a toy - they played with and had fun in their lives outside school and the positive emotions associated with the use of the play was apparently transferred to a situation when are ICT used specifically for teachers.

Based on these informations, we developed the hypothesis H2, which stated: "We believe that students under the influence of ICT will be more interested to active participating in learning than students taught by traditional form."

To question if students enjoy participating in activities on music lessons, responded positively in the experimental group 64.5% of students, which is about 12% more than in the control group (52.9%). The result of the χ^2 test indicates statistical significance at level $\alpha = 0.05$. The value of $\chi^2 = 6.36$, $p < 0.05$. Hypothesis number 2, we confirmed.

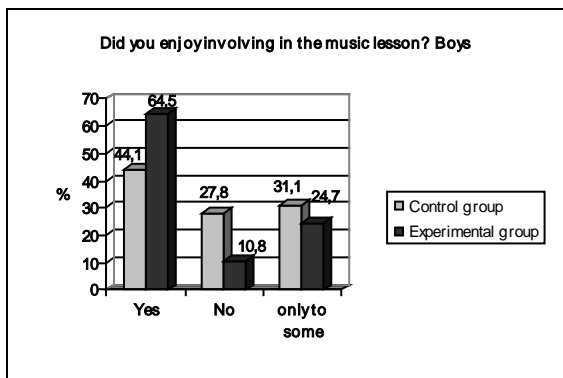
Music education didn't enjoy in the control group up to 18.3% of students, in the experimental group only 9.6% of the students, what is almost a half students less. Only to some activities involved roughly the same number of students in the experimental and control groups.



Graph 2 Willingness to involve in the music lesson education

Striking difference is in involving in the music education for boys, which involved in the control group only 41.1% of boys, in the experimental group up to 64.5%, what is difference up to 23%. Evidently, this high boy's interest for education supported by means of ICT is related to a natural interest in technology for boys. The value of $\chi^2 = 12.33$, $p < 0.01$, means very strong statistical significance on the level of statistical significance 0.01.

To education in the control group enjoyed involving up to 27.8% of boys, in the ICT-supported learning didn't enjoy only 10.8% of boys, which we believe is quite a big difference.



Graph 3 Willingness of the boys to involve in the music lesson education

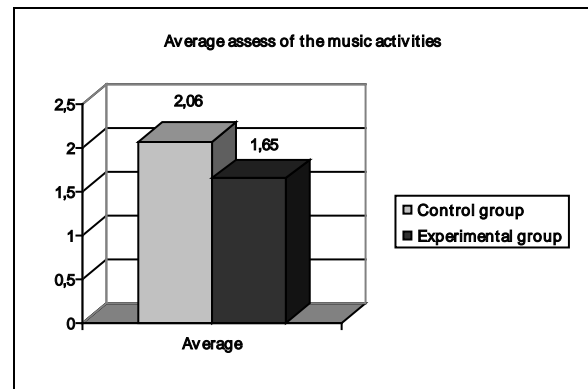
Hypothesis the evaluation of musical activities

In our research we also wanted to determine, if the using of ICT in music education has an influence also for assess individual music activities by students. The third hypothesis was:

" We assume that students in taught by using the ICT will evaluate music activities supported by ICT better than students, whose musical activities will be supported by traditional didactic means by ICT." Determined hypothesis H3, we confirmed.

The total average of student's rating of the musical activities, in the control group was 2.06, which was worse

than the value 0.41 in the experimental group. The value of $\chi^2 = 22.31$, $p < 0.001$, which means that the difference in assessment in the music activities by students of experimental and control groups is statistically significant. We confirmed the hypothesis number 3.

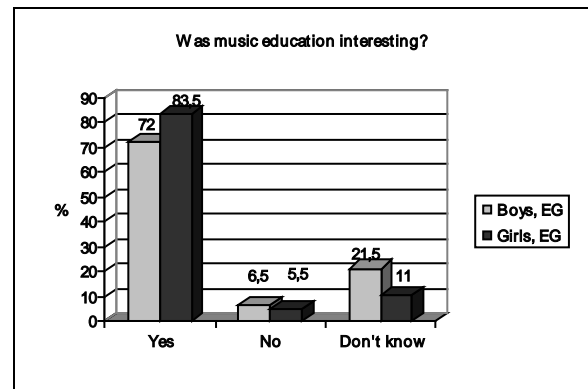


Graph 4 Assess of the music activities.

Hypothesis sex

In our research we assume that boys and girls will the using of ICT in music education perceived differently, this means that their use of ICT in music education will influenced differently. We were based on the assumption that boys have a closer attitude to ICT than girls. Accordingly, we made two hypotheses, where H4 was: " We believe that teaching music education supported by ICT resources will be more interesting for boys than for girls." Hypothesis H4, we didn't confirme.

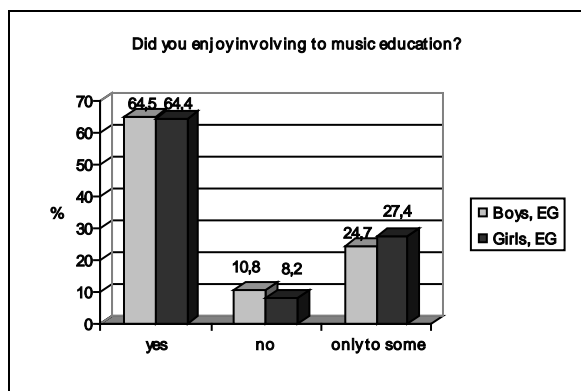
In the experimental group considered interesting music education higher percentage of girls (83.5%) than boys (72%). The result of the χ^2 test ($\chi^2 = 3.46$, $p > 0.05$) attests to the statistical insignificance. This implies that girls and boys considered music education supported by ICT as evenly interesting.



Graph 5 Student's attitude to taught music lessons

We assumed that the relation to technology and ICT will also affect the willingness of the boys to engage in music education. Based on this assumption, we set the hypothesis H5, which stated: " Under the influence of the using the ICT in education will boys be more active in teaching than girls." The hypothesis H5, we didn't confirme.

The graph 6 shows that the willingness to engage in music education supported by ICT are the minimum differences between boys and girls. Also the result of the χ^2 test ($\chi^2 = 0.39$, $p > 0.05$) indicates statistical insignificance, it means that girls and boys joined to music education supported by ICT in same like.



Graph 6 Willingness to involve by the experimental group's students.

1.7 Discussion

Statistical processing of data arising from the evaluation questionnaires, have come to the conclusions of our research when answering the research problem was: "They see students supported by teaching resources for ICT interesting? ICT resources motivate students to be more active during school hours as a classical music education teaching resources? "

Our teaching music education supported by ICT, we managed to take a higher percentage of students like Cox (1997), we keep more attention to students compared with traditional hours. In accordance with the opinion and Jereba Šmiteka (2006), we can say that unfortunately, the metal was supported by ICT-hour waste of time and bored, the only ones who have identified a dreary hour (6%) and was not involved in the teaching of love (9%). We have achieved better results than in the control group, but it was kind of "first" attempt to use ICT in the teaching of HV and hope for the further use of ICT in teaching music výcovy acquire more experience and we have before us and take part in teaching even higher percentage of students.

In general, felt that ICT is perceived positively in boys than girls. They show that such research Broosa (2005) and Volman (Volman et al., 2005). Our research, however, no difference in attitude to the hour of music education supported by ICT and a willingness to engage in a lesson supported by ICT between boys and girls not recorded.

Compared with classical teaching hours, we managed to musical activities supported by ICT means to reach a statistically significant higher percentage of boys. The difference in the control and experimental group of girls was not statistically significant. Thus, it appears that the use of ICT in teaching music education is the way that he can reach out and take a particular male, is the traditional teaching of music education and a big problem using ICT, we can wipe away the differences in willingness to engage in teaching music education between boys and girls .

CONCLUSION

Music Education is faced with many problems, which new concept of music education try to remove. The music content is more attractive, new textbooks were made. Music education must not become complacent and must continuously seek new ways of teaching.

One of the mean, how to increase student's school success and student's motivation for learning also the music education, is by us using the ICT in teaching. The object of our work is to verify our opinion by presented research. By using these technologies are respecting the principles of music and educational work. Informative and communicative technologies help students understand the connection between objects and musical disciplines or music activities, about what is the principle of

integration, and help them to solve the various problem situations, while they respect the principle of creativity. The principle of attraction by which the teacher is always looking for new methods and forms, from that students enjoyed the music lesson, almost forcing teachers to resort the informative and communicative technologies.

Realization of the integration of the ICT into teaching not only music education in traditional general education schools but complain incurred traditional approaches, which stands in the center of teachers served ready knowledge of their subsequent verification by reproduction. Strong are also the trends of the inertia of thinking, stereotype in the minds of teachers and students, a widespread perception, that only in immediate contact teacher – student, it can be effective in learning, using of the ICT is a kind of self-education.

We hope that our work will just a little bit help to remove these trends and shows the teachers the possibilities of music education with using informative and communicative technologies in music education.

We shouldn't forget in introduction of ICT in music lesson, that at first we have to take into character of the subject. We should project a music lesson with using ICT to support student's creativity and led them also to a live music-making activity.

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