

# CONFERENCE PROCEEDINGS

Editors: Ivana Đurđević Babić and Vjekoslav Galzina

## 1ST INTERNATIONAL ONLINE SCIENTIFIC CONFERENCE ICT IN LIFE

Contemporary society meeting  
ICT challenges and issues



Sveučilište Josipa Jurja Strossmayera u Osijeku  
Fakultet za odgojne  
i obrazovne znanosti

OBRAZUJEMO (ZA) BUDUĆNOST



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*Contemporary society meeting ICT challenges and issues*

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## **Preface**

The 1<sup>st</sup> International Online Scientific Conference *ICT in Life* was held on May 13, 2022 with the conference theme *Contemporary society meeting ICT challenges and issues*. A proven and secure platform was used to share research and opinions between scientists from different fields whose work highlights the importance of the role of ICT and contributes to shaping modern society.

This conference aims to provide answers to some of the important questions about the use of ICT, offering experiences and research results of others to increase the quality, but also to maximize the impact of its use in various aspects. Through the ICT sphere, highlighting all the challenges, the conference participants emphasized and discussed ways to promote and developing different skills, achieve learning outcomes, implement and experience the use of different learning and teaching environments and systems, especially in light of the changes caused by the Covid 19 pandemic and the impact on the physical and social factors, as well as the transformation and informatization of some general public systems such as the justice system. The authors of the 34 papers published in this conference proceedings, which underwent a rigorous peer review process, are from different countries (Albania, Croatia, Cyprus, Denmark, Germany, Ireland, Moldova, Serbia, Spain, Turkey, Ukraine), so that an international perspective on these topical issues has been achieved.

We would like to thank all the conferees, authors and reviewers for their excellent work in making the conference and proceedings as good as possible. We hope that this conference proceeding will encourage others to use ICT and improve the use of ICT in the future.

Editors

Ivana Đurđević Babić & Vjekoslav Galzina

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## **Attitudes of future primary education teachers about the application of information and communication technology in music teaching in primary schools**

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### **Abstract**

This paper presents the results of research conducted to determine the opinions of future teachers on the importance and possibilities of applying information and communication technology in music teaching. According to the results of the research, the largest number of students believe that the application of information and communication technology is important in the areas of music listening, music games and teaching music in general. They also think that students are glad to participate in activities that use information and communication technology. This makes the contents in music teaching easier to master, and it is easier to achieve an interdisciplinary approach in music teaching. Future teachers feel that their competencies for conducting music activities in which information and communication technology is applied are not sufficient. Therefore, it is necessary to further educate teachers and students to carry out such activities in music teaching. Primary education teachers need to keep pace with the development of technology, but it is important to ensure that the usage of information and communication technology is effective and age-appropriate.

*Keywords:* future teachers, information and communication technology, music teaching, primary school

### **Introduction**

In the last few years, digital technology has experienced rapid development, which is why we cannot imagine modern teaching without the use of computers, projectors, speakers, smart boards, tablets or mobile phones. In addition to digital technology, music teaching also uses information and communication technology (hereinafter ICT), which means “the technical basis for the systematic collection, storage, processing, dissemination and exchange of information of various forms, i.e. characters, text, sound and images” (Hrvatska enciklopedija, n.d.).



In Croatia, the interest in the use of computers for teaching began in the 1970s. Mužić (1973, p. 7) predicted the implementation of computers into the teaching process by stating the following: “Computers are at the door of our school system, ... Therefore, not only the younger but also the middle generation of teachers and other workers at our school will come across at least some aspect of the practical application of computers in their work, not only experimental but also everyday”. Unlike other media devices used in teaching at the time (tape recorder, film projector, etc.), computers were starting to be regarded as a machine which is a source of knowledge and exercises, a source of various information, but also their recipient (Mužić & Rodek, 1987, p. 46). The authors understand the computer as an active participant in all parts of the teaching lesson, all the while not diminishing the importance of teachers in the educational process. “In the *man and machine* system, which appears during teaching, the teacher retains his role, but it is changed and enriched” (Mužić & Rodek, 1987, p. 60). In addition, emphasis is put on the importance of educating teachers on the application of information technology and the inclusion of “computer-based teaching” in the overall educational vertical (Šoljan, 1988, pp. 83-105).

Vrkić Dimić (2010, p. 114) points out that the use of computers in the educational process is conditioned by the development of technology, the postmodernist context and the change of the learning and teaching paradigm. The initial lethargy and slowness in the communication and information transfer was replaced by a higher speed and a usage simplicity, which enabled their easier implementation into the educational process. The postmodern society is a result of the emergence of highly developed industrial societies. According to Bognar (2003), school in times of the industrial society was characterized by student obedience and teaching according to the curriculum. In the post-industrial society, the aim is to encourage and develop the creative and critical thinking skills of students, as well as a greater independence of both students and teachers. It is the student who, with the help of the teacher, constructs his own knowledge, and “the initiator of development is innovation based on advanced technologies” (Bognar, 2003, p. 10). Vrkić Dimić (2010) emphasizes that the third factor which affected the use of computers in teaching is the change in the didactic understanding of the educational process, which is now focused on the students themselves and the achievement of subject outcomes.

The use of digital technology in teaching gave rise to the four paradigms of learning and teaching (Koschmann, 1996, according to Vrkić Dimić, 2010) in the second half of the 20th century, and they differ according to the role of computers in the educational process. Computer Assisted Instruction (CAI) dates back to the 1960s, when the computer was a tool for teaching

and information delivery. In the 1970s, the Intelligent Tutoring System (ITS) emerged, in which the computer was given more importance and it served as a feedback to the student. In the 1980s, the LOGO paradigm emerged. Further development increased the role of the computer in the learning process, and the computer created content according to the idea of the student. In 1989, the Computer Supported Collaborative Learning (CSCL) paradigm emerged, emphasizing the importance of collaborative learning, in which the computer played a motivating role.

Matijević (2010) believes that future teachers and educators are not competent enough to apply new technologies while working with children, and recommends changing the teacher education programme, which must be enriched with methodological scenarios for the development of the aforementioned competencies. It is important to integrate ICT into the education of future teachers in order to acquaint them with the possibilities of such teaching before the educational work done directly with the students (Bauer & Dammers, 2016, p. 2). Prensky (2001) differentiates among the population with regard to the time of birth and the use of digital technology and ICT. He calls all those born in the age of computers, video games and the Internet *digital natives*, while those born before the digital revolution he calls *digital immigrants*. According to this theory, today's students are natives and teachers are digital immigrants (Prensky, 2001, pp. 2-4).

### **The use of information and communication technology in music teaching**

The National Curriculum Framework (Ministarstvo znanosti i obrazovanja, 2011, p. 17) emphasizes the importance of digital competencies, the main elements of which are “the use of computers to find, evaluate, store, create, display and exchange information and develop collaborative networks via the Internet”. The Curriculum for Music Culture in the Compulsory School and Music Art in Gymnasiums in the Republic of Croatia (Ministarstvo znanosti i obrazovanja, 2019a, p. 10) points out that ICT permeates through all three curriculum domains, and its implementation includes the students’ introduction and work with music computer programmes, learning the music script through various programmes and applications, working in a digital studio (audio processing, experimenting with sound, designing and structuring one's own musical ideas, etc.).

Rodek (2010, p. 10) explains the more intensive use of technologies in teaching by emphasizing that they facilitate the learning and teaching process, enable the application of modern methods and increase the learning motivation. In addition, by using this technology

“students get the opportunity to express their creativity and innovation by presenting their ideas and creating new content, and to express their originality by combining and rearranging existing knowledge and content” (Ministarstvo znanosti i obrazovanja, 2019b). Dobrota (2015, p. 4) emphasizes the individualized aspect of learning and teaching by mentioning that “the introduction of teaching technology in music teaching ensures different learning opportunities and helps students develop their creative thinking, problem solving, communication and teamwork skills.”

Recent literature highlights the lack of knowledge of didactic strategies when talking about the use of ICT in teaching (Matijević & Topolovčan, 2018; Vidulin Orbančić & Duraković, 2012). Technology can enrich and modernize the teaching process, however “digital media do not directly raise the quality of teaching, but their role is indirect or mediative” (Matijević & Topolovčan, 2018, p. 95).

Vidulin Orbančić and Duraković (2012, p. 91) point out the inappropriate application “primarily by those who, out of ignorance or lack of pedagogical and methodological competencies, believe that it is enough to use it in any way - which is completely wrong, because the use of new technology is not an end in itself”. ICT is a teaching tool that enables a faster and easier transfer of information, and its use must be in accordance with the educational goals and for the purpose of achieving the subjects’ outcomes. The teacher, student, teaching content and technology are all in a mutual interaction, which forms the didactic quadrangle (Matijević & Topolovčan, 2017). There is an evident paradigm of multimedia didactics that advocates a constructivist approach to learning and teaching by using different technologies in the teaching process. The teacher is the leader, motivator, organizer of various teaching activities, who (co-)constructs his students’ knowledge through his interaction with them, while the student is the one who actively researches and finds solutions (Matijević & Topolovčan, 2018).

Mishra and Koehler (2006) integrated ICT into Shulman’s PCK (Pedagogical Content Knowledge) model and thus emphasized the importance of content knowledge, teaching methods and technology. All elements of this model are in mutual interaction.

“TPCK is the basis of good teaching with technology and requires an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students’ prior knowledge and theories of epistemology; and knowledge of how technologies

can be used to build on existing knowledge and to develop new epistemologies or strengthen old ones.” (Mishra & Koehler, 2006, p. 102)

Bauer (2020) researched the application of this model in music teaching and offered solutions and possibilities for the application of ICT in music teaching and the methods of evaluation using technology.

Technology as such will not contribute to a better quality of the teaching process, but it will make it more interesting and accessible. Students, digital natives (Prensky, 2001), will be more motivated because the teaching aids are tailored to their needs and social environment. There is a noticeable lack of understanding of the use of technology in the educational process, since teachers most often use it for the purpose of presenting teaching content. Thus, they solely achieved a modernization of the frontal way of teaching. The agenda of teaching music with ICT is still not sufficiently developed in the field of didactics and music methodology.

## **Research**

### **Research objective and research questions**

The aim of this research was to determine the opinions of future primary education teachers on the importance and possibilities of applying information and communication technology into music teaching in primary schools. The research should also answer the following research questions:

1. How important is information and communication technology for the implementation of individual musical activities into music teaching in primary schools according to respondents/ future primary education teachers?

2. How successful is learning in the music teaching in primary schools which uses information and communication technology according to respondents/ future primary education teachers?

3. What is the attitude of future primary education teachers about acquiring the knowledge and skills needed for music teaching in primary schools which uses information and communication technology?

4. Do students in different years of the teacher education programme have different attitudes on the acquisition of the knowledge and skills needed for music teaching in primary schools which uses information and communication technology?

## **Research participants**

The research was conducted from February 2022 to March 2022. The research involved 107 students (103 female students - 96.26% and 4 male students - 3.74%) who are studying to become teachers at two Croatian universities, the Josip Juraj Strossmayer University in Osijek (Faculty of Education) (n = 56, 52.34%) and at the University of Slavonski Brod (Department of Social Sciences and Humanities) (n = 51, 47.66%). Participation in this research was completely voluntary. Most students are in the fourth (n = 33, 30.84%) and first academic year (n = 29, 27.10%). There is a slightly smaller number of students in the fifth (n = 21, 19.63%) and the third academic year (n = 16, 14.95%), while the least students are in the second year of the teacher education programme (n = 8, 7.48%).

The students were divided into two groups according to the academic year in which they were enrolled at the time of the research. In one group there were students who are in the first, second and third year of study, i.e. the students who have not yet taken the course Methodology of Music Culture and have not had the opportunity to teach a music lesson as part of the methodological exercises. The second group consisted of fourth- and fifth-year students. At the time of the research, fourth-year students had already taken the course Methodology of Music Culture I, and fifth-year students had taken the course Methodology of Music Culture I as well as Methodology of Music Culture II. In addition, these students had the opportunity to teach music lessons in primary school.

## **Methodological approach**

This research was conducted through surveying and a questionnaire was used as an instrument. The questionnaire consisted of two parts. The first part of the questionnaire asked questions about the socio-demographic characteristics of the research participants: gender, age, place and year of study. The second part included a series of statements for which future teachers needed to express the degree of their agreement. For statements regarding the importance of information and communication technology in the implementation of individual musical activities and in music teaching as a whole, assessments were done by using a five-point Likert-type scale with the following answers: 1 = not important at all, 2 = not important, 3 = neither important nor unimportant, 4 = important, 5 = very important. For the future teachers' statements on the success of learning in music teaching that uses information and communication technology, namely for statements about their competencies regarding teaching music lessons in which information and communication technology is used, a five-point Likert-type scale was applied, in which the following answers were offered: 1 = strongly disagree, 2

= mostly disagree, 3 = neither agree nor disagree, 4 = mostly agree, 5 = completely agree. The results are presented in the tables by merging the categories ("1 + 2", "3" and "4 + 5"). From the obtained results, we calculated the basic descriptive parameters: arithmetic mean (M), standard deviation (SD), and percentage of responses (%) (Mužić 2004; Petz 2007). Quantitative analyses were used for data processing. We also used the Mann-Whitney U (z) test to determine the differences between the two independent groups within each measurement (to compare the answers on the acquisition of knowledge and skills needed to teach music lessons in which information and communication technology is used according to the year of study). The SPSS Statistics V26 program was used for statistical data processing (Opić 2010; Petz 2007; Suzić 2007) with statistical significance at the level of .05.

### **Research results and discussion**

All 107 surveyed students completed the questionnaire in full. After receiving their answers to questions about gender, age, place and year of study, they were asked to express their opinions on the importance of information and communication technology for conducting certain musical activities and teaching music in general. The results are visible in Table 1. In terms of percentages, the largest number of students believe that the application of information and communication technology is important and extremely important in the areas of music listening (M = 4.48), music games (4.14) and teaching music in general (M = 4.21), and a smaller number of teachers assess the use of information and communication technology important for areas of musical-creative activities (M = 3.95), singing (M = 3.47) and playing a musical instrument (M = 3.45).

The very small dispersion in the answers indicates a great agreement of the students with regard to their answers about music listening activities (SD = .69), music games (SD = .75), musical-creative activities (SD = .86) and music teaching as a whole (SD = .69). Data on the total dispersion of the responses on the importance of playing an instrument (SD = 1.16) and singing (SD = 1.05) indicates that students have greater dispersion in their answers.

The students' answers agree with the theory of methodology of the subject Music Culture. Listening to music involves the use of digital technology and information and communication technology, and music games can be conducted in a virtual or real environment. The organization of teaching as a whole also often requires the use of the same technologies and facilitates the teaching process. Singing, playing musical instruments or musical creativity activities are reproductive activities that do not require the use of information and

communication technologies. However, the large dispersion indicates a disagreement in students' responses to the importance of using technology in activities of singing and playing an instrument. We can look for reasons for this in the way the students perceive these activities. In the lower primary education classroom, teachers often conduct singing activities with students with recorded instrumental accompaniment which in turn requires reproduction with the help of digital technology. Activities of playing an instrument and music creativity activities can also be carried out in a virtual environment using various computer software. It is also important to emphasize that not all students involved in this research have had the opportunity to teach Music Culture so far, so they have their own visions of what those classes look like. In addition, it is possible that students who have had the opportunity to conduct musical activities at school in some areas use technology in accordance with their personal interests and experiences.

**Table 1**

*Average values and dispersion of results for statements of future teachers on the importance of information and communication technology for the implementation of individual musical activities and music teaching in general*

<b>Teachers' statements on the importance of information and communication technology for the implementation of individual musical activities and music teaching in general</b>	<i>N</i>	<b>1+2</b> %	<b>3</b> %	<b>4+5</b> %	<i>M</i>	<i>SD</i>
Singing activity	107	19.62	28.04	52.34	3.47	1.05
Music listening activity	107	1.87	2.80	95.33	4.48	.69
Musical-creative activities	107	4.67	22.43	72.90	3.95	.86
Musical games	107	1.87	15.89	82.24	4.14	.75
Playing an instrument	107	19.63	30.84	49.53	3.45	1.16
Music teaching in general	107	0	14.95	85.05	4.21	.69

Note. *M* = average values; *SD* = standard deviation

The students were also asked to express their opinion on the success of learning in music teaching that uses information and communication technology. The results showed that students think it is easier for pupils to master the content ("4 + 5" = 77.57; *M* = 4.14) and to gladly participate ("4 + 5" = 78.5; *M* = 4.12) in music lessons which use information and communication technology. In addition, they think that the application of information and communication technology makes it easier to achieve an interdisciplinary approach in music teaching ("4 + 5" = 74.77; *M* = 4.07). The majority of the students also agreed with the

statements that pupils are skilled in the use of information and communication technology ("4 + 5" = 64.49; M = 3.78) and that during music lessons at the primary level information and communication technology is currently used more by teachers than students ("4 + 5" = 59.81; M = 3.70) (Table 2).

**Table 2**

*Average values and dispersion of results for statements of future teachers on the success of learning in music lessons which use information and communication technology*

<b>Teacher statements on the success of learning in music lessons which use information and communication technology</b>	<i>N</i>	<b>1+2</b> %	<b>3</b> %	<b>4+5</b> %	<i>M</i>	<i>SD</i>
Students gladly participate in activities which use ICT.	107	5.61	15.89	78.50	4.12	.88
Students are skilled in the use of ICT.	107	9.34	26.17	64.49	3.78	.94
It is easier for students to master the contents of music lessons with the use of ICT.	107	3.74	18.69	77.57	4.14	.85
The use of ICT makes it easier to achieve an interdisciplinary approach in music teaching.	107	0	25.23	74.77	4.07	.76
Currently, during music lessons at the primary level, ICT is used more by teachers than students.	107	10.28	29.91	59.81	3.70	.91

Note. *M* = average values; *SD* = standard deviation

Another point of interest was the question whether students of the teacher education programme have sufficient knowledge and skills to teach music lessons in which information and communication technology is used. Half of the students stated that ~~According to the students,~~ their knowledge and skills are sufficient ("4 + 5" = 48.60; M = 3.41). In addition, less than half of the students believe that they are able to use different software solutions in music teaching without much prior preparation ("4 + 5" = 43.92; M = 3.43) and that the teacher education programme includes enough university courses in which students get acquainted with the contents related to the use of information and communication technology in music teaching ("4 + 5" = 43.92; M = 3.24). According to the students, primary education teachers need to be further educated in the use of information and communication technology in music teaching ("4 + 5" = 78.51; M = 4.11) (Table 3).

The slightly smaller dispersion of results for an additional teacher education (*SD* = .96) indicates an overall agreement of the students in their answers, and the greater dispersion in other answers from this group (Table 3) indicates that students do not uniformly agree about



their competence for teaching music lessons in which information and communication technology is used.

Greater dispersion of results is noticeable in the self-assessment of competencies for the use of information and communication technology in music teaching and the self-assessment of the ability to use the same technologies without greater preparation. The reasons for this can be found in the sample because students of all study years are included in the research. First, second and third year students did not have a course in Music Teaching Methodology and did not have the opportunity to get acquainted with music software and the possibility of using technology in music teaching. The obtained data also indicate a greater disagreement of students about the claim that the study program has enough courses within which students learn about the possibilities of using information and communication technology in music teaching. In order to explain these results, further analyzes were performed below.

**Table 3**

*Average values and dispersion of results for statements of future teachers about their competencies in teaching music lessons in which information and communication technology is used*

<b>Statements of future teachers about their competencies in teaching music lessons in which information and communication technology is used</b>	<i>N</i>	<b>1+2</b> %	<b>3</b> %	<b>4+5</b> %	<i>M</i>	<i>SD</i>
I have enough knowledge and skills to use ICT in music teaching.	107	20.56	30.84	48.60	3.41	1.12
I find that I am able to use a variety of software solutions in music teaching without much prior preparation.	107	15.89	40.19	43.92	3.43	1.05
The teacher education programme includes a sufficient number of university courses in which students are introduced to content related to the use of ICT in music teaching.	107	28.04	28.04	43.92	3.24	1.20
I consider it necessary to further educate primary school teachers in the use of ICT in music teaching.	107	6.54	14.95	78.51	4.11	.96

Note. *M* = average values; *SD* = standard deviation

The students were divided into two groups according to the academic year in which they were enrolled at the time of the research. In one group there were students who are in the first, second and third year of study, i.e. the students who have not yet taken the course Methodology of Music Culture and have not had the opportunity to teach a music lesson as part of the

methodological exercises. The second group consisted of fourth- and fifth-year students. At the time of the research, fourth-year students had already taken the course Methodology of Music Culture I, and fifth-year students had taken the course Methodology of Music Culture I as well as Methodology of Music Culture II. In addition, these students had the opportunity to teach music lessons in primary school.

We then divided the students into two groups according to the academic year in which they were enrolled at the time of the research and whether they had a course Methodology of Music Culture. In the first group, there were students who are in the first, second and third year of study, and the second group included fourth and fifth-year students. The findings of the Mann-Whitney U-test show a statistically significant difference only for one of the four statements (Table 4). Namely, the research has shown that fourth- and fifth-year students of the teacher education programme believe that it is necessary to further educate primary education teachers in the use of information and communication technology in music teaching ( $z = -2.891$ ,  $p = 0.004$ ). It is also interesting to note that there is a smaller number of fourth- and fifth-year students ( $M = 3.04$ ; "4 + 5" = 45.28%) who agree with the statement that the teacher education programme includes enough university courses in which students are introduced to content related to the use of information and communication technologies in music teaching, than there is among first-, second- and third-year students ( $M = 3.45$ ; "4 + 5" = 50.94%). However, this difference is not statistically significant.

**Table 4**

*Differences in the statements of future teachers on the acquisition of knowledge and skills needed to teach music lessons in which information and communication technology is used - average values, dispersion of results, Mann-Whitney U test*

<b>Statements of future teachers on the acquisition of knowledge and skills needed to teach music lessons in which information and communication technology is used</b>	<b>Year of study</b>	<b>N</b>	<b>M</b>	<b>SD</b>	<b>z</b>	<b>p</b>
I have enough knowledge and skills to use ICT in music teaching.	1., 2., 3.	53	3.49	1.19	-.761	.447
	4., 5.	54	3.33	1.06		
I find that I am able to use a variety of software solutions in music teaching without much prior preparation.	1., 2., 3.	53	3.53	1.07	-.973	.331
	4., 5.	54	3.33	1.06		
The teacher education programme includes a sufficient number of university courses in which students are introduced to content related to the use of ICT in music teaching.	1., 2., 3.	53	3.45	1.15	-1.788	.074
	4., 5.	54	3.04	1.21		
I consider it necessary to further educate primary school teachers in the use of ICT in music teaching.	1., 2., 3.	53	3.85	1.03	-2.891	.004
	4., 5.	54	4.37	.81		

Note. *M* = average values; *SD* = standard deviation; *z* = Mann-Whitney U test

## **Conclusion**

The results of this research presented the attitudes of future teachers on the application of information and communication technology in music teaching at the primary level of education. The data shows that students - future teachers – in the biggest percentage place importance on the use of ICT in music listening activities, and the least in singing, instrument playing and musical-creative activities. Students feel that their knowledge and skills in using ICT are not sufficient, and less than half of the students point out that they can independently, without preparation, use different software in music teaching. It is interesting to note the disagreement of students about the representation of courses in the faculty within which they get acquainted with information and communication technology and consider it necessary to educate teachers to use this technology. Students who did not have the Music Teaching Methodology do not recognize this need with the same intensity as final year students, and there is a greater disagreement among students in the first three years of study.

Teaching music with ICT requires the professional and digital competencies which in today's, global world, cannot be viewed in isolation. “Our professional and ethical obligations must thus involve transcending naïve efforts aimed at mere competence with technology and music technology and should strive to engender critical engagement that sees students continuously evaluating if and how various technologies can help them live richer and more rewarding lives in and through music” (Mantie, 2017, p. 12). Rojko (2012, p. 30) claims the same by saying that the most important goal of music teaching is the “education of a competent and critical listener and connoisseur of music”. The Croatian Music Curriculum emphasizes the importance of using ICT throughout all subject domains, and ICT is an important tool which helps us achieve subject goals and outcomes in order to educate students in the field of art in today's global world. It is important to point out that the use of technology should be student-centred, where the student will use various digital tools to upgrade their already acquired knowledge. The teaching lesson which implements this technology goes beyond the characteristics of a traditional teaching lesson if students, digital natives, actively participate and apply ICT in the educational process.

The results of this research have some limitations. The main limitation is the small sample because the questionnaire was filled out by students of the teacher education programme

at only two universities. Due to the small number of respondents, the results obtained cannot be generalized to the general population. Future research should include students of the teacher education programme from all over Croatia. Thus we would be able to receive relevant information on the digital competencies of (future) music teachers. The results of such research could be used to help design contemporary university courses in the field of music art.

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