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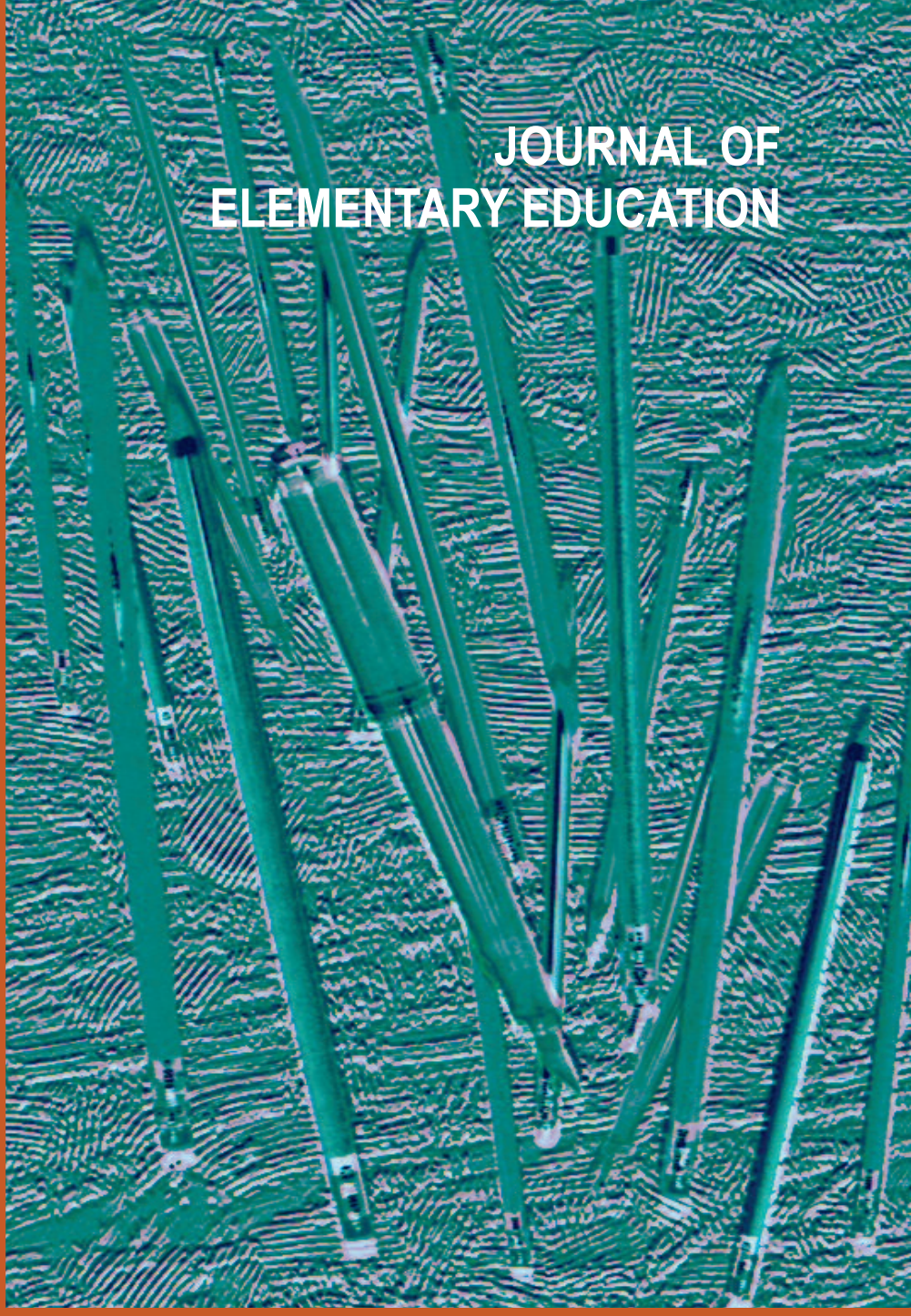

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REVIJA ZA ELEMENTARNO IZOBRAŽEVANJE
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STUDENT PERCEPTIONS OF THE IMPORTANCE OF ART CONTENT AND ACTIVITIES IN SCHOOLS OF GENERAL EDUCATION AND VOCATIONAL SCHOOLS IN CROATIA AND BOSNIA AND HERZEGOVINA

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Abstract/Povzetek The aim of research was to examine how students in higher secondary education estimate the importance of visual arts subjects for the acquisition of general knowledge and the importance of visual arts for their future profession. The participants (N=605) were students in the third year of higher secondary education. Although the participants in the sample did not attach importance to visual arts for their future professions, they assessed that during their education, activities that necessitated working with their hands helped them in developing their memorization skills and the ability to learn other subjects.

Dojemanje pomembnosti vsebin in dejavnosti likovne vzgoje pri dijakih splošnoizobraževalnih in poklicnih šol na Hrvaškem ter v Bosni in Hercegovini Cilj raziskave je bil proučiti na eni strani, kako učenci in dijaki v srednjih šolah ocenjujejo pomembnost predmetov likovne umetnosti za usvajanje splošnega znanja, na drugi pa pomembnost likovne umetnosti za njihov bodoči poklic. Udeleženci raziskave (N = 605) so bili dijaki tretjega letnika srednjih šol. Čeprav udeleženci likovni umetnosti ne pripisujejo pomena za bodoči poklic, so ocenili, da so jim v izobraževanju dejavnosti, ki so zahtevale delo z rokami, pomagale razvijati veščine pomnjenja in sposobnost učenja drugih predmetov.

Keywords:
visual arts, general education, educational neuroscience, educational sciences, brain development

Ključne besede:
likovna umetnost, splošno izobraževanje, izobraževalna nevroznanost, pedagoške znanosti, razvoj možganov

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Introduction

Recent research in the area of neuroscience presents scientific knowledge relating to the exposure of children at an early age to various activities involving the hands: painting, drawing, and modelling. The involvement of children in music and kinesiology activities is encouraged because such activities contribute to the development of the brain, i.e., brain cells relevant for learning and work in adulthood (e.g. Armstrong, 2009; Arnold, 2009; Baureis, 2015; Caine & Caine, 1991; Gardner, 1983; Hermann, 2009; Jensen, 2001 and 2005, Rajović, 2013 and 2017). It is claimed that art develops neural systems that can persist for months and years; i.e., art fosters the development of valuable human neurobiological potential (Jensen, 2001). Over one hundred years ago, similar positions were advocated by representatives of the projects and movements in reform pedagogy, particularly Maria Montessori (1988), John Dewey (1934; as cited in Jensen, 2001) and Rudolf Steiner (Carlgren, 1991, for more see Topolovčan, Rajić & Matijević, 2017; Maras, Topolovčan & Matijević, 2018). Contemporary neuroscientists often remind us that a child's brain develops most intensively before the age of four and that it is important to observe the stimulating environment to which a child was exposed during those years (Jensen, 2001 and 2005; Norton; Ulrich; Bell & Cate, 2018; Rosenberg-Lee, 2018; Watagodakumbura, 2017). For those years, and later during their compulsory education, it is important to encourage children to engage in various activities, movement, and play and to manipulate varied tools and materials (Jensen, 2005; Norton; Ulrich; Bell; Cate, 2018; Rajović, 2013). Movement and play are emphasized as important activities for brain development and for preparing a child for lifelong learning and work (Baureis, 2015). Although that knowledge is hardly news, today when the *Net*-generation is growing up, such experiential and scientific knowledge have a new place and significance (for more, see Britton, 2000; Carlgren, 1991; Montessori, 1988 and 2007; Lawrence, 2003; Philipps Reichherzer, 2003). Lawrence (2003: 14) points out that children primarily learn through the senses and by movement. The author also emphasizes that children learn best if they do something themselves (Lawrence, 2003: 24). In other words, she highlights the importance of learning by doing. That approach has been advocated for more than one hundred years by representatives of the Montessori and Steiner pedagogy (Carlgren, 1991; Montessori, 1988).

Key factors influencing early brain development and educational achievement are exercise, nutrition, genes, challenges, love and feedback. Solving tasks is the best way to develop a better brain (Jensen, 2005: 44). In addition to the previous statement by Jensen, "present-day biology shows that art can assist in setting foundations for future success in education and professional career. Strong art foundations ease solving tasks, build creativity, concentration, self-efficacy, coordination, self-discipline and develop affinity towards values" (Jensen, 2005: 46; similar to Nikolić, 2018). Furthermore, this author holds that teaching music and the visual arts has positive, measurable and permanent pedagogical and social benefits. Art education improves language development, increases creativity, helps children develop social skills and acquire general intellectual achievement, and helps them develop positive attitudes towards school (ibid.: 47). General education refers to the acquisition and adoption of learning, habits and skill in addition to values in various areas of science, culture, art, language, social life and work, relationship between people, sports, recreation, entertainment and similar, i.e. those scientific, cultural and other values and heritage necessary for all people of a particular social community regardless of their future professio (Potkonjak, 1989: 153). In addition, the author suggests expanding the notion of "general education" with content from economics, information sciences, knowledge of production and the humanities. He further emphasizes that general education is carried out at the primary and secondary level of the educational system (*ISCED - International Standard Classification of Education*). This paper will deal with the position of visual arts in the context of general education in vocational schools and grammar schools and the relationship of art to other subjects of general education and general culture in compulsory education. The area of visual arts generally comprises drawing, painting, modelling, sculpture, applied arts, arranging, designing and architecture. This paper will refer to visual arts in the sense of concrete content involving these constituents. The previous statements illustrate, to some extent, the research carried out by authors in Bosnia and Herzegovina and Croatia. We point to the results of a few selected studies (Drljača, 2018; Brajčić & Arnautović, 2002; Brajčić & Antunović, 2007; Dobrota, Kuščević & Burazer, 2010; Matijević, Drljača & Topolovčan, 2016a and 2016b).

There is research around the world relating to the position of visual arts education in general schools (Jensen, 2001). Several studies will be illustrated in the following section. Gardiner, (1996; according to Jensen, 2001: 59) claims that visual arts improve results in reading and mathematics. In a study of third-grade pupils, they observed how drawing well can supplement the process of writing and thinking.

Pupils were asked to read, then draw, then think, read again and draw again. The pupils discovered that the drawing enabled them to clarify their ideas, which improved comprehension and clarity. Of the 14 participants, each showed improvement through the application of this method (Davidson, 1996; according to Jensen, 2001:59). Contemporary educational theory and neuroscience point to the great significance of visual art for learning subjects from the STEM area, as well as subjects from the social sciences and humanities. However, countries such as Croatia, Bosnia and Hercegovina and surrounding countries placed visual arts in schools of general education in the margins, along with a modest time allocation in the curricula. In Bosnia and Hercegovina, children had 11 teaching hours allocated for Visual Arts, whereas children in Finland had 14 teaching hours. Children in Finland had 2 hours of handcraft (a total of 12 hours) per week, whereas such activity is not anticipated in the Teaching curricula of Bosnia and Hercegovina and Croatia. Kinesiology activities (Kinesiology Education) in Finland occupy 15 hours per week, which is the same as in Croatia, while the number of hours for kinesiology activities in Bosnia and Hercegovina is 13. In Bosnia and Hercegovina, preschool, or grade "0", schedules a total of 5 teaching lessons per week for kinesiology education, rhythmic activity and music (for more, see Drljača, 2018). Because of that, we revise some relevant knowledge in the area of educational sciences and neurosciences that indicates the influence of visual arts in the syllabi for generalist compulsory schools and generalist subjects in high school. American expert on learning and brain science, Eric Jensen, gives the most complete analysis of the role of art in general education: *Arts with the Brain in Mind* (2001), *Super Teaching* (2003) and *Teaching with the Brain in Mind* (2005). In all three books the author points to the importance of art activities and movement for brain development and improvement of competences relevant for learning in all areas. We will provide some of the most representative statements from these studies. The neural circuits responsible for mathematics and music are linked; exposure to music at an early age can later help in learning mathematics (Weinberger, 1994; according to: Jensen, 2005: 29; cf. Norton, A.; Ulrich et al., 2018). In order to improve the learning environment, the presence of art, music and kinesiology education should thus be reaffirmed in school. Art, music and kinesiology education can often create exceptional challenges and feedback. Norman Weinberger suggests 'broad pedagogical examination' in art and music. In the same way new medicine is tested in controlled studies, under scrutiny of the Food and Drug Administration, schools should undergo systematic and appropriate research checks for art and music education (according to Jensen, 2005: 49). Jensen

(2005: 19) states that neural activity can have and excitatory (activating) or inhibiting (hindering) effect. Researchers in the area of educational sciences seek to address the question "How does the activity of learning in STEM (*Science, Technology, Engineering and Mathematics)* reflect on learning in the area of art and vice versa?" Many researchers claim that activity in the art areas has an excitatory effect on learning in the STEM area (Jensen, 2001; Huzjak, 2006; Nikolić, 2018). One of the most original alternative pedagogies in Europe and the world (Waldorf pedagogy) frequently emphasizes that all topics in the area of general culture can be taught through integration with art or relying on art. Many subjects–even mathematics, grammar and geography--can be presented through short sketches that can later be performed for parents or "monthly events" (Carlgren, 1991: p. 51).

Methodology

Research aim and hypotheses

In the previous paragraphs we have indicated interesting observations and findings in educational science and neuroscience that refer to brain development and learning in early and middle childhood. In that context, significant attention was given to the position of the visual arts in compulsory schools of general education or general knowledge subjects within vocational schools. Over the last hundred years, authors have warned of the importance of art activities, particularly the influence of visual arts education on the acquisition of knowledge and skills in other subjects and areas of general education.

The aim was to examine how high school students comprehend, perceive and estimate the importance of visual art subjects for the acquisition of knowledge and skills in the area of general education and for their future life and occupation.
The paper advances the following hypotheses:

> H1 – Participants do not find that what they learned through their education in the area of visual arts is important for their future lives and professional workplaces (with a university degree).
>
> H2 – Participants do not find that what they learned through their education in the area of visual arts is important for their future lives and professional

workplaces (completed secondary education – higher secondary education), that is, for vocational education.

H3 – Participants do not find that what they learned through their education in the area of visual arts is useful in carrying out tasks in particular teaching subjects.
H4 – Students' grade-point average is a predictor of the estimate of the importance of visual arts for academic and vocational occupations.

Sample and population

The population that our research covers comprises students in the third grade of grammar schools and vocational schools in northern Bosnia and Hercegovina and the centrally located counties in the Republic of Croatia. It can be estimated that it includes approximately 4000 students in both countries. The participants (N=605) are students in the third grade of vocational schools and grammar schools from the northern part of Bosnia and Hercegovina and central Croatia. The participants were selected from nine schools from six towns in the Republic of Croatia (Čakovec, Koprivnica, Pregrada, Zagreb, Novska and Petrinja) and three towns in Bosnia and Hercegovina (Banja Luka, Prijedor and Novi Grad). The third year of high school (higher secondary education) was selected, since all these students had experienced some form of visual are or art instruction during their previous education – some had a subject in the area of visual arts or arts during their primary school and the first two years of high school. This sample of groups has the characteristics of a deliberate sample, since the two states were selected on purpose, along with high schools where the principals or support professionals had agreed to participate. In Bosnia and Hercegovina, the sample consisted of 240 participants, while the sample from Croatia comprised 400 participants. The number of participants attending grammar school was 250, while 400 participants attended vocational schools. Participants from vocational schools were distributed across eleven different programs: economist (commercial worker), dental technician, physical therapist, cook, architecture technician, media technician, designer, computer technician, mechatronic technician, pharmacist and nurse.

The sample (N=605) of participants comprises 376 (62.1%) high school students in the Republic of Croatia and 229 (37.9%) from the Republic of Bosnia and

Hercegovina. Of that number, 253 (41.8%) are grammar school students and 352 (58.2%) are vocational school students. As was previously mentioned, the population are students in the third grade of grammar schools and vocational schools in the area of northern Bosnia and Hercegovina and counties located in the central part of Croatia. The total distribution of the type of school is shown in Figure 1.

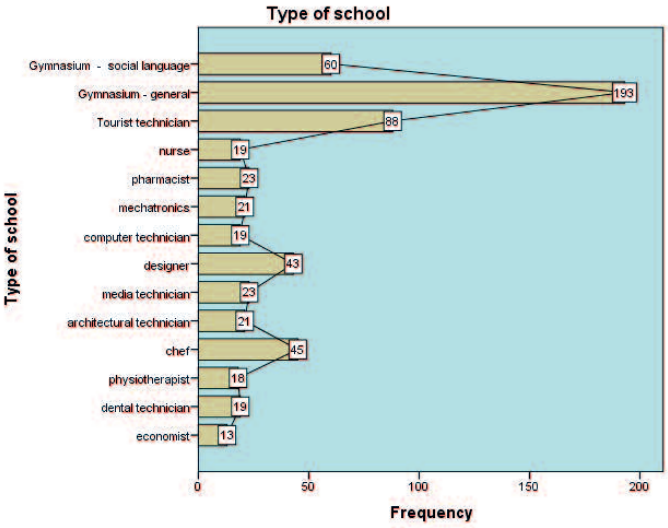

Figure 1: Distribution variable *Type of school*

Instrument and procedure

A questionnaire that complies with the aim, problem, hypotheses, and dependent and independent variables was developed for the purpose of this research. The instrument comprised 58 items and contained 52 dependent variables and 6 independent variables. The dependent variables refer to estimates of the importance of knowledge and competences in the area of visual arts for professions that are acquired upon completion of the high school attended by the student (20 high-school occupations); knowledge and competences that should be acquired by those enrolled in higher education (20 academic professions); and two questions relating to estimates of *interest in and satisfaction with* participation in activities in the subject Visual Arts and estimates of the *usefulness* of knowledge; and finally, competences acquired in subjects relating to visual arts for the development of memory and the

ability to learn other subjects, particularly in the 10 selected subjects in the third set of dependent variables. All the dependent variables were selected in agreement with the relevant theoretical and conceptual starting points for emphasizing the aim and research problem. Responses took the form of graphic five-degree scales, where one represents the lowest value and 5 the highest. The independent variables concerned participants' belonging to a particular subsample with respect to country, city, type of high school, educational program, gender and grade point average in the previously completed grade level. We opted for quantitative research methodology, with a non-experimental empirical research draft. For statistical calculation, questions from the questionnaire were numbered from 1 to 69. In addition to the descriptive analysis (MCT, MV, characteristic of sampling distributions), tests in the area of inferential statistics were used; One sample t test and linear regression analysis (in SEM). Data collection took place in November and December in 2018. With permission from the school management, the students were surveyed during one school lesson, i.e. 30 minutes.

Result and discussion

Empirical part

Descriptive values for the scale *importance of visual arts for academic professions* shown in Table 1. As can be seen in Table 1, students' acquired knowledge in visual arts is most significant for the teaching profession, followed by textile engineers, managers in tourism and marine engineers and least significant for livestock engineers and veterinarians. The 20 professions upon completion of tertiary education were selected because these are frequent and popular occupations in the region where the sample originates, and each student is quite familiar with the nature and reputation of these professions. The MCT values, pursuant to the direction and degree and scale, show that students to not place importance on visual arts for these academic occupations (according to the skewness value). For confirmation, a composite variable for all occupations was constructed (M=2.56; Std.D=0.91), and the One sample t test with a criterion value of 3 (neutral value) was applied. The values of the One sample t test (t= -11.715; df=604; p=0.000; m_{diff}=-.43802) confirm that students do not find visual arts to be significant preparation for academic professions, thus confirming H1.

Table 1: Descriptive Statistics (academic profession).

	N	Min	Max	Mean	Standard deviation	Skewness		Kurtosis	
	Stat	Stat	Stat	Stat	Stat	Stat	Std. Err.	Stat	Std. Err.
Primary or secondary school teacher	605	1	5	3.90	1.25	-1.00	.09	-.002	.19
Textile engineer	605	1	5	3.36	1.42	-.39	.09	-1.14	.19
Manager in tourism	605	1	5	3.22	1.44	-.24	.09	-1.28	.19
Marine engineer	605	1	5	3.13	1.56	-.15	.09	-1.49	.19
Traffic engineer	605	1	5	2.81	1.43	.16	.09	-1.28	.19
Mechanical engineer	605	1	5	2.78	1.40	.12	.09	-1.25	.19
Railway transport engineer	605	1	5	2.69	1.45	.28	.09	-1.26	.19
Wood technology eng.	605	1	5	2.65	1.41	.28	.09	-1.23	.19
Maritime traffic eng.	605	1	5	2.60	1.39	.34	.09	-1.14	.19
Computer and inf. science engineer	605	1	5	2.59	1.38	.31	.09	-1.17	.19
Electrical engineer	605	1	5	2.51	1.36	.43	.09	-1.04	.19
Dentist	605	1	5	2.45	1.48	.55	.09	-1.15	.19
Doctor	605	1	5	2.20	1.38	.85	.09	-.577	.19
Forestry engineer	605	1	5	2.20	1.27	.74	.09	-.612	.19
Bachelor of business and sales	605	1	5	2.20	1.27	.80	.09	-.429	.19
Agricultural engineer	605	1	5	2.11	1.20	.84	.09	-.270	.19
Food technology eng.	605	1	5	2.07	1.19	.93	.09	-.034	.19
Horticulture engineer	605	1	5	2.01	1.13	.91	.09	-.149	.19
Veterinarian	605	1	5	1.99	1.19	1.08	.09	.214	.19
Livestock engineer	605	1	5	1.79	1.04	1.29	.09	.982	.19

In other words, the time dedicated to Visual Arts education during their previous education did not contribute to their understanding the importance of the content and competences learned in that subject for the continuation of their education and future profession.

Descriptive values for the scale importance of visual arts for occupations are shown in Table 2. Table 2 shows that students gave knowledge assigned the most importance to visual arts in professions such as photographer, technician (graphic, textile, construction) and the least importance to professions such as livestock, veterinary, agricultural and forestry technician.

Table 2: Descriptive statistics (vocational school).

	Min	Max	Mean	Standard deviation	Skewness		Kurtosis	
	Stat	Stat	Stat	Stat	Stat	Std. Err.	Stat	Std. Err.
Photographer	1	5	4.05	1.29	-1.18	.09	.18	.19
Graphic tech.	1	5	3.98	1.31	-1.16	.09	.17	.19
Textile technician	1	5	3.46	1.35	-.49	.09	-.90	.19
Construction tech.	1	5	3.37	1.46	-.38	.09	-1.22	.19
Chiropodist	1	5	3.16	1.51	-.16	.09	-1.40	.19
Surveyor	1	5	3.08	1.45	-.10	.09	-1.32	.19
General grammar school	1	5	3.03	1.50	-.03	.09	-1.40	.19
Hairdresser	1	5	3.02	1.44	-.06	.09	-1.32	.19
Horticultural technician	1	5	2.97	1.48	.008	.09	-1.40	.19
Confectioner	1	5	2.90	1.53	.08	.09	-1.46	.19
Blacksmith	1	5	2.73	1.41	.20	.09	-1.25	.19
Engineering technician	1	5	2.57	1.34	.35	.09	-1.07	.19
Bookbinder	1	5	2.56	1.38	.39	.09	-1.07	.19
Baker	1	5	2.52	1.45	.46	.09	-1.14	.19
Electrical tech.	1	5	2.44	1.32	.51	.09	-.91	.19
Natural sciences grammar school	1	5	2.30	1.26	.66	.09	-.62	.19
Forestry tech.	1	5	2.27	1.20	.58	.09	-.66	.19
Agricultural tech.	1	5	2.12	1.14	.78	.09	-.18	.19
Veterinary tech.	1	5	2.04	1.19	.99	.09	.06	.19
Livestock tech.	1	5	1.86	1.08	1.22	.09	.84	.19

These 20 occupations are obtained upon completion of higher secondary education and were selected because those are popular occupations in the region from which the sample of participants comes. It was assumed that students had sufficient information on the nature and reputation of those occupations.

To confirm the total estimate of the importance of visual arts for these vocational occupations, a composite variable of all vocational occupations was constructed (M=2.82; Std.D=0.91), and the One sample t test with a criterion value of 3 (neutral value) was applied. The value from the One sample t test (t = -4.793; df=604; p=0.000; m_{diff}=-,17826) confirms that students do not find visual arts to be relevant for vocational careers, thus confirming H2. Therefore, teachers who have taught content and competences relating to visual arts and the Visual Arts subject curricula have not significantly contributed to developing awareness and strengthening the

perception of the importance and value of the knowledge and skills being acquired for further education and for work in the selected vocational career. Although participants in the sample do not assign significance to visual arts for academic and vocational occupations, they have estimated that throughout their education, cutting paper, thin-sheet metal work, needlework, knitting, creating models of buildings or cars, making mosaics, shaping clay, plasticine or wire, did to some extent help in memory development and the ability to learn other subjects (M=3.17, SD=1.238). We further researched the extent to which activities in visual arts helped students to complete assignments in a particular subject. These results are shown in Table 3.

Table 3: Descriptive statistics.

	Range	Min	Max	Mean		Std. Deviat.	Variance	Skewness		Kurtosis	
	Stat	Stat	Stat	Stat	Std. Err.	Stat	Stat	Stat	Std. Err.	Stat	Std. Err
V60 Foreign language	4	1	5	2.09	.051	1.24	1.54	.93	.09	-.19	.19
V61 Physics	4	1	5	2.10	.050	1.22	1.50	.81	.09	-.44	.19
V62 Mathematics	4	1	5	2.13	.049	1.20	1.46	.76	.09	-.46	.19
V63 Biology	4	1	5	2.23	.053	1.31	1.71	.73	.09	-.66	.19
V64 Mother tongue	4	1	5	2.27	.055	1.35	1.84	.73	.09	-.71	.19
V65 Music	4	1	5	2.60	.061	1.51	2.27	.38	.09	-1.31	.19
V66 History	4	1	5	2.65	.060	1.46	2.14	.32	.09	-1.26	.19
V67 Geography	4	1	5	2.65	.055	1.35	1.83	.24	.09	-1.14	.19
V68 Technical education	4	1	5	3.26	.061	1.51	2.28	-.29	.09	-1.35	.19

As can be seen in Table 3, the distributions (except for v68) are right asymmetric, which according to the direction of the scale, i.e. mean values indicates low estimates of the importance of visual arts in completing assignments in particular school subjects. These are platykurtic distributions, which is in accordance with greater variability. The range of answers is maximal (range = 4), which indicates that for each variable, the participants estimated the range of lowest to highest the importance of visual arts in helping students to complete assignments in different subjects. The mean values show that students assign the least importance to visual arts for assignments in Foreign languages, while visual arts is assigned the highest importance for the subject Technical Education. It was also expected that students, upon completion of compulsory education, are unaware of the importance of

subjects they have studied, particularly the subject Visual Arts, which most teachers think of as a second-rate subject with unimportant content. Even in casual communication within professional circles, one can hear a division of subjects into main and subjects and "other subjects", the latter generally comprising art subjects, including Technical Education.

The reason behind this division can be seen in the fact that vocational school students already perceive the usefulness of competences acquired during their previous compulsory education for their future occupations. Grammar school students (generalist school) as a rule, while this research was being conducted (10th year of schooling), know neither which higher education or tertiary education institution they will attend upon completion of grammar school, nor what occupation they will have in life. It is indicative that visual arts teachers have not managed to develop in students (after ten years of schooling) an awareness of the importance and usefulness of the competences students acquire through the subject Visual Arts. It is particularly important to focus on the fact that students in vocational schools did not recognize the utility of competences acquired in the subject Visual Arts for their future occupations.

To establish the total estimates of the importance of visual arts in completing assignments in other subjects, a composite variable was constructed (M=2.40; Std.D=0.99), and the One sample t test with a criterion value of 3 (neutral value) was applied. The value of the One sample t test (t= -14.968; df=604; p=0.000; m_{diff}=-,60248) confirms that students do not find visual arts important for completing assignments in other subjects, thus confirming H3.
For testing H4 – Students' grade-point average is a predictor of the estimate of importance of visual arts for academic and vocational occupations, we proceeded with linear regression analysis.
Matrices of covariances and corr (r) are shown - predictors and outcomes variables (Table 4).

Table 4: Matrices of covariances and correlations of variables in the regression model

		state	city	type of school	gender	average grade	Comp academic occup	Comp vocational occup
state	Corr.	1	,88**	-,24**	,09*	-,09*	,37**	,49**
	Cov.	,23	1,18	-,05	,02	-,03	,16	,21
city	Corr.	,88**	1	-,27**	,14**	-,03	,37**	,46**
	Cov.	1,18	7,62	-,37	,19	-,06	,95	1,17
type of school	Corr.	-,24**	-,27**	1	-,07	-,29**	-,04	-,04
	Cov.	-,05	-,37	,24	-,01	-,10	-,01	-,02
gender	Corr.	,09*	,14**	-,07	1	,18**	,05	,12**
	Cov.	,02	,19	-,01	,23	,06	,02	,05
average grade	Corr.	-,09*	-,03	-,29**	,18**	1	-,08*	-,06
	Cov.	-,03	-,06	-,10	,06	,54	-,05	-,04
Comp academic occup	Corr.	,37**	,37**	-,04	,05	-,08*	1	,79**
	Cov.	,16	,95	-,01	,02	-,05	,84	,67
Comp vocational occup	Corr.	,49**	,46**	-,04	,12**	-,06	,79**	1
	Cov.	,21	1,17	-,02	,05	-,04	,67	,83

Using linear regression analyses (in SEM), predictors of estimates of the importance of visual arts for academic study and occupations were tested (Figure 2).

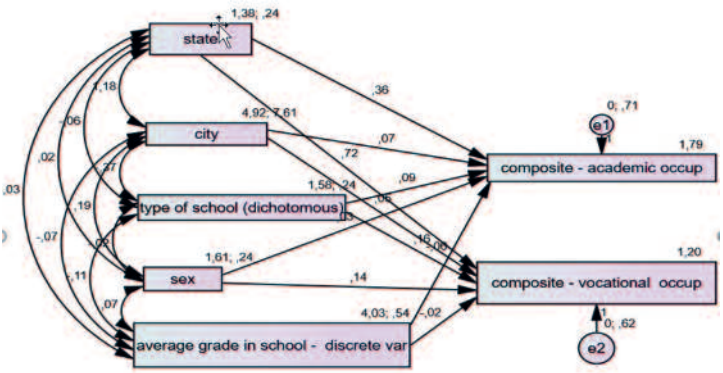

Figure 2: Regression model in SEM (with 2 DV)

Initial predictors of country, city, type of school, gender and grade-point average were used in both regression models. In the first regression equation (R^2=0.155; R^2_{adj}=0.148) where the dependent variable is *importance of visual arts for academic occupations*, the statistically significant predictors are country ($\beta_{unstandardized}$=0.36,

t=2.339; p=0.02), and city ($\beta_{unstandardized}$=0.07; t=2.628; p=0.009). The value of coefficient determination indicates that 15% of the total variance in the estimate of the importance of visual arts for academic occupations is predicted by the five predictors (which is not a low percentage). Considering the quantification of *country* predictor characteristics (and the value), participants from Bosnia and Hercegovina assign more importance to visual arts for academic occupations than participants from Croatia. Collinearity was not established (VIF=<5) and neither was auto-correlation (DurbinW=1,465). Linear dependence was not disrupted (P-P plot). This difference in results between participants in Bosnia and Hercegovina and Croatia can be ascribed to the fact that ten years ago, Bosnia and Hercegovina underwent a curricular reform of all subjects in compulsory schooling, during which compulsory schooling was extended from eight to nine years. Significant curriculum changes were observed in the curricula for art subjects. In Croatia, such curricular reform is still in the preparation phase. In the second regression equation (R^2=0.258; R^2_{adj}=0.251), the dependent variable is *importance of visual arts for vocational occupations*. Statistically significant predictors are country ($\beta_{unstandardized}$=0.72; t=4.979; p=0.000), type of school ($\beta_{unstandardized}$=0.16; t=2.275; p=0.023) and gender (sex) ($\beta_{unstandardized}$=0.14; t=2.009; p=0.045). As in the previous regression equation, participants from Bosnia and Hercegovina assign more importance to visual arts for academic and vocational professions. This difference can also be ascribed to the influence of curricular changes implemented in Bosnia and Hercegovina some ten years ago. The type of school as a statistically significant predictor, and in agreement with quantifiable category characteristics, indicates that students in vocational schools, more so than their peers in grammar school, find visual arts to be important for professional occupations. This was expected, as grammar school students still do not know what they will be studying in tertiary education, nor their future jobs, while vocational school students have already decided on the occupation they will have, depending on their selection of vocational school, in addition to knowing the nature of work. They can thus estimate the utility of knowledge gained through previous education including visual arts. Gender also predicts estimates of the importance of visual arts for vocational occupations; i.e., female students, more so than their male peers, understand the importance of visual arts for vocational occupations. According to Herzog (2017: 358), this can be attributed to differences in the intensity of development of boys and girls during compulsory education (similar to Duh & Korošec, 2014a and Duh, Zupančič & Čagran, 2014b). Collinearity was not confirmed (VIF=<5), nor was autocorrelation (Durbin

W=1,470). Linear dependence is not disrupted. (P-P plot). However, one should be careful in making generalizations, considering that the predictors are category variables. It is interesting that for both regression equations, grade point average did not prove to be a predictor of estimated importance of visual arts for academic and vocational occupations, which rejects H4. School grades are frequently used as an independent variable in research because these should reflect the totality of achievement in learning, including attitudes and various aspects of estimates. We thus predicted that the same would apply in this study, i.e. that the average grade could serve as a predictor of the estimate of the importance of visual arts for academic and vocational occupations. In our case, grade-point average did not emerge as a predictor of estimates of importance of visual arts. Here, we could more seriously examine the logic and significance of calculating grade-point average and perhaps of using such calculations for serious statistical calculations and conclusions.

Conclusions

We reiterate that the aim of our empirical study was to examine how high school students comprehend, perceive and estimate the importance of visual arts subjects for the acquisition of knowledge and skills in general knowledge and for their future life and profession. This aim was formulated into the research question: Are there differences between schools of general education (primary school and grammar school) and vocational schools in estimated importance and effect of the subject Visual Arts for the acquisition of competences for future life and occupations and on learning other subjects.

The relevant conclusions are as follows:
Participants (students in higher secondary education – 11th and 12th years of schooling) do not generally perceive the importance of visual arts for vocational and academic occupations; students assign most importance to knowledge acquired from visual arts in the case of the teaching profession, textile workers, engineers, managers in tourism, and marine engineers, while assigning the least importance in the case of livestock engineers and veterinarians.

Participants assign the most importance of visual arts knowledge for occupations such as graphic technician, engineer (textile, building), and the least importance in the case of occupations such as livestock, veterinary, agricultural and forestry technician.

Although the participants in the sample assign little importance to visual arts for academic and vocational occupations, they did estimate that during their education, cutting paper, thin metal sheeting, needle work, knitting, making models of buildings and cars, creating mosaics, and shaping clay, plasticine or wire, helped them somewhat in developing memorization skills and the ability to learn other subjects. The first regression equation, where the dependent variable was the importance of visual arts for academic occupations, yields country and city as statistically significant predictors. Considering the quantified characteristic of the predictor (and the value) country, participants from Bosnia and Hercegovina assign more importance to visual arts for academic occupations than participants from Croatia.

In the second regression equation (R^2=0.258; R^2_{adj}=0.251), the dependent variable was the importance of visual arts for vocational occupations. Statistically significant predictors were country, type of school and gender. As in the previous regression equation, participants from Bosnia and Hercegovina give more importance to visual arts as preparation for academic occupations

Statistically significant predictors are country, type of school and gender (sex). As in the previous regression equation, participants from Bosnia and Hercegovina assign more importance to visual arts as preparation for vocational professions. Type of school, as a statistically significant predictor, and in agreement with quantified category characteristics, showed that vocational school students find visual arts more relevant for vocational occupations as opposed to their peers in grammar school. Gender was a predictor of estimated importance of visual arts for vocational occupations; i.e., female students assign more importance to visual arts as preparation for vocational occupations than do male students.

The values of the arithmetic means show that students assign least importance to visual arts in completing tasks in Foreign language, and most importance in the case of Technical Education. We have confirmed that students do not assign great importance to visual arts for vocational occupations and for learning other subjects.

The results indicate the need to give more importance and more time to visual arts in the curricula of generalist and vocational schools. The content and activities in visual arts subjects are equally important for well-rounded development of personality as are other generalist subjects.

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REVIJA ZA ELEMENTARNO IZOBRAŽEVANJE
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THE CREATIVE ARTISTIC PORTFOLIO AND REPORTING BY ART EDUCATION STUDENTS ON THEIR STUDENT TEACHING

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Abstract/Povzetek The study of art education is characterised by the duality of artistic and pedagogical content. The importance of a high-quality intertwining of both segments is emphasised. Various types of portfolios are mentioned. The study focused on how the artistic portfolio and the reports from art teacher trainee students about their student teaching experience can be connected. An innovative model of instruction for the preparation of the student teaching report was prepared. Using qualitative analysis procedures, it was established that the creative-pedagogic (CP) model had positive effects on student motivation and generated in-depth introspection. The students worked with the principles of contemporary art, such as juxtaposition, symbolism, performance art, body art, and self-portrait (selfie).

Ustvarjalni umetniški portfolijo in poročilo o študentski pedagoški praksi študentov likovne pedagogike Za študij likovne pedagogike je značilna dvojnost umetniško izraznih in pedagoških vsebin. Poudarjena je pomembnost kakovostnega prepletanje obojega. V raziskavi se osredinjamo na vprašanje, kako je moč povezati ustvarjalni portfolijo in poročilo strnjene pedagoške prakse. Z uporabo kvalitativne metodologije smo ugotovili, da uporabljeni tako imenovani ustvarjalno-pedagoški model (UP) pozitivno vpliva na motivacijo študentov za delo in omogoča globljo introspekcijo. Ugotovili smo tudi, da so se pri delu študenti v veliki meri naslanjali na principe sodobne umetnosti, kot so sopostavljanje, simbolika, performans, telesna umetnost in avtoportret (selfie).

Keywords:
art education, student teaching report, art teacher training, contemporary art, higher education

Ključne besede:
likovna edukacija, poročilo o pedagoški praksi, sodobna umetnost, visokošolsko izobraževanje

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Introduction

Art teacher training programmes in different countries vary according to financial support (private, state-supported), orientation (research or teaching), and size. They can be implemented at university or college level, as part of studies at pedagogical faculties or fine art academies (Galbraith & Grauer 2004; Thompson & Hardiman 1991). In Slovenia, art education programmes are implemented at faculties of education in line with the Bologna two-cycle system (300 ECTS). Art education programmes at faculties of education are characterised by the simultaneous implementation of artistic and pedagogical or didactic courses throughout the study period. However, this is not the only possibility. At the Estonian Academy of Arts, the art education programme is offered only as a master's programme (120 ECTS) for graduates holding a bachelor's degree from the field of art. In this case, the didactic and pedagogical courses are implemented successively. The common point of programmes at faculties of education and art academies is that student teaching and "work with students in schools, museums and other institutions, usually take place in the second half of the studies" (Galbraith, 1994, cited by Galbraith & Grauer, 2004). Regardless of where and how it is implemented, the training of art teachers is characterised by the intertwining of the artistic and the pedagogical approach (Zupančič 2015) and by integration of teaching practice into the teacher training curriculum (Herzog, 2015). Contemporary art teachers should be creative artists and competent teachers at the same time. They should be creative subjects, capable of developing genuine interactive relations in the classroom (Herzog, 2015, p. 199). Therefore, contemporary education of fine arts teachers should be on developing students' productive artistic abilities-creative skills and also their receptive abilities (Duh, 2016). Creativity is also required of teachers from the primary and secondary school curricula, which emphasise the importance of artistic outcomes and student creativity (Slovenian Primary School Visual Arts Curriculum 2011, Sabol 2004; Smith 2004; Taggart, Whitby & Sharp 2004). This has been emphasised by Hope (2004, p. 108) "for example, interdisciplinarity is an important goal for education. An individual's ability to integrate the knowledge, skills, modes of thoughts, point of view, and content of two or more disciplines is a tremendous achievement." One possibility for connecting pedagogical and artistic activities lies in a modified approach to art education classes. Work with students can be set up as a conventional pedagogical process, or it can be implemented as an art performance (Zupančič, 2018), art workshop, etc. This study focused on how the

creative artistic portfolio and the student teaching report can be connected in art education.

Portfolio

There has been a growing interest in using different kinds of portfolios in higher education in recent decades (Dysthe & Engelsen 2011, Beishuizen et al. 2006, Klenowski et al. 2006, Baume & Yorke 2002, Burns 1999). Definitions of the term portfolio emphasise that it is a specific collection of materials and documents, with the purpose of documenting a specific range of performance over a period of time (Powell, 2013). Portfolios can also be defined as a collection of documents/evidence that substantiate the achievements, skills, competencies, and learning accomplished by students within a given period of time (Zawacki-Richter et al., 2011). Portfolios are complex educational tools that require full integration into carefully crafted course designs (Love and Cooper 2004). In education, portfolios can be used at various levels and in various fields. They have been found in all fields of professional development and higher education. They have been used for assessment and learning, promotion and appraisal (Klenowski, Askew & Carnell, 2006). In teacher training programmes, the portfolio is used for developing teaching skills and reflective practice from pre-service teaching through to teaching at the postgraduate level. The portfolio is especially useful in art education. The origins of portfolios as instruments for assessing knowledge are found in the arts. In art education, the portfolio is mainly used as an art educational instrument whose basic characteristic is that is a collection of work accumulated over time (Boughton, 2004). Taggart, Whitby and Sharp (2004) found that the main methods of assessment used by teachers were to ask pupils to produce a performance or artwork in response to a given theme and to consider the student design process, as recorded in their portfolios. de Eça (2005) discusses the importance of the portfolio as an instrument for external art assessment at the end of secondary school and emphasises that the use of the portfolio fosters constructive learning, dialogue, and co-operation between students and teachers. "The impact of portfolios increased students' in-depth study, active and independent learning, awareness of their own learning strategies, motivation and interest in their own achievements and performance." (de Eça, 2005: 216). The portfolio as a selection of representative work is an essential part of external assessment in art education at the end of primary school education in Slovenia. The portfolio as a collection of artworks is also used in college and

university programmes as part of entrance exams for art and art education programmes and as a basis for exams in practical art courses (O'Donoghue, 2011, 2009, Madeja 2004). Professional teaching portfolios have long been used in degree programmes to demonstrate that students meet state-mandated standards for teacher certification (Delacruz and Bales 2010: 33). The portfolio can have many different formats, nomenclatures, and classifications.The portfolio plays an active role in the educational process. It can be a sort of a diary, a collection of ideas, sketches, thoughts, drawings, paintings, schemes, plans, concept maps, thumbnail sketches, rough sketches, and so on (Walker, 1998, Blaikie, Schőnau and Steers, 2004). Blaikie, Schőnau and Steers (2004, p. 303) write: "A major decision relating to the purpose of a portfolio is whether it will contain students' best pieces of work or whether it will be developmental". The contemporary artistic portfolio is seen as an important part of creative processes within art education classes. The developmental portfolio offers insight into the process. "Often it is possible to discover as much about a student by what they choose to include as it is from the quality of the work itself" (Boughton, 2004: 597). "The ability to reveal process is important to understanding the genesis of final art and design products, and therefore reveals much about the student's thinking, work habits, effort and progress, as well as facilitating the student's ability to critically self-assess by reflecting on their work process. Opening up the process of working in art and design is enhanced and buttressed by the inclusion of preparatory research, reflective notes and development of ideas." (Blaikie, Schőnau and Steers 2004: 303). There has also been a significant increase in the use of digital portfolios (Dorn and Sabol 2006; Driscoll 2007), and online portfolios in tertiary, secondary, primary, and professional education in the last fifteen years (Love and Cooper 2004: 66).

The creative portfolio in art teaching training programmes

"A modern society requires a highly educated teacher who educates and prepares children to think critically, encourages creativity and imagination" (Duh, Kljajič, Bratina, 2018, p. 61); therefore, numerous authors are interested in how to use the creative portfolio in the study process. Sanders-Bustle (2008) reports on a project where students used visual and verbal artefact journals as constructs for reflection. As part of the project, the students reacted to the phenomena in their everyday environment. In a different project (Unrath and Nordlund 2009), students were required to respond visually and verbally to experiences surrounding the climate and

curriculum of K-12 schools. In their study, critical but poetic, connections, words, and images were shaped into artworks representative of the pre-service teachers' reflective practices. Hickman (2007) reports about a project designed to help art and design teachers in training use their strengths to report on classroom observation through visual art. He argues that "if the arts can be seen to be a particular way through which we can understand the world, then they can be used as both a pedagogical tool and possibly a vehicle for collecting data and reporting research" (314). Hickman sees art as a valid and valuable form of knowledge and a useful mode of reporting educational phenomena. He finds that "while art is not a language in the formal sense of the word, some aspects of some art works can be seen to be analogous to language, but more importantly, the arts in general offer a way of understanding the world which goes beyond language; the arts, and in particular visual art, can reify the ineffable. It is in this sense that the arts can be seen to be an additional tool in educational research" (315). He is advocating the use of the arts not only as a tool for research within the arts, but for research within the arts, humanities and social sciences in general. Delacruz and Bales (2010) investigated creative possibilities in the context of the pre-service art teacher teaching portfolio in three fields, i.e. pre-service art teachers' production of digital videos and electronic portfolios, productions that were intended by these students to document and showcase their best teaching practices and related creative and cumulative self-referencing forms of expression, including scrapbooks and sketchbooks/journals. They emphasise that sketchbooks served as journals for personal reflection, artistic aspirations, and as a place for exploring inner worlds, including self-doubt (Delacruz and Bales 2010: 36). In connection to art education, they believe that there are important linkages between the human need to preserve and creatively retell one's personal history, and meaningful classroom practices in the art room (:38).

The research

Like other researchers in the field (Delacruz and Bales 2010), we wondered whether the art teacher trainee students' reflective practice would expand beyond typical written journals. We were interested in how students' creative artistic practices could be used when writing their mandatory report on student teaching. We were encouraged by Hickmans' (2007) report about the growing use of methods for conducting and reporting research other than through writing, his epistemological

basis for art as a valid and valuable form of knowledge, and his argument for it to be seen as a useful mode for reporting educational phenomena.
We also see the study as a contribution to the deliberation on connections between and the integration of pedagogy and art, and on the pedagogical turn in contemporary art (May, O'Donoghue and Irwin 2014).

Research model

An innovative model of instructions for the preparation of the student teaching report was developed (Zupančič, 2015). Methodologically, the model was developed considering the theoretical findings combined with systematic observations of educational practice during recent years (analysing students' reports, non-structured interviews with students and their mentors). The basic ideas for the innovative model were presented to and discussed with the students. Then we tried to implement their ideas into the model. The decision to mix creative artistic expression and classic pedagogical reporting was primarily influenced by the duality of artistic and pedagogical content in the teacher training program. The result of this process was a creative-pedagogic (CP) model. The model had not previously been practically tested, but it had been theoretically discussed with several art educators and potential mentors. The instructions were similar for both universities where the project was implemented. The report comprises the required forms, confirmation of presence and fulfilment of obligations, lesson plans for demonstration lessons, and a record of the trainee's own work and impressions. The last and most important part, which was intended to be introspective and individual, often contains clichés (I liked this or that during my student teaching experience) and the repetition of similar ideas (I would like more hours dedicated to arts, students were not interested, I suffered from stage fright, etc.). Our project aimed at designing and using a model report that would not become merely "one more thing to do" for overworked student teachers (Stone, 1998: 105) and may not be treated as interesting and important by students who are already overloaded with assessments and tasks" (Powell, 2013, p. 3). The principles of the innovative model are shown in Figure 1.

Figure 1: Innovative model of the student teaching report for art education students

1. Freedom. The guiding principle in the preparation of the final report was absolute freedom. Students could decide on any format for the portfolio and any type of presentation. Nothing was prescribed and nothing was forbidden, except maybe the classic written form (Zupančič, 2015).

2. Artistic expression. The students were strongly encouraged to use any ideas from their artistic studio practices. The use of varied artistic forms from different artistic fields (even non-artistic fields) was encouraged. Students were asked to express themselves using the technique or method that best suited them.

3. Creativity. Not to get deeper into the problem of creativity, we used the common understanding of the term as the human capacity to make something new (Addison 2010), or as "the ability to produce work that is both novel (i.e. original, unexpected) and appropriate (i.e., useful, adaptive concerning task constraints)" (Sternberg and Lubart 1999: 3). The originality of the portfolio at both the individual level (a person's work is original in relation to their previous work) and the relative level (in relation to their peer group) (NACCCE 1999, cited by Addison 2010) were assessed. Attention was paid to flexibility, the ability to transition from one idea to another, combination ideas from different fields, etc. Before starting with their student training placement, brainstorming, discussion, and sharing of ideas were implemented with the students.

4. Introspection. The instructions specifically emphasised the importance of their honest and actual impressions of and responses to the time spent in the school.

Research question

The research questions referred to the content-based, motivational, and introspective aspects of writing the student teaching report.

RQ1: Will students choose different work strategies for creating their pedagogical creative portfolios, or will their approaches be similar?

RQ2: Will students depend on contemporary art principles when creating the portfolios and, if so, which ones?

RQ3: Will students' motivation for writing their student teaching reports increase?

RQ4: Will the alternative way of preparing the student teaching report affect introspection and the expression of ideas and feelings?

Method

Data were collected using qualitative methodology. Student teaching reports, i.e. their creative portfolios, were analysed and compared to their conventional reports. This part was conducted by a team of experts comprising three university art education teachers. During student presentation of the portfolio, the activity was monitored qualitatively, and anecdotes were recorded as well as student opinions. Unstructured interviews with students were also conducted.

Participants

The model was tested with art education students at the MA level at two European universities during 2014 and 2017. The study included 44 students: 29 from the University of Maribor (Slovenia) and 15 from the Estonian Academy of Arts in Tallinn. The students received instructions before starting their student teaching experience, which lasted three weeks in both countries. After returning to their universities, they prepared their final reports, i.e. portfolios, and presented them at a seminar.

Results and discussion

As has been established, the main principles for writing the pedagogical creative portfolio were freedom, absence of specific direction, emphasis on individuality and diversity without any rules concerning format and approach. The students did not receive any models or examples of what the portfolio should look like. The presentations of the portfolios were a surprise to all participants. Reviewing the portfolios, it was established that students of both universities used diverse strategies. Their approaches differed to an extent, making it impossible to find common points with regard to format. Each approach was completely different from the others. This answered our first research question (RQ1). It was established that the innovative model of instruction for the student teaching report does facilitate originality, innovativeness, and diversity. The diversity of approaches is shown in more detail in the given analyses of six examples.

Example No. 1: Palimpsestic juxtaposition

Figure 1: (a, b, c): Palimpsestic diary, detail of a student's artwork (with the permission of the author)

The student designed her portfolio as a postmodern palimpsest, with the juxtaposition of two texts simultaneously. Each page of her portfolio comprises two layers. The base is a printed text, over which is laid the second layer, a handwritten text and drawings. The main value of the report is evident from the juxtaposition of the background (text) and the drawings in the foreground. This juxtaposition works

on several levels. The student occasionally used the layers for completion. In this case, the foundation is the typed text from a medical lexicon on gastrointestinal problems, with a drawing of the stomach covering it (Figure 1a). Arrows are used to connect parts of the text with the corresponding parts of the drawing. The student said that she suffered from psychosomatic gastrointestinal problems during her student teaching experience. In the second example, the base is the printed lesson plan, and the top layer is the hand-written analysis of the activity after the end of the lesson (Figure 1b). In parts, the manuscript completely covers the base, while in other parts it appears as a dialogue. In the third and the most well-chosen example, the student used her own essay from primary school when, aged nine, she mentioned for the first time that she wanted to be a teacher (Figure 1c). She illustrated her current view of her role as a teacher in the format of a drawing of a school bag and a signpost (slikar = painter; dober učitelj = good teacher). She again connected certain parts of the text with the drawing. She said that this technique had helped her deliberate on how her life was going and whether she was successfully steering it in line with her desires. The quality of this portfolio is evident from the practical use of postmodern art techniques (palimpsest and juxtaposition), which partially answers research question RQ2. We also found that the open artistic approach helped the student with a more in-depth introspection into her pedagogical activities (RQ4). "The creative process has helped me face my psychosomatic problems and my childhood wishes" (statement by Student 1).

Example No 2: Symbolism

Figure 2: Hamster cage, detail of a student's artwork (with the permission of the author)

The student designed her portfolio as a hamster cage. She followed the criteria on what the animal needs for its safety and well-being and included information on her student teaching in the preparation of the cage. Her work is also multi-layered. The first part is visual in nature. The floor of the cage has the same pattern as the floor in the classroom, and the walls of the cage are lined with parts of documents that she used in her work with the students. "I wanted the cage to become a sort of a classroom" (statement by Student 2). The second part of the equipment in the cage, i.e. the portfolio, is content-based and introspective in nature. The student sewed a soft sleeping bag for the hamster. The sleeping bag symbolises the fatigue that she felt every day during her student teaching experience. This is how the student described her feelings: "I was incredibly tired every day after school. I knew it was going to be strenuous but I did not expect it to be so hard. I could hardly wait to get home, drag myself under the covers and sleep like a hamster. This is how I got the idea to design the portfolio as a hamster cage" (statement by Student 2). The third piece of equipment in the cage carries a symbolic meaning. The student positioned mirrors in the cage. She sought to emphasise that she believed it important for teachers to make constant critical assessment of their work, to analyse and improve it. Student: "I saw how important it was to think about everything I did in class that day and what I could have done differently. It was like critically viewing myself in the mirror" (statement by Student 2). The student also experienced problems adapting to the precisely defined school rhythm, bell, and timetable. She symbolically expressed her feelings about the teacher's entanglement in daily routine with the hamster wheel (upper left corner in Figure 2). She attached additional wheels to the hamster wheel. Each of these additional wheels represents one week of her student teaching experience, since it contains the days of the week, subjects, and classes according to the timetable and the content that she prepared and implemented during her student teaching. The wheels are interconnected, and when the hamster runs in his wheel, the other wheels turn, symbolising the activity in the school. The use of symbols provides us with a partial answer to research question RQ2. There were numerous symbolic presentations, including in works not included in this detailed presentation. One of the students decided to present her portfolio in the form of various written and visual documents as a performance, which she implemented in almost complete darkness, using only a flashlight. She explained: "Every day at school felt like I was feeling around in the dark. I never knew where the day would take me and what I could expect from it" (Student 7).

Example No 3: Heartbeat

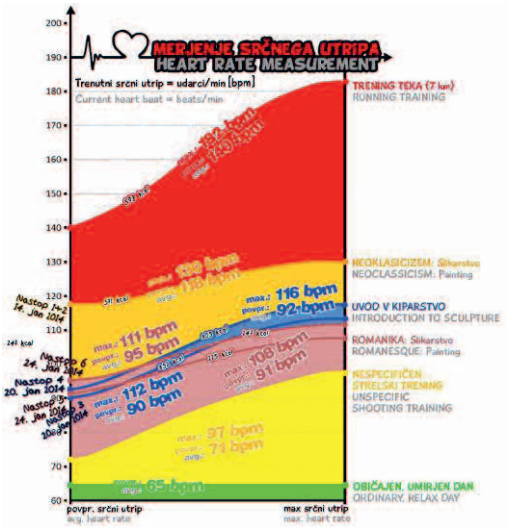


Figure 3: Heart rate measurement, detail of a student's artwork (with the permission of the author)

Student 3 is an avid athlete, runner, and sports marksman. When engaging in sport, he measures his heart rate and the number of calories burned. He scanned the physiology of his body and used it as an idea for creating the student teaching portfolio. He wore a physiological monitoring device during his student teaching experience. He recorded the results and included these in the portfolio in the form of tables. The table in Figure 3 provides information on his heart rate and the number of calories burned during a few of the practice lessons. His statement: "I knew teaching was exhausting and now I have official proof of that. Teaching is more exhausting than my shooting training but less so than the 7 km run. I feel the same about all the topics covered. I think that my values were higher when covering painting at the time of neoclassicism because this was my first demo lesson" (statement by Student 3). The student also measured his heart rate and the number of calories burned during the presentation of the portfolio in front of his colleagues and informed us of the numbers. A similar approach was used by another student (Student 8), whose portfolio included data on the number of cups of coffee that she drank during her student teaching and connecting this information to her obligations on that day. The comparison helped her better understand her attitude towards her work in the school and towards the individual subjects that she had to cover. She found that the amount of coffee consumed was connected to individual classes,

since some were more difficult than others, and the fear of having problems with discipline in the class was reflected in the increased number of cups consumed. The portfolio included a sculpture, cardboard boxes with tables for individual weeks affixed; the boxes were filled with the appropriate quantity of fresh ground coffee. Another student (Student 9) presented her portfolio wearing clothes made of the packaging from the chocolate that she ate during her student teaching experience. All three examples (Heartbeat, Coffeeholic, and Chocolate Eater) provide answers to research question RQ3, which allows us to establish that the motivation for preparing the student teaching report increased in response to the unusual work methods. We can also answer research question RQ4 in the affirmative. In all three examples, students delved deep into their feelings and deliberated on their attitudes towards student teaching and working in a school.

Example No 4: Selfie

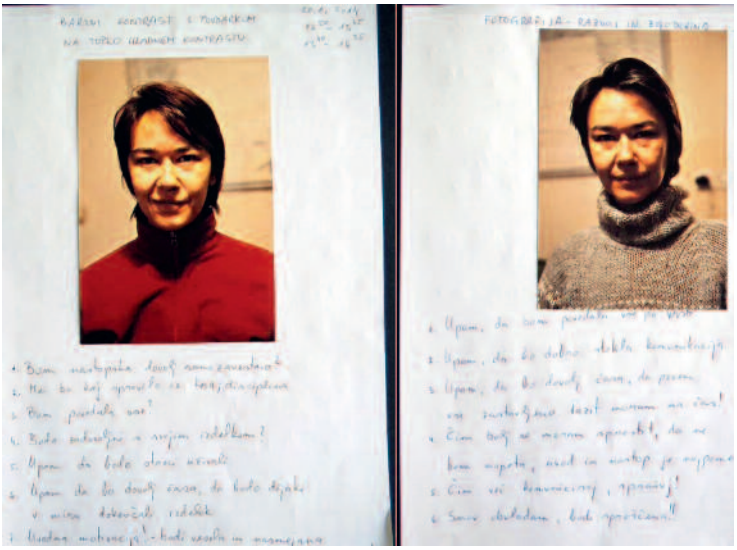


Figure 4: Selfie, detail of a student's artwork (with the permission of the author)

The student designed her portfolio as a conventional report. She collected all the prescribed documents, lesson plans, analyses, reports, and forms. However, she did not include these as final versions but used working drafts, including all her corrections, added information, crossed out text, and similar. Student: "I believe that my additional notes, corrections, and changes offer an insight into the process of

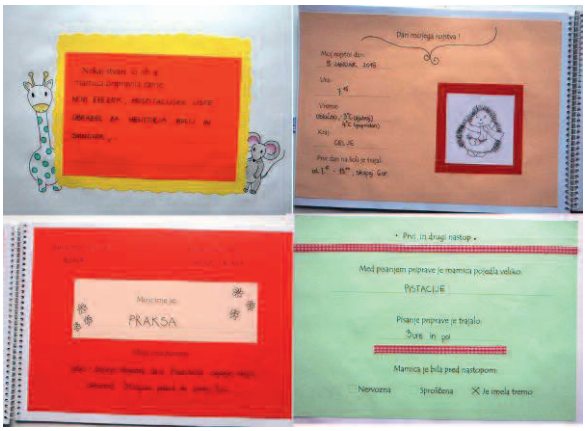
how I prepared for and implemented the hours" (statement by Student 4). When she analysed her portfolio, she saw that some of the activities included numerous additional interventions, while others were almost free of them. She used this as a basis to consider the reasons for this and her attitude towards individual types of content and activities that she implemented during her student teaching. We find the idea interesting, since it enables the student an in-depth, introspective attitude towards individual content units and segments of student teaching (RQ4). Giving preference to working drafts instead of an orderly final document provides an answer to research question RQ2. The student used the contemporary artistic principle that understands art as a work in progress which divulges more than just a polished final product.

The student, who is an avid photographer, included photographic self-portraits in the portfolio, which served as an additional introspective measure. She decided to take her photo every day at the same time, i.e. at the moment before entering the classroom in the morning. In the portfolio, she included photos taken on each of the teaching days. She added data to her selfies, i.e. information on the content covered that day, her dilemmas, questions, and fears. "I hope that I'll say everything that I've prepared. I must mind the time. Communicate and ask questions. You know the subject matter. Be relaxed" (notes + Student 4). She also analysed her appearance in each of the photos. She was interested in her expressions, changes in posture, clothes, and potential connections with the activities planned for the day. Finally, she spread out the photos from the first to the final day and analysed her attitude towards her student teaching experience. The student's presentation of her portfolio to other students provides an answer to research question RQ4, and we can again establish that the creative portfolio facilitated in-depth introspection by the student. "By analysing my self-portraits, I realised a number of things about myself that I wasn't even aware of" (statement by Student 4).

Example No 5: Hijacking

A few of the students used a similar technique and used or hijacked a different form to present their portfolios. The common denominator of these hijackings could only be that they differed completely one from the other. Some of the students 'hijacked' the form, others the technique, the third the manner of the presentation, or only the

basic idea. Below are two such examples. In the first example (Figure 5), the student conducted her student teaching during pregnancy.



Picture 5: Baby diary, detail of a student's artwork (with the permission of the author)

She combined these two important events in her life in her portfolio. She prepared her student teaching report as a baby diary. She copied the format of an empty baby diary into the portfolio. The entered information referred to her student teaching experience. "My mom learned that I was on the way the same time the school told her she had to engage in student teaching. A few things that my mom prepared for me: notebook, mentor form, lesson plan, etc. My name is: obligatory student teaching. While writing the lesson plan, my mummy ate a lot of: pistachios" (notes by Student 5). This example was the first in which we noticed a lot of humour, which is one of the criteria for assessing contemporary artwork in the context of the pedagogical process (Zupančič, 2006). During the presentation of her portfolio, we noticed that her enthusiasm for approaching motherhood was greatly reflected in her work in the classroom and even more so in the writing of her final report. Her statement offers an additional answer to the research question on student motivation (RQ3): "Because I was constantly able to think about my baby due to the connections between the baby diary and the composing of the student teaching report, I wrote the report with ease, gladly, and with a lot of interest. I was also looking forward to presenting it" (statement by Student 5).

Example No 6: Graduation thesis

In the final example given here (Picture 6), the student hijacked the format of a graduation thesis at the University of Maribor. She had a bound copy of a graduation thesis made, i.e. containing 60 numbered blank sheets of paper.

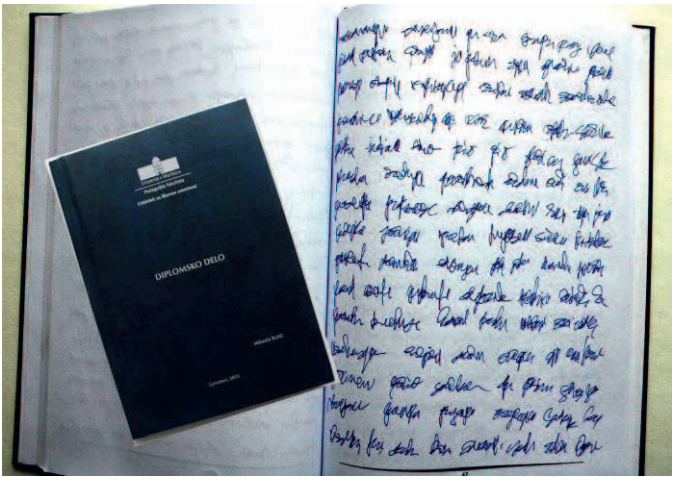


Figure 6: Diploma, detail of a student's artwork (with the permission of the author)

She scribbled incomprehensible and illegible lines all over these sheets of paper. These sixty scribbled pages were her student teaching report. She used the time she would have otherwise spent on writing her report for engaging in a seemingly senseless activity. At the presentation, when the student spoke of her work, it became clear that she had been deliberating on her student teaching experience even while scribbling on the paper. Her apparently meaningless doodles were a form of in-depth introspection. The student created a clear attitude towards the work in school while also using this symbolic creative act to express her fears, desires, and hopes for the future. She thought about what awaited her once she completed her studies and handed in her graduation thesis. Even though it might initially seem that she had avoided preparing the student teaching report by engaging in this senseless activity, the interview with the student clearly showed that she had internalised the activity through the student teaching experience, and certain viewpoints are now clearer to her. We therefore see her work as another example of a successful introspection and provide a positive answer to research question RQ4.

The work of Student 6 also provides an additional answer to research question RQ2. The student said: "The purpose of my 'writing' was not to provide information, but to meditate and relax after the stressful days at school" (statement by Student 6). This statement and her actions mean that the student has assumed the basic strategy of artistic expression from the German artist Hanne Darboven. The artist's projects include drawings on hundreds of sheets of paper containing nonsensical terms, numbers written in words, starting with *one* and ending with *twenty-four thousand* and more. She describes her actions as writing without describing /Schreiben ohne zu Beschreiben/ (Günzel 2015). This concept links this final example with contemporary art practices, which provides the final answer to research question RQ2. In this respect, it has been established that students depend on the principles of contemporary art when preparing their portfolios. They used the following principles: (1) the postmodern principle of the palimpsest, i.e. covering an older document with a new one, whereby the principle of juxtaposition was also used. This principle was used consistently to establish a dialogue between the old and the new. (2) Their use of symbolism allows parallels to be drawn with the work of Joseph Beuys. As in the example in Picture 2, Beuys used animals in his work and equipped his performances with objects with a deep symbolic meaning (metal, sackcloth, felt, fishing vest, etc.). (3) Similar to contemporary artists who use their body for their artistic expression, such as Marina Abramović, the student also used his body in our study (Figure 3). In this segment, the creative portfolio can be associated with performance art and body art. (4) The selfies in Picture 4 show parallels to the work of Cindy Sherman, whose work in large part comprises photographic self-portraits. Finally (5), we want to emphasise the playful nature of contemporary artistic expression, which borrows methods and principles from various fields. Art can be reflected in the format of a baby diary, seemingly nonsensical writing and similar.

Conclusion

It has been established that while creating their portfolios, the students worked from the principles of contemporary art, which was also our intent. In this respect, the following must be emphasised. In both cases (Slovenia and Estonia), these were students of the fifth and final year of study, which means that throughout their study years, they have learned about the diverse range of contemporary art practices. This has allowed us to make additional connections between both segments of art

education studies, i.e. the artistic and the pedagogical. The study has also provided answers to other research questions.

Research question RQ3 focused on the level of motivation for creating the student teaching portfolio. Boughton (2004) emphasises that one of the benefits offered by portfolios is the motivation it provides to the student. Assessing the project, it was established that motivation for preparing the report did increase, as can be seen from the following: (1) the strategies of the portfolios prepared by the students were diverse, unexpected, and different; (2) the students eagerly followed and actively participated in the discussion accompanying the presentations of their peers; (3) in the interviews conducted at the end of the project, the students unanimously agreed that they preferred this approach to the writing of a conventional report. They said that this artistic form allowed them to express more than they could have expressed in writing, and they were motivated because "in the end, we are also artists and not only teachers and this method of expression suits us much better" (statement by Student 9). The student speaks about "aesthetic behaviour /…/ which is the translation of world to the senses, and establishing sense and meaning, interpreting oneself and the world" (Arbeitsgruppe Kunstpädagogik, 2009, p. B2, cited by: Weinlich, 2018, p. 258). Students´ higher level of motivation also derives from the fact that the students were able to link their student teaching report to their fields of interest (pregnancy, getting a pet, photography as their favourite means of expression, or links to sports activities).

In the final research question (RQ4), we were interested in the level of introspection, which should be one characteristic of a creative portfolio. "An important feature of good portfolios is students' critical self-reflection" (Wolfe, 1988, cited by Boughton, 2004: 598). Our study found that the use of artistic expression with a higher level of motivation yielded in-depth introspection, which is confirmed by the students' statements in the final interviews: "It was easier to express my feelings through artistic expression," and "I learned more about my colleagues than I had in the four years we've been together." "I finally decided to confess through artistic form what I did to relax after the strenuous days at school" (student statements). Critical self-reflection is confirmed by the students' willingness to deal with "sensitive" subjects in their portfolios, i.e. doubt of whether their studies have any meaning, shame, embarrassment, fear, stage fright, lack of confidence, overeating, relaxing watching soap operas on television, etc. The greater level of introspection is attributed to the

transition made from the cognitively focused written report to artistic and emotionally based expression. Another important aspect was the freedom to choose how to prepare their portfolio as well as freedom in choosing its content. "If students have the freedom to make choices about the content they include in their portfolios, and are also encouraged to explore ideas independently, outside limitations of classroom experiences, then a clear picture of their intellectual footsteps is represented in the contents" (Boughton, 2004: 599).

We saved one more example for the end. One of the more radical examples of in-depth introspection but one also carrying an exceptionally strong artistic message was a portfolio in the form of a box containing all the required documents, photographs, and notes. The box was protected with a lock and chain. The student had thrown away the key, and it was impossible to access the contents of the box. Her statement: "This part of my portfolio contains very personal thoughts, so personal that I cannot share them with anyone, not even my teacher" (statement by Student 10). We respected her wishes, even though this means that we will never know what she wrote and even though some of our fellow teachers at the school believed this to be unacceptable. We support this form of expression. We see it as the use of alternative "non-formal artistic and activities, which have a considerable positive influence on educational communities" (Perez-Martin, 2017). We firmly support the belief that "the arts can be a way of communication that holds meaning because of their ability to communicate understanding that would otherwise be too complicated" (Suominen 2006), and that "the making of art and the appreciating of art offer complementary ways of understanding the world" (Hickman 2007). We maintain that metaphors, artistic gestures, and conceptual statements are a legitimate way of communication, even for student teaching reports. "Visual art forms can capture the ineffable, helping us to gain access to the more elusive aspects of the teaching and learning enterprise and reveal phenomena which would be difficult to perceive and understand through words (and numbers) alone" (Hickman, 2007: 322). Art provides insight into what we miss by looking through conventional forms, and this applies at least partly to the innovative model for creating the student teaching report.

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FROM *HOMO'POLY* TO *OPENUP!* LESSONS LEARNED ON LGB IN EDUCATION IN SCHOOLS ACROSS EUROPE

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Abstract/Povzetek This paper captures the lessons learned from Homo'poly, an ERASMUS+ project on awareness and understanding of homosexuality in schools. *Homo'poly* was implemented between 2016 and 2019 in eight European countries: Belgium, Germany, the Netherlands, Poland, Spain, Turkey, Hungary and the United Kingdom. Throughout the project, partner institutions noted that homophobia, a lack of wider community engagement and (notably in Central and Eastern Eruope) limited political support proved to be significant stumbling blocks. The authors build on a survey of partner institutions to further explore these challenges and set out proposed directions for future activities and research.

Od *Homo' poly* do *OpenUp!* Spoznanja o LGB v vzgoji in izobraževanju – pridobljena v šolah širom Evrope

Članek zajema spoznanja iz projekta ERASMUS+ *Homo' poly* o zavedanju in razumevanju homoseksualnosti v šolah. Projekt *Homo' poly* je od 2016 do 2019 potekal v osmih evropskih državah: v Belgiji, Nemčiji, na Nizozemskem, na Poljskem, v Španiji, Turčiji, na Madžarskem in v Združenem kraljestvu. Med projektom so partnerske institucije opažale, da so se homofobnost, pomanjkanje angažiranja širše skupnosti ter (zlasti v Srednji in Vzhodni Evropi) omejena politična podpora izkazali kot pomembne ovire. Da bi te izzive še nadalje raziskali ter predstavili predlagane usmeritve za prihodnje dejavnosti in raziskovanje, avtorji gradijo na pregledu partnerskih institucij.

Keywords:
Education, LGBT+, Europe, ERASMUS+, homophobia

Ključne besede:
Izobraževanje, LGBT+, Evropa, ERASMUS+, homofobnost

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Introduction

This paper presents a critical review of *Homo'poly*, an ERASMUS+ project implemented from 2016 to 2019, and shares lessons learned from those involved. *Homo'poly* sought to build awareness and understanding of LGB issues in education across Europe, building partnerships between secondary and tertiary education institutions in eight countries. The project offered a unique opportunity to explore how schools across the continent are engaging on this issue, and what education providers might wish to take on board going forward. This paper first outlines *Homo'poly's* objectives and key results. It then addresses three key take-aways: 1) persistent homophobia, in particular in Central and Eastern Europe; 2) the need to go beyond the school gates and include the wider community; and 3) the pivotal power of high-level political support. The article further elucidates these findings through the results of a survey conducted by the project's Steering Group. Lastly, the authors propose a draft framework for a follow-up project. While this is not a typical research paper, the authors trust that the findings presented will serve to inform researchers and practitioners alike.

***Homo'poly*: promoting awareness and understanding of homosexuality in education**

The strategical partnership '*Homo'poly*' (ERASMUS+, Key action 2) contributed towards a better understanding of homosexuality in secondary and tertiary education. The project was introduced as a cross-sectoral approach. The project was active in eight countries (14 institutions from Belgium, Germany, the Netherlands, Poland, Spain, Turkey, Hungary and the United Kingdom), working closely with a participating university and a secondary school in each. *Homo'poly* has target students and lecturers at teaching education in university colleges and universities, teachers in secondary education, and students at secondary schools. Through *Homo'poly* the participating institutions implemented, tested and evaluated the resources created by the project. The project proposal for *Homo'poly* was submitted to the National Agency NUFFIC in the Netherlands in spring 2016. It was one of seven 'strategic partnerships - higher education' - project proposals approved by the Agency, out of a total of 43. The project started in September 2016, finished in August 2019 and was funded at just under 400,000 Euro.

The consortium was inspired by an important European Parliament resolution from March 2016. The parliament asked the European Commission to systematically ensure the equality of and discrimination against LGBTIQ people. In this resolution, the European Parliament demanded"(…) to include 'the rights, perspectives and well-being of LGBTIQ people' in all gender mainstreaming activities". The author of the report, Mlinar, stressed in this context "Women and LGBTIQ people fight the same fight to end violence and discrimination." (European Parliament, 2016)

Around the same time, the Organizing Bureau of European School Student Unions pointed out: "All curricular materials should include lesbian, gay, bisexual, transgender and queer perspectives and contain inclusive materials for all students regardless of sexual orientation or gender identity, both as part of generic materials, and if possible, as standalone materials which specifically deal with LGBTIQ issues. Including non-mainstream sexual orientations and gender identities in the classroom and across all curricular materials extends beyond sex and emotional education. All identities should be mentioned in all subjects." (Organising Bureau of European School Student Unions, 2016)

The project aimed to raise awareness of homosexuality and reduce discrimination, and to promote the acceptance of minorities. With the realization of the project the consortium pursued the following goals:

1. Comprehensive inventory and comparative analysis of the current situation regarding homosexuality in the eight project countries. The purpose of this analysis was to identify the tasks, objectives and content of gender equality in schools as well as extra-curricular initiatives in other educational institutions. The results of this comprehensive inventory were published in 2018 under the title *Somewhere over the rainbow*. The comparative analysis is available in the journal *INTERNATIONAL SOCIOLOGY*. (2019)

2. Development of a curricular module 'Gender & Homosexuality' covering aspects such as 'different ways of living, 'sexual identities', 'coming-out' as well as 'sexual health'.

3. Development of a curricular module 'Migration & Homosexuality' covering aspects such as 'leaving and arriving', 'gays and lesbians with a migration background', 'roles, pictures, fears' as well as 'supporting institutions and organisations'.

Both modules can be implemented (partly or as a whole) in the programmes of teacher training curricula. All material is digitally available on the project website www.homopoly.eu and can be used by institutions of higher education or all other interested visitors of the website.

4. Development, implementation and evaluation of didactic materials for and in secondary education. The project team developed 12 didactic materials on gender and homosexuality and migration and homosexuality, accessible on www.homopoly.eu/learning. The implementation of the material was done according to the country-specific conditions.

5. Development of a knowledge portal, www.homopoly.eu, which provides all developed resources at least until 2024.

6. The project consortium organized a multiplier event during the third year of the project. This event was held on 17 and 18 May 2019 in Leuven, Belgium. All project activities and results across all target groups mentioned above were summarized during this 2- day conference.

With the completion of the project in August 2019 scientific and didactic materials was developed and is and will be available. These materials:

- extend the courses of teacher education and/ or other pedagogical disciplines to include gender issues;
- sensitize teachers and other staff of secondary schools;
- sensitize pupils and students of secondary school and university colleges/ universities.

Reflections

As the project came to a close, project partners set out to carefully consider lessons learned and take-aways for future work in this area. Three key lessons are shared below. It is hoped that these inspire reflection and further (academic) engagement on these issues.

Going against the grain: homophobia in Eastern Europe and Turkey

The comprehensive geographical reach of *Homo'poly* was considered a major strenght of the project, but the Steering Group fully anticipated challenges. Cultural differences in the 'West' are manifest in gender-specific education and upbringing, in gender-specific interactions and attitudes towards tolerance, diversity, and homosexuality. But unsurprisingly, it was in the participating countries from Central and Eastern Europe and Turkey that *Homo'poly* experienced its most notable challenges.

In Poland, under the persistent influence of the Catholic Church, educational institutions are being directed to remove all references to sexual diversity or LGBT+ from the national curricula. On top of this, strong political pressure along the same lines means that it is nearly impossible for school administrations to protect their LGB students and staff. This made it difficult for our participating schools and teachers to develop and test the project materials – and it is to their great credit that quality results were achieved in such a difficult context. Note the final piece of feedback from the testing phase in Poland: *"Information about my lessons has spread through the word of mouth. In another school where I teach (for 4 months), the pupils themselves suggested that I should teach them a lesson that they have already heard about from their peers from another school, my mother's institution. I was surprised that students from other schools communicate to each other what is happening in their classes. It was a very positive and pleasant experience."*

In Hungary, results were similarly positive – due in large part to the concerted efforts of the partners, who had been involved in similar projects before and had strong personal commitments to these issues. While *Homo'poly* is proud of the results it has delivered, it remains regrettable that these are due the result of individual efforts, not

systematic or structural changes towards a more positive view or acceptance of LGB. This, it appears, remains a long way off.

In Turkey, collaboration with the tertiary institution was equally agreeable, but no secondary school was willing to participate. Throughout the course of the project, the political context became more difficult. Project partners suspect that engagement on LGB issues in education is unlikely to develop positively in the near future. While our participating institution and staff remain as committed as ever, they have indicated that, in light of these trends, participation in a potential follow-up project is highly unlikely.

Going beyond the school gates: it takes a village

In many ways, significant progress has been made in recent years, in no small part thanks to the tireless efforts of national organisations such as Stonewall (UK), Çavaria (Belgium), COC (The Netherlands) and others. European as well as national guidance, at least in Western Europe, now reflects a commitment to diversity and inclusion for all, and a significant range of tools and resources are available to schools and teachers who choose to make this a priority. All that being said, much work remains to be done to make schools across Europe more socially inclusive. *Homo'poly* believes that schools stand to gain much from working with pupils, not just for them, but for their wider communities in building a more safe, secure and welcoming learning environment for all. This kind of 'co-creation' - mostly with pupils, but also with parents and the wider school community - maximises the potential for schools to meet real needs, pushing the envelope on social inclusion but still staying faithful to their context and culture. This is a tried and tested approach for delivering meaningful and measurable change.

High-level political backing opens doors

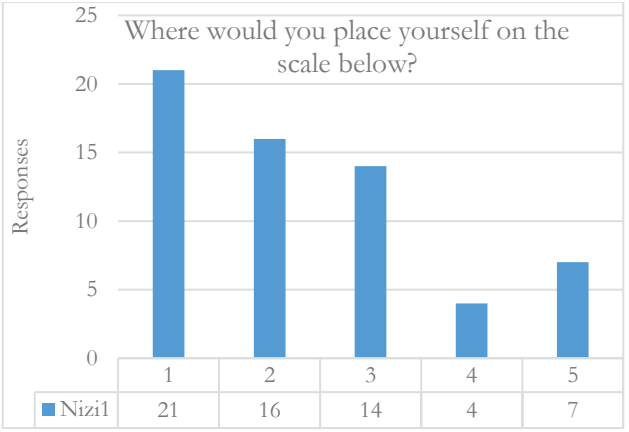
Homo'poly's focus on 'social inclusion' aligns closely with the EU's political priorities. The European Parliament adopted a resolution on 14 February 2019 calling on the Commission to tackle the gender equality backlash targeting LGBTI people across Europe, prioritise LGBTI rights in its work in 2019-2024, and mainstream an intersectional perspective in its work, among others. Reintke MEP, co-chair of the LGBTI Intergroup and shadow rapporteur for the resolution (Greens/EFA)

commented that "We look forward to see the European Commission address the current backlash against gender equality – which impacts LGBTI people directly – in its current and future work. The resolution adopted with a strong majority is a clear mandate for the Commission to present a full-fledged strategy on LGBTI right with an intersectional perspective." With a topic as sensitive and contested as LGB, having high-level political backing and financial support opens doors. *Homo'poly* would not have achieved its results without the EU stamp of approval – the fact that these issues are supported by European leaders and programs bring people, projects and schools to the table. The rise of populism across the continent is a worrying trend for all of those working on the acceptance of LGB issues – both in schools and beyond. It is hoped that, by showing the significant impact of a relatively small project on the educational institutions, staff and pupils involved, further resources will continue to be dedicated to this important agenda in the future.

What's next? Inputs from Central and Eastern Europe

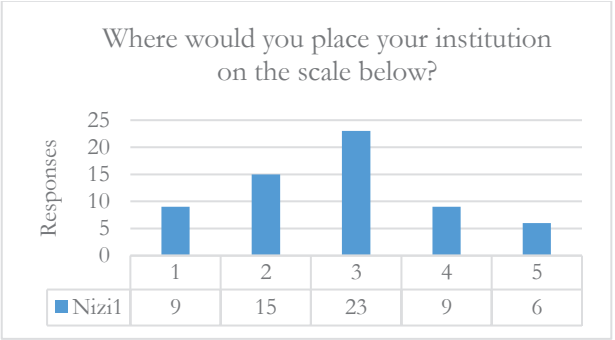
To build on these reflections, and to further explore the issues that emerged in the project's Central and Eastern European partners in particular, *Homo'poly*'s Steering Group conducted a survey between 16 October 2019 and 3 November 2019. The survey targeted the Steering Group's network in this region, inviting teaching professionals and students to share their experiences and insights with regard to LGBT issues in education in their institution and country. A total of 62 responses from eight countries (Bulgaria, Czech Republic, Estonia, Hungary, Slovakia, Slovenia, Turkey and Ukraine) were returned. 87 % of respondents are active in tertiary education, 11 % in secondary education and 2 % in primary education.

Asked where they would place themselves on a scale from 'very comfortable with LGBT+ issues' (1) to 'very uncomfortable with LGBT+ issues' (5), just under 40 % consider themselves very comfortable, with just over 11 % indicating they are very uncomfortable:



1 = I am very comfortable with LGBT+ issues; 5 = I am very uncomfortable with LGBT+ issues
Figure 1: How comfortable are you with LGBT+ issues?

These – largely positive – responses are not representative of Central and Eastern Europe as a whole. The 2019 Eurobarometer findings indicated that "In Hungary, Bulgaria, Romania and Slovakia, for instance over 50 % of respondents do not believe that LGB people should have the same rights as heterosexuals, while high numbers across 11 member states believe there is something wrong in a sexual relationship between two persons of the same sex" (ILGA Europe, 2019). Additional Eurobarometer findings confirm these trends, with Central and Eastern Europe consistently registering lower levels of acceptance of LGB people (Eurobarometer, 2019). These realities are reflected in the open-ended responses received. 31 respondents (50 %) indicated that they "had never dealt with LGBT+ issues in their educational institutions", which in itself can be considered indicative of a culture of silence or secrecy. Half a dozen respondents explicitly denied knowing any LGB staff or students. Homophobia was recognized as a persistent problem for both staff and students: one respondent indicated that "I have many students still not admitting they are gay. Homophobia affects more than 80 % of my students."; another confirmed that "My LGBT students do not come out directly and I haven't had a chance to deal with this issue." Even where LGB relations can be discussed, these discussions only go so far. Generic statements that 'love is love' are accepted by some – but even where "We can discuss some things, but [we can only discuss] slightly about the real deeds." Asked to map their institution on a scale from 'very comfortable with LGBT issues' to 'very uncomfortable with LGBT issues', respondents largely veered towards a middle ground, with outliers at either end:



1 = My institution is very comfortable with LGBT+ issues; 5 = My institution is very uncomfortable with LGBT+ issues

Figure 2: How comfortable is your institution with LGBT+ issues?

Elaborating on what (if any) LGB issues their institution addresses, 25 respondents indicated nothing was being done: "Absolutely nothing is done by the uni. I get the impression that only in creative speaking classes we talk about these issues with students. Nobody teaches the teachers-to- be how to deal with students who could decide to come out in the classroom. Drama." The remaining respondents note at least a minimal effort to address these issues, with a focus on bullying and related concerns (nine), coming out and sexual health (six respondents), and transgenderism (three). Several respondents note, however, that little is structured, and that much is left to the discretion – and knowledge – of individual teachers: "I don't know my colleagues' approach, and there are no official topics. I talk about those issues in connection with respect for human dignity." The country studies delivered as part of *Homo'poly*'s first phase confirm that structured approaches to the issue still prove elusive, and that integrating LGB issues remains beyond reach: "It would be better to implement these issues to the curricula, but it is not supported by the government." There is, perhaps unsurprisingly, a generational gap as well: "My older students think that LGBT people are not worthy enough to live. In speaking lessons they tend to be too honest about it and not only once did it offend one of my students. Younger people are more likely to be open minded about it." One respondent notes the progress made across generations: "I had religion and during this lesson teacher told us it's crazy and not acceptable to love the same sex as you have (primary school). Now at my uni, teachers accept it totally and I didn't hear any bad words."

Respondents affirmed the potential impact of a project like *Homo'poly*, as exposure to LGB issues, people and projects are repeatedly mentioned as a positive influence: "I attended two occasions dealing with these issues. Members and ambassadors of the Hungarian LGBT+ Community talked about the importance of tolerance and their personal experiences and we could ask them about everything. During my studies, most of my professors draw our attention to tolerance and equal treatment regardless of a person's sexual orientation, race, religion, gender etc." Proximity to LGB colleagues, students or pupils is particularly helpful: "I have some homosexual and bisexual friends in the university, I have heard a lot about this topic due to them." Building on this, and on the other lessons emerging from *Homo'poly*, the project's Steering Group outlines its proposed framework for a follow-up project, *OpenUp!*

Moving forward: *OpenUp*!

OpenUp will promote inclusive education by bringing together pupils, (trainee) teachers and the wider school community to build LGBT+ friendly schools. Schools play a critical role in providing pupils - all pupils - with a healthy and encouraging learning environment. Too often, however, pupils who identify as LGBT+ fail to get the support they need for their personal and professional development. Many also still face verbal and even physical harassment because of their sexual orientation or identity. This continues to translate into higher dropout rates, a higher incidence of mental health problems and even higher self-harm and suicide rates. Despite many laudable initiatives, much more needs to be done to build school environments that are safe and secure for all pupils. This is particularly important for transgender, intersex and other pupils who do not identify as heterosexual or cisgender, but who also do not identify as homosexual or bisexual (the more commonly known and accepted 'LGB' of the acronym). Little visibility and small numbers mean these young people are particularly vulnerable, and all the more in need of recognition, respect and support. *OpenUp* sets out to shape school environments at secondary and tertiary level that allow all students to thrive, regardless of their sexual orientation or sexual identity. Like *Homo'poly*, *OpenUp!* will take a cross-sectoral approach. The partnership will facilitate cooperation between eight countries, with one university and one secondary school participating from each country. In each country, the participating institutions will co-create a vision for an LGBT+ friendly school, along with pedagogical materials (future) teachers can use to make such

inclusive schools a reality. All outputs will build on original research and peer exchange, to maximise cross-country learning. To successfully develop and deliver these LGBT+ friendly school visions, *OpenUp* will implement carefully calibrated activities that 1) engage all partners throughout the duration of the project 2) facilitate cross-country learning to distill a European vision for LGBT+ friendly schools and 3) deepen cross-sectoral collaboration between secondary schools and teacher training institutions in each country. The project intends to make an active contribution towards establishing intercultural dialogue on gender equality, and, last but not least, will have a significant impact on the acceptance and understanding of sexual diversity and social inclusion. Thanks to the comprehensive geographical reach of the partner countries involved, the project will be able to draw on, and be relevant to, a rich and diverse set of European countries and contexts. An important additional target group is the wider school community, which will consist of parents, community organisations and faith groups. *OpenUp* envisions that these actors, through consistent and carefully considered engagement with the school, will become (more) open to the LGBT+ community, both inside and outside of the school. The identification of these groups will be carried out in the project's first year, and the composition of these groups is likely to vary strongly from school to school. With the support of these actors, *OpenUp* will set out to shape an ambitious vision of LGBT+ friendly schools that educational institutions across Europe can aspire to adapt and adopt.

Conclusion

This paper has captured the results and lessons learned from *Homo'poly*, an ERASMUS+ partnership promoting awareness and understanding of homosexuality in schools across Europe. The lessons learned identified through *Homo'poly* are big challenges that cannot be tackled by schools alone. To secure meaningful gains in social inclusion of LGBT+ pupils and students, it is imperative to go beyond the school gates and include parents, community organisations, faith groups and others in building a more accepting learning and teaching environment. Secondary schools and teacher training institutions will therefore actively involve the wider school community as they set out to shape and implement a strategy for an LGBT+ friendly school, tailored to their specific context and needs. It is also pivotal to secure continued political support at the highest levels, as this gives projects like these, and the people who implement them, the necessary backing. Young people must be

encouraged in their ability to embrace those who are perceived to be different. Bucking the trends towards homophobia must be done at all levels – including in schools.

Abbreviations

LGB: lesbian, gay and bisexual, LGBT: lesbian, gay, bisexual and transgender, LGBTI: lesbian, gay, bisexual, transgender and intersexed, LGBTIQ: lesbian, gay, bisexual, transgender, intersexed and queer, LGBT+: lesbian, gay, bisexual and transgender plus

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THROUGH THE LOOKING GLASS: METHODOLOGICAL FEATURES OF RESEARCH OF ALTERNATIVE SCHOOLS

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Abstract/Povzetek.
On the basis of the analysis of the general characteristics of alternative schools and the methodology of pedagogical research, the comparison and synthesis of the obtained facts were formed. It is pointed out that in the field of pedagogy, the adoption of (positivist) methodology has become a global trend. It emphasizes the uncritical application of research tools from the corpus of quantitative methodology in research of specific educational problems, as well as in research of alternative schools in which the context of the research is significantly different than the one of the conventional public schools.

Pod lupo: metodološke značilnosti raziskovanja alternativnih šol
Na osnovi analize splošnih značilnosti alternativnih šol in z metodo pedagoškega raziskovanja smo oblikovali primerjavo in sintezo dobljenih dejstev. Opozarja, da je na področju pedagogike sprejetje (pozitivistične) metodologije postalo globalen trend. Poudarja nekritično uporabo raziskovalnih orodij iz korpusa kvantitativne metodologije pri raziskovanju specifičnih problemov vzgoje in izobraževanja ter pri raziskovanju alternativnih šol, pri čemer se kontekst raziskovanja pomembno razlikuje od konteksta raziskovanja konvencionalnih javnih šol

Keywords:
alternative schools, education, research methodology, social and humanistic sciences, teaching

Ključne besede:
alternativne šole, vzgoja in izobraževanje, raziskovalna metodolgija, družboslovne in humanistične študije, poučevanje

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Introduction

Recent formal education, both at global and national level, has been significantly characterized by standardization, economization, psychologization, medicalization and educationalization of social problems (Autio, 2017; Smeyers & Depaepe, 2008; Topolovčan & Dubovicki, 2019). Such phenomena that characterize the contemporary formal education are a consequence of what has been happening at the economic, political and social levels in the last seventy years, more precisely since the end of World War II (Topolovčan & Dubovicki, 2019; Tröhler, 2013, 2014). That is, it is justified to point out that the current state of education, educational policies and reforms are somewhat the consequences of the Cold War (Topolovčan & Dubovicki, 2019). In this respect, current education is said to be in a paradoxical situation (Tröhler, 2016). This paradox emerges from the realization that we now have more research on education and research results than ever before in the history of pedagogy, and on the other hand, the possibilities to create creative and innovative educational policies and reforms are slim (Tröhler, 2016). Likewise, this paradox is based on the excessive and uncritical application of the *evidence-based practice* and the adoption of positivist methodologies for educational research in other scientific fields (Tröhler, 2016). Such observations and findings offer an intriguing insight into some of the characteristics of the recent anatomy of a discipline, such as education. On the other hand, with formal, conventional and national formal education, alternative (germ. *Alternativschule*) and free schools (germ. *Freischule*) have formed. The basic definition of alternative or free schools is that they do not follow the prescribed state plan and program (of curriculum), that is, they have not been created by the state. Therefore, because of their own school culture, pedagogical, didactic and educational pluralism, alternative schools are much less determined by the aforementioned Tröhler paradox of education. In other words, they do not obsess with standardization, psychologization, medicalization and economization. That could be a possible repercussion of the alternative schools' awareness of the differentiation of the terms schooling and education. Alain Madelin (1991), in his book *Free School: Education a la carte* (The original title in French: "Pour liberer l'ecole: l'enseignement a la carte") elaborates on the distinction between education and schooling, and public and private schools. In his distinction between education and schooling, Frans Carlgren (1991) goes a step further by asking whether state schools should exist at all? Be that as it may, and without discussing whether state schools should exist, it should be noted that a recent, but also future, state schools will not

be able to meet all the educational needs of all individuals and the society. Therefore, in the wake of school pluralism, there is room for both state and free schools.

On the other hand, as mentioned above, the immanent element of the anatomy of the discipline of education is also its associated research methodology. That is, the global trend of adopting (positivist) methodology of other sciences (natural and medical) which results in *evidence-based practice* of education policies and reform of school systems. Such methodologies are based on quantitative approaches that "detect" and explain, but do not offer ideas for addressing the problems that researchers originally set out to investigate. Therefore, it is scientifically interesting, due to the relationship between free schools, state schools, and global trends in educational reform and policies, to explore the characteristics, possibilities, and limitations of exploring alternative (free) schools. Based on the introductory premises, the aim of this study is to analyze the characteristics of some alternative schools and the methodology of educational research. And in doing so, take a peek from the other side of the looking glass and describe, define, understand, categorize and synthesize the methodological possibilities of alternative school research based on the scientific facts obtained.

Features of some alternative schools

Alternative schools (This applies to all private schools that may be established by citizens' associations) are schools that exist in addition to state schools, and achieve their educational goals through a significantly different didactic and methodical scenario than those in state schools. In this regard, private schools working on state plans and programs (of curriculum) are "alternative", but only in respect to the founders. In addition to the term "alternative" schools, the term "free schools" also occurs. Free schools are those schools that have not been created by the state (but a private person, an association of citizens), and they do not follow the state curriculum (Matijević & Radovanović, 2011, pp. 414-415; Matijević, Bilić & Opić, 2016, pp. 451). The concept of free schools has historically had multiple meanings (Matijević, 2001, pp. 105-108). Free schools can eventually become public schools. Some of the established alternative schools are Waldorf and Montessori schools (Matijević & Radovanović, 2011, p. 370; Matijević, Bilić & Opić, 2016, pp. 451). It should be emphasized that *free schools* and *alternative schools* are not synonyms, but they have not been taxonomically defined and categorized in this research.

In order to demonstrate the methodological pluralism of alternative (free) school research, this study will briefly describe the most important didactic features of Waldorf and Montessori schools, and those schools that work on the ideas of Celestin Freinet and Peter Petersen, that is, schools based on didactic elements of the directions and movements of reform pedagogy (Matijević, 2001; Oelkers, 2010; Pataki, 1938; Skiera, 2010; Topolovčan, Rajić, & Matijević, 2017). The research context provides a significant research assistance (of any research phenomenon), therefore, the following text describes the most significant determinants of the most established alternative schools.

The first *Waldorf school* (and pedagogy) was founded in 1919 by Rudolf Steiner in Stuttgart (Germany) and was based on the principles of anthroposophy. Some of the special features of this alternative school are that there is no rigid subject-hour system, no use of media, which includes making their own textbooks (notebooks), no numerical grading (no grade repetition). Classes are not organized according to the social form of front-line teaching. The attention is paid to out-of-class teaching, working in the carpentry workshop and full-time teaching. One of the essential features of Waldorf schools is the epoch-based teaching, where students engage in a particular activity or problem, in the period of one to four weeks, and then they solve independently or collaboratively. The teaching takes into account the subjects (which are not dominated by national programs) and opens up the possibility of original curricula such as eurhythmy. Student-centered teaching strategies dominate: inquiry-based learning, problem-based learning, collaborative learning, project-based learning, play-based learning, etc. An important role in the teaching process is dedicated to the role of parents and is focused on collaborating with them (more in: Carlgren, 1991; Matijević, 2001; Oelkeres, 2010; Seitz & Hallwachs, 2011; Skiera, 2010; Topolovčan, Rajić, & Matijević, 2017).

Montessori pedagogy was created by Maria Montessori, and in the early years of the last century she founded her first school (in Italy). Maria Montessori's pedagogical principle is "help me do it myself", and the starting point for this is the idea of children's freedom. Classes are divided into two blocks: the first is freelance work, followed by the common teaching. In freelance work, students individually engage in specific activities for which an appropriate enabling environment is prepared. In the common teaching, the students engage in organized teaching, according to the relevant subjects, but not dominated by the 45-minutes teaching period. An

important feature of the teaching activities is the didactic material and the arrangement of the classroom with the materials available to students. Classrooms are not organized for frontal, but for student-centered teaching (more in: Matijević, 2001; Oelkeres, 2010; Seitz & Hallwachs, 2011; Skiera, 2010; Stein-Erlich, 1934; Topolovčan, Rajić, & Matijević, 2017).

Celestin Freinet founded the original didactic concept and school in the 1920s (in France), and the essential features of the organization of teaching in these schools are: classroom self-government, student autonomy in work and learning, student (and teacher) cooperation in class, inquiry-based learning, freedom of expression, class meetings, the existence of a printing house in the school, a box for written reviews, wall papers, class papers, correspondence with other schools, self-governing cash register, writing free texts, a work atelier, a student-run library. In addition to these characteristics, the dominant teaching strategies are inquiry-based learning, problem-based learning, collaborative learning, project-based learning, play-based learning. Also, the classes are not organized according to the 45-minute teaching periods. The classroom is not designed to provide frontal teaching, but is dominated by furnishings and furniture adapted for the aforementioned teaching strategies, and extra-curricular teaching is of particular importance (more in: Hagsted, 1997; Matijević, 2001; Oelkers, 2010; Skiera, 2010; Topolovčan, Rajić, & Matijević, 2017).

Peter Petersen founded the original didactic concept known as Jena-Plan, because he got the opportunity to put his ideas into practice at the University of Jena (Germany) in the 1920s. The main feature of this conception is guided by ideas in which classrooms are composed of more (mostly three) chronological years of students, since the idea of this pedagogical-didactic conception is based on the family environment (in which there are persons of different ages). Classes are not organized according to a 45-minute teaching period, the classrooms are not arranged in a frontal formation format, but leave the possibility for the teacher to use the classroom by changing all social forms, which ultimately results in the use of different teaching strategies such as: inquiry-based learning, problem-based learning, collaborative learning, project-based learning and play-based learning. In class, part of the time is provided for joint activities of students and teachers, while the other part is intended for teaching certain subjects (not strictly separated into 45-minute lessons) as well as elective classes. A particular attention is paid to cooperation with

parents, and numerical evaluation is no of importance (more in: Matijević, 2001; Oelkers, 2010; Skiera, 2010; Topolovčan, Rajić, & Matijević, 2017).

By summarizing the didactic features of these concepts, it is possible to point to a shift away from the class-subject lesson system, numerical evaluation, and front-line teaching. In other words, the focus is placed on the project and integrated teaching, the freedom to choose curriculum content (a step away from state curriculum), personal concentration in teaching, and student-centered learning strategies. Also, a smaller number of students in classrooms dominates, as well different ages of students in such classes. These are some of the essential elements that generally do not dominate in public schools, and it is therefore justified to think about the specific techniques and methods for researching such schools and teaching. The main teaching features of alternative and free schools are the focus of the teaching on artistic and work education.

Table 1: Features of working and creative approach in teaching (adapted according to Bognar & Matijević, 2002, pp. 19-27).

Working approach	Creative approach
1) the aim of the approach is to train participants of the teaching process to work with a predominance of physical activity	1) the emphasis is placed on the classroom experience, which can certainly be achieved through some of the following activities: listening to music, storytelling, watching plays, artistic creation of participants in the teaching process, studying fine arts and more
2) the acquired knowledge serves to fulfill the future occupation more successfully	2) physical activities are aimed at developing the beauty of the body and movement and expressing the inner feelings of the child
3) the teaching areas are enriched with materials, various types of media and instruments that ensure the practical activity of students	3) the teaching nurtures the development of divergent and critical thinking
4) time is organized more freely so that activities can run smoothly	4) self-actualization is encouraged

In this context, we can draw a parallel with the working and creative theoretical approach (Bognar & Matijević, 2002), as well as the terminological issues of didactics on the basis of which the desired learning outcomes are created (Table 1). Table 1 shows that in a significant part of the philosophy of these two didactic-theoretical approaches, the concepts of most alternative schools overlap, and this is especially evident in the didactic features of the alternative and free schools.

An insight into the methodology of educational research

The previously described special features and characteristics of some alternative schools indicate that the rich pedagogical and didactic coexistence inside and outside the classroom is very different from that in public schools where we have predictable outcomes. The very well-known, measurable and predictable outcomes of the educational process enable us to use research tools (most often those of quantitative methodology) that allow accurate measurement, comparison and ranking. Public schools that adhere to the prescribed plans and programs (of curriculum) have similar teaching scenarios, in which there are usually no major deviations. However, alternative schools are not so "predictable" and it is important that research in such schools (alternative and private) is at least tailored to the specific needs of each researcher and individual alternative school. Previous research "practices" have proven to be more and/or less (not) successful precisely because of the application of the same (similar) research techniques to completely different teaching scenarios stemming from a completely different school culture (research context). The real research paradox is evident in the application of research tools designed for a specific sample size (on the basis of which such data may generalize some of the data obtained), which to such an extent is in fact impossible to obtain in alternative schools, since their classes generally consist of smaller number of students, often of different age, so it is almost impossible to apply the same research instruments that we use in public schools, with a much larger number of students in some classes, to the sample we can get in alternative schools. The study seeks to offer some solutions and ideas for research of educational processes in alternative schools. In addition, some of the research ideas could be applied in contemporary public schools which use the creative (Dubovicki, 2016) and student-centered (Matijević & Radovanović, 2011) teaching scenarios. In the first place, this refers to research tools that belong to qualitative methodology; which not only serve to "detect" the current state (Dubovicki, 2019) but, using an interpretive and multimethod approach, provide multiple insights into the research of people (all participants of the educational process) in their "natural" environment (Denzin & Lincoln, 2000). It is the philosophy of alternative schools that is based on "replicating" the most natural teaching and learning environment, which certainly supports these guidelines. In addition, qualitative research seeks to a greater understanding of specific social contexts (Cutcliffe & Goward, 2000) within different philosophical orientations. The basic aim of the qualitative approach is to study man as a holistic being (Mejovšek,

2013). Qualitative research, according to Brinton & Fujiki (2003), is closer to the problems that we perceive in practice and seek to research, but also offers a greater opportunity to approach practice and research.

Some of the previously established and most commonly used research techniques among researchers who study the peculiarities of alternative schools in recent years (Krbec, 1997; Rajić, 2008) and in the world are the most common surveys, assessment scales, interviews (mostly structured or semi-structured), tests and quasi-experiments, and some pedagogical workshop or notes on the observation of the teaching of the lesson by the researcher. Most of the studies focus on the theoretical description of the concepts and philosophy of particular alternative schools (Matijević, 2001), their founders and/or functioning in relation to the state system (and even their comparison), and a considerable amount of research also relates to statistical comparisons of the results obtained on knowledge tests and the passage of students from public and private (alternative) schools further into the education system (and even longitudinal research). We can say that the situation has recently changed somewhat in the research sense in favor of action research, whose use is something the researchers are more intensively encouraged to (Bognar, 2009), but they are still underrepresented in order to speak of a significant number in this context. From the above mentioned, we can see that the listed research techniques are mostly members of the quantitative methodology, which represents a kind of a problem to us researchers, because it can give us only a small (superficial insight) into the real life that takes place inside and even more outside the classrooms. To explore alternative schools using only quantitative indicators is the same as just superficially observing an iceberg. The only possibility of a holistic approach to the research of alternative and free schools is with the use of under-researched and used research methods within the qualitative paradigm that allows us to look "through the looking glass". Taking into consideration the growing body of the established pedagogical methodology (e.g., Creswell, 2012; Gorard & Taylor, 2004; Hatch, 2002; Mertens, 2010; Scott & Ushur, 2001; Sherman & Webb, 2005; Walford, 2001) and some recent research techniques (discussed in this study), it is very important to emphasize that there have been, at the theoretical-didactic level of discourse, discussions about the conception of a, on the one hand, coherent and consistent, and on the other hand, a theoretically-methodologically pluralistic framework of educational research (Biesta, 2011 , 2015; Terhart, 2016, 2017). It is important to note that in recent times, various programs and even robots (Arvin et al., 2019) are

being developed to facilitate the collection and processing of qualitative data, which would make it much easier for researchers in the future to collect and interpret the data obtained.

Discussion: how to research alternative schools?

Same as with quantitative research tools, it is not enough to use only one insight (one research technique) in our researched world. Therefore, if the conditions so permit, we need to use more research techniques (preferably by triangulation) to make sure that we approach the subject of the research holistically. We can compensate for the lack of one research method by complementing another research method by contributing to the credibility of the results obtained (Gorard & Taylor, 2004). It has been pointed out earlier that it is often not optimal to answer questions and problems of education with a quantitative methodology, but with a qualitative one (Dubovicki, 2017; Topolovčan, 2016, 2017; Halmi, 2013; Sekulić-Majurec, 2000). Regardless of which methodology we decide to use (qualitative and/or quantitative), it is important that it is tailored to our research problem (Dubovicki, Mlinarević, & Velki, 2018). In addition to the already known and scientifically established research techniques, the authors of this study see the potential for alternative and free school research through research tools that could contribute to a better interpretative and comprehensive methodological approach to alternative school research. It is important to gain as much insight as possible through extensive narrative gathering. We primarily men: interview (semi-structured or freelance), case study, systematic observation, action research, ethnographic and historical research, and some of the futurological research methods (Dubovicki, 2017). Although it has been noted that the *interview* was used in such research, we want to emphasize here its importance and the special role of the researcher in constructing the interview protocol. Such interviews should not have rigorous (structured) questions that would strictly adhere to the given topic, but should only be guided in the construction of the protocol by some guidelines to a greater extent determined by our interviewees (research participants), of which in this case we could find out a lot more than what we had planned and thus "explain" to ourselves some cause and effect relationships. In addition, the interview (interview protocol) is a suitable instrument for such research because, due to the smaller number of students in such classes, time is not a limiting factor, and the processing and presentation of such results is much easier.

Case study (One case may represent a student, teacher, some historical figure relevant to the field of research, but also a limited system such as: a class, a school, a community, a group brought together by common interests, or a similar philosophy.) implies researching a case in action, it captures reality from close range and shows what it is like to be in a particular situation. Case study determines the cause and effect that is not always apparent from raw statistics, especially because of complex dynamic interactions. In case study, the observation of the researcher is of the utmost importance, whether the example involves one student, the whole class, school or some community. There are two types of observation in the methodological literature (Cohen, Manion, & Morrison, 2007): participatory observation and non-participatory observation. We believe that participatory observation is an extremely important procedure in the research of alternative schools, especially if the researcher himself does not know them sufficiently "internally", but also because he (let us suppose) has been, through his education, a student of a state, and less frequently an alternative school.

Systematic observation includes both participatory observation and non-participatory observation. For our research problem (alternative school research), both research processes are equally important. They are important because we will often resort to non-participatory observation if participants in our study are younger (pre-school children, lower elementary school students) or from a person with special needs (gifted and/or with special needs), whereas participatory observation will be chosen if we are as a researcher, they wanted to fully implement or "mask with a false identity" (Parker, 1974) to investigate a specific problem. Participatory observation is an important part of action research.

Action research is also considered important in the research of alternative schools, because in order to understand more thoroughly a particular philosophical approach (in each of the alternative approaches), it is necessary to observe and be implemented in all stages of the research phenomenon. Action research by itself works in such a way that the researcher is also a participant in the research, and research itself has a tendency to continue over a longer period of time, providing a much more likelihood (as evidenced by a series of studies) of the researchers to be more objective in presenting the results obtained by the action research, and also, more likely to solve most of the identified "problems" within the system. Action research empowers researchers and practitioners of reflection, and encourages them to recognize the

importance of improving the dynamic and complementary relationship between theory, research, and practice (Avgitidou, 2019). Dick (2019) also wrote about the importance of action research for education in the future).

Ethnographic research has been used by sociologists as a basic research approach since the early 19th century. They experience their significant "rebirth" in the 1990s, when they are increasingly taking on an interdisciplinary character (Relja & Matic, 2008). It is at this time that they are more intensively used in educational research.

> *Ethnographic research is based on participation in a natural environment that can be hidden or not hidden in everyday human activities. It is a direct experience of the phenomenon under study leading to a more meaningful understanding and explanation of the social scene. This can only be achieved through the following methods: first-hand observation, (observation/participatory observation), listening to what has been spoken and asking questions (interview)* (Relja & Matić, 2008, p. 149).

From the above we can see that the aforementioned methods of participatory observation and interviewing are intertwined and overlapping, so we can say that this further emphasizes their importance. Just like conducting an action research, it takes a longer period of time to conduct a quality ethnographic study, and for some reason, for some reason, researchers rarely opt for this type of research.

Historical research is necessary to understand the historical context, especially when it comes to researching the alternative schools. They represent the researcher's "reconstruction" of the previous period. It is significant for historical research that no investigated process (subject) can be investigated as isolated. Methodological literature mentions the most important characteristics of historical research such as: enabling solving present problems based on past experiences; ability to predict future trends in relation to the problem being researched; making it possible to re-evaluate some of the insights, theories, hypotheses, and/or research questions that have been answered in the past (Hill & Kerber, 1967; Cohen, Manion & Morrison, 2007). In addition, we use history to predict some outcomes in the future. It is precisely some of the futurological research methods that use historical analysis to predict possible challenges (Milojević, 2005).

Futurology research methods (You can find more details on futurology research methods in Dubovicki (2017) certainly represent considerable potential in alternative school research. Especially because they do not include a large number of research participants, and they produce very applicable results. Oyaid (2009) points out that the current role of the teacher is not appropriate for the future, and it is precisely the futurology research methods that enable us to approach such challenges and offer guidance that should result in successful solutions. Almost all futurology research methods can be used in researching the alternative schools, but given their abundance, here are just a few that we consider to be less prevalent (in pedagogical research), and could contribute to more objective and comprehensive results. First of all, there is the Causal Layered Analysis method - CLA, Trend Analysis Method, Focus Group Method, Futures Wheel.

Causal Layered Analysis is a research process in which the researcher investigates the "layers" whose gradual detection will eventually lead to the true cause of the problem in which the solution lies (Inayatullah, 2004; Watson, 2015). The trend analysis method is used to study possible trends in the future by examining trends in history. Vrcelj and Mušanović (2001) point out that when exploring the future, trends are often used as starting points (within different professions) for further research. A focus group method that is mainly used in research when it is impossible to reach certain knowledge through classical methods (exploring emotions, values, beliefs, attitudes, addictions, physical and psychological abuse, etc.). Futures Wheel is used because it helps predict future trends and/or possible events based on predictions of primary and secondary consequences. It does not require much preparation or much time to spend, which certainly facilitates the research process.

Over the last three decades, the theory of (deterministic) chaos made a powerful contribution to the paradigmatic shift and the ontological understanding of teaching, learning, and education (Akmansoy & Kartal, 2014; Blair, 1993; Doll, 1993; Gleick, 1988; Halmi, 2001, 2003). With regard to social science research in the light of chaos theory, Halmi (2001, p. 13) writes the following:

> *"The convergence of the natural and social sciences emphasizes, in particular, the development of a new paradigm within a systematic approach, popularly called the 'theory of chaos'. This paradigm will surely completely change the image of modern science by*

claiming that the nonlinear processes, and not causal and deterministic relations, represent the universal feature of events in many natural and social phenomena."

Originating from natural sciences, the theory of chaos, which is based on its premises of nonlinearity, dynamic systems, randomness, self-organization, and the unpredictability, substantially alters the axiology, epistemology, ontology and methodology of pedagogical research. It is precisely such unpredictability and nonlinearity that offer considerable opportunities in research of alternative schools.

Conclusion

The analysis of some of the characteristics of alternative schools (pedagogy) reveals their detachment from the rigid plan and program of the state curriculum. These are schools with fewer numbers of children, as well as classrooms with fewer students, and sometimes of different ages. Classes are not organized according to the frontal social formation. Numerical evaluation is not so important. Teaching strategies such as inquiry-based learning, problem-based learning, collaborative learning, project-based learning and play-based learning dominate. The classrooms are highly equipped with appropriately didactically designed materials and furniture. Parents as well as collaborating with them play an important role in teaching. These are just some of the features of stepping away from the importance of "schooling", that is, adding greater importance to "education". It is not only appropriate to explore such schools via certain established methodological techniques; epistemologically valuable insights can be obtained through substantially different research methods.

Nowadays, in educational research, where the global trends of taking over (positivist) methodology from other sciences (natural and medical) prevail, the research "refreshment" can be offered precisely by the research of alternative (free) schools that are not "obsessed" with standardization, psychologization, medicalization and economization, and thus the quantification of data should also be released in a research sense. In accordance with the research context, the research participants (sample) and the research problem, it is necessary to think about the most appropriate research methods and research designs. In the case of research of the teaching, the detection of a theoretical approach (one or more) can greatly help prepare the "ground", but also to understand it for our research. In this respect, a considerable chance of alternative school research can be seen in the use of

interviews, case studies, systematic observations, action research, ethnographic research, historical research, futurological research methods, casual layered analysis, and appreciation of some recent paradigmatic shifts triggered by the theory of chaos.

Definitions, descriptions and categorizations of these issues do not solely lie in the ideas (research techniques in the field of qualitative methodology) with which research into alternative and/or free schools can be carried out, but also in the possibility that the same research techniques can be applied in conventional public schools, which, despite prescribed plans and programs, carry out their teaching by using a creative, work-based, pedocentric and/or artistic theoretical approach, whose main determinants of the organization of teaching, media, communication, educational ecology and climate largely overlap with the concepts of some alternative schools mentioned in this study. It was in this study that we wanted to show how in educational research it is sometimes necessary to take a good look at the "other side of the looking glass" because it can be a key and deciding factor in choosing a methodology, constructing a research design, selecting research tools, and all of the mentioned affects conducting of the research that may ultimately affect the results of the research constructed in such a way.

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REVIJA ZA ELEMENTARNO IZOBRAŽEVANJE
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THE IMPACT OF ONLINE LEARNING ON STUDENT MOTIVATION IN SCIENCE AND BIOLOGY CLASSES

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Abstract/Povzetek. The research aimed to check for difference in learning motivation between students learning online and students participating in modern classroom instruction. The study participants included students attending grades 5 to 8, divided into experimental (online classes) and control groups based on pre-testing. The results show that there is no statistically significant difference in motivation between the tested sub-samples. Student motivation for learning natural sciences declines with their years of schooling, but this is not statistically significant. It can be concluded that online teaching of Science and Biology as a learning tool can be as motivating as modern teaching using active classroom methods.

Vpliv spletnega učenja na motivacijo učencev pri naravoslovju in biologiji

Cilj raziskave je preveriti razlike v učni motivaciji med učenci, ki se učijo z uporabo spleta, in učenci, ki so udeleženi v sodobnem poučevanju. Udeleženci v raziskavi so bili učenci od 5. do 8. razreda, na osnovi predhodnega testiranja razdeljeni v eksperimentalno skupino (pouk z uporabo komunikacijske tehnologije) in kontrolno skupino. Rezultati kažejo, da med testiranima podvzorcema ni statistično pomembnih razlik v motivaciji. Motivacija učencev za učenje naravoslovja upada z leti šolanja, vendar to ni statistično pomembno. Sklepamo lahko, da je učenje naravoslovja in biologije z uporabo komunikacijske tehnologije kot orodja za učenje lahko enako motivacijsko kot pouk z uporabo aktivnih metod poučevanja.

Keywords:
class motivation, e-learning, Moodle, natural sciences, primary school

Ključne besede:
motivacija pri pouku, e-učenja, Moodle, naravoslovne znanosti, osnovna šola

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Introduction

Digital society, in which today's students live, implies the use of Information and communication technology (ICT) for both social interactions and learning. In order for ICT to become a teaching tool, it is necessary, in addition to objective factors, infrastructure and material conditions, to have competent teachers who will apply e-learning and be able, if necessary, to conduct complete online instruction using e-learning systems (in this paper, the term e-learning refers to a complete online instruction). It is this kind of teaching, which applies e-learning and modern teaching strategies that can develop the potential of children and prepare them for the challenges of everyday life (Bulić et al., 2017). Since their implementation in the 1990s, learning management systems have slowly become part of the teaching and education of future teachers (Dahlstrom et al., 2014), but it is questionable how competent the teacher themselves are to use them in class. However, the increasing use of the Internet and educational technology in teaching requires student interactivity (Violante and Vezzetti, 2015), thus it is important to find guidelines and ways to develop student interaction, participation and work performance. Therefore, the focus of the learning and teaching process is on student activities in the learning management system and on active class participation, with the aim of achieving the necessary educational outcomes and retaining knowledge by making decisions based on the available data (Wei et al. 2015). The learning management system, the students and the teachers themselves, play important roles in the learning process. Student satisfaction alone is crucial in the learning process as it leads to greater motivation and better achievement of learning outcomes, whereupon Bolliger and Martindale (2004) cite three major factors of student satisfaction: teachers, technology and interactivity. Students like using computers in classroom, as well as the World Wide Web, interactive whiteboards, virtual learning environment, as they all present a more interesting path to gaining knowledge using visual and audio information (Bratina, 2012). While there are numerous benefits to using ICT in teaching, it should be noted that improper or excessive use of ICT can lead to dehumanization of teaching and adversely affect learning, especially in the first cycle of education. Therefore, the role of the teacher is extremely important as she/he should properly design teaching processes and weigh the amount of computer materials (Brumen et al., 2017). When planning classroom work, special attention should be paid to student motivation (Butler, 2014), as one of the most important components that influences the achievement of required educational outcomes. Social-cognitive theory (Bandura, 1986; Pajares and Schunk, 2001; Pintrich, 2003) explains that the processes of human learning and motivation are in an interaction that integrates the characteristics of the individual (intrinsic motivation, self-assessment, locus of internal control, environmental influence such as grammar school or vocational

school environment) and the behavior of the individual (the individual's desire to engage in Biology-themed activities). If observing student motivation in class in the context of social-cognitive theory, it can be said their behavior is geared toward achieving a goal. The feature of motivated students is the achievement of the necessary educational outcomes as they regularly learn, actively participate in the classroom, make notes, frequently ask questions, carefully make experiments and draw conclusions, and engage in a wide variety of project activities. Their activity is directed towards the set goal: to achieve a good mark in Science or Biology, to enroll in a certain high school or college, or to choose a profession in which Biology is significant. As knowledge in the field of natural sciences is essential for the development of each country, in the teaching process special attention should be paid to the issue of student motivation for learning Science (5th and 6th grade) and Biology (7th and 8th grade) and to looking for ways to constantly increase their motivation for learning such contents (Novoselić et al., 2014). The importance of student motivation is emphasized by Sanfeliz and Stalzer (2003). They argue that the role of teachers is to stimulate learning motivation because motivated students enjoy learning Science, believe in their abilities and responsibly complete the tasks assigned. The authors conclude that intrinsic motivation, self-assessment and locus of internal control are important motivational factors for learning natural sciences. They emphasize that intrinsic motivation is a response to the student intrinsic need for learning, coming from their curiosity, a need for knowledge of Biology, and a sense of competence, while assessing one's own performance comes from students' belief that they can influence their success in learning Biology and can achieve the desired goal through their actions. Vizek-Vidović et al. (2003) state that intrinsic motivation is a response to students' intrinsic needs such as the need for knowledge, curiosity, a sense of competence, and Rheinberg (2004) indicates intrinsically motivated behavior if it occurs because of oneself and one's own desire. In addition to being intrinsically motivated, behavior can be extrinsically motivated, when the driver of behavior is not in the person, but outside (Vizek-Vidović et al., 2003; Rheinberg, 2004) in the form of good grades on the test, teacher praise, obtaining a diploma or a reward. Elements of motivation have been explored by other authors as well (Glynn and Koballa, 2006). Exploring students' self-regulation during e-learning, Liaw and Huang (2013) conclude that after using e-learning, students are satisfied, perceiving it as something useful. Bulić and Kostović (2019) have shown that students self- responsibly do their homework by taking online classes in Science and Biology. The perceived satisfaction and responsibility in students' work may have been influenced by such interactive environment. Deci and Ryan (1985) present a theory according to which an individual's behavior is determined by internal and external motives. Intrinsic motivation brings reward, that is, experience and satisfaction. Lack of motivation causes an individual to give up from the activities.

The authors see internal motivation as the main motivator of the educational process. Extrinsic motivation is seen as the antagonist of intrinsic motivation.

Methodology

Research objective and hypotheses

Starting from the assumption that the application of online learning in Science and Biology class in the Republic of Croatia is only at its beginning and almost no content for online learning in primary school is available, the research objective was set. The objective was to examine the impact of online learning on student motivation in Science and Biology classes. For the purpose of operationalization and achievement of the established objective, the following hypotheses were made: H1 − there is no statistically significant difference in motivation for learning Science and Biology contents between the sub-samples of the control and experimental groups; H2 − student motivation to learn Science and Biology declines with their years of schooling.

Research Sample

A total of 162 students attending 5th to 8th grade of primary school participated in the survey, as shown in Table 1. The sample of respondents represents the whole population of the school and, by all its characteristics, makes a representative sample from the whole population of primary school students.

Table 1: Sample of respondents.

Grade	Experimental group	Control group	Total nr. of students
5.	20	18	38
6.	23	19	42
7.	21	23	44
8.	18	20	38
total	82	80	162

Data Collection Procedure

In order to carry out the research and get answers to the set tasks and hypotheses, the following measuring instruments were applied: *knowledge pre-testing and a questionnaire (Science Motivation Questionaire - SMQ)*. The *knowledge pre-testing* instrument was used to generate experimental and control groups for each class and the test was

written by all students one month before they started to use Moodle. Equivalent pairs were determined with as similar initial results as possible, the groups being balanced also in terms of gender. The questionnaire completed by students represents the *Science Motivation Questionaire* founded by Glynn and Koballa (2006). SMQ provides insight into students' motivation to learn natural sciences. The first part of the questionnaire (SMQ) explores sociodemographic, independent variables: grade (age), gender, and student achievement. The second part refers to motivation survey, containing 30 closed-type particles (dependent variables) grouped in ways to test six different dimensions of motivation, to which students responded using a five-point Likert scale (1 – never, 2 – rarely, 3 – sometimes, 4 – often, 5 – always). The researched dimensions of motivation were: intrinsic motivation, extrinsic motivation, personal assessment of the importance of learning Biology, locus of internal control, assessment of one's own performance, and anxiety when testing knowledge of Biology. Intrinsic motivation for learning Biology is tested by particles: 1 (I enjoy learning Biology), 16 (the knowledge of Biology I have is more important to me than the grade I will get), 22 (I find the subject of Biology interesting), 27 (learning Biology is a challenge for me), and 30 (I feel successful when I understand Biology). Extrinsic motivation for learning Biology is tested by particles: 3 (I want to have better results on Biology tests than other students in the class), 7 (it is important for me to have a good grade in Biology), 10 (the knowledge in Biology will help me in the future for getting a good job), 15 (I think about the impact of a Biology grade on my overall success at the end of the school year), and 17 (the knowledge of Biology will help me one day at work). The personal assessment of the importance of learning Biology is tested by particles: 2 (the knowledge of Biology is important to achieve my goals), 11 (I think knowing Biology will help me in life), 19 (I think about how I will apply Biology knowledge to daily life), 23 (Biology knowledge is essential to my life) and 25 (Biology knowledge has practical application in my life). The locus of internal control is examined by particles: 5 (if I have problems in learning Biology, I will try to find out the cause of the problem), 8 (I put effort into learning Biology), 9 (I use different ways of learning to master the contents of Biology), 20 (I blame myself if I don't understand Biology), and 26 (I prepare thoroughly for a Biology test). The fifth dimension of motivation, which relates to assessing one's own performance, is tested by particles: 12 (I expect to achieve an equally good or better result than other students in the class), 21 (I will certainly successfully do practical work in Biology), 24 (by mastering the content in Biology, I will develop the necessary skills), 28 (I am convinced that I will successfully complete the Biology test), and 29 (I believe I can get an excellent grade in Biology). Whether students feel anxiety when testing their Biology knowledge is tested by particles: 4 (I feel uneasy when I do the Biology test because I don't know Biology), 6 (as the time of writing the Biology test approaches, I feel uneasy), 13 (I

worry that my grade in Biology will be insufficient), 14 (I worry that other students in my class are more successful in Biology than me), 18 (I don't like Biology tests).

In this survey, 30 SMQ questions were divided into six dimensions, making 5 questions per dimension. The scale was five degrees, and the maximum for each dimension tested was 25. The total sum of all particles used in the SMQ was 150. Students who achieved a total score of 30 to 59 are never or rarely motivated to study natural sciences; those with a score 60 to 89 are rarely or sometimes motivated; 90 to 119 sometimes or often motivated, while students who scored 120 to 150 points are often or always motivated to learn natural sciences (Glynn, Taasoobshirazi, and Brickman, 2009), or in this case, to learn Science and Biology.

Prior to the research, the required teaching contents for each class were designed by using the ADDIE model (Molenda, 2003), they were created and uploaded on Moodle. Lesson plans for the experimental and control groups were the same in terms of planned objectives and educational outcomes as well as class activities for all students, regardless of whether they were included in online teaching using e-learning system or in modern teaching with active classroom methods. Although the experimental and control group preparations were compatible, the lessons differed in working methods. In order to test the measuring instruments, a pilot study was conducted in two grades, which showed that the measuring instruments are reliable and valid and that the main research could be started. Passwords have been created for all students to access the online content. During the teaching, the control group students were in the Biology classroom and participated in modern teaching under guidance of a teacher using modern methods, while the experimental group students were in the Informatics classroom and did not have a face-to-face (f2f) contact with the teacher throughout the survey. Students from the experimental group could access the teaching content posted on Moodle not only in school but also from home, when and for how long they wanted. The students of the experimental group were instructed on the basics of using Moodle during one school lesson (in the Informatics classroom), which took eight school lessons as there were many grades included. An arrangement was made for the use of the Informatics classroom and for the supervision of the student work by the Informatics teacher, who could help if the students encountered technical difficulties.

Data Processing Procedures

The obtained research results were verified by the Kolmogorov-Smirnov test to determine the normality of the data. As the normal distribution of the data was reported, the data were processed by parametric methods (t-test). When presenting the data, the parameters of the descriptive statistics were first presented so that the measures of central tendency and measures of data variability could be observed, followed by the presentation of the results of the inferential statistics parametric technique. Data were considered significant if $p < 0.05$. All results were calculated using Statistica 12.0 software (StatSoft, Tulsa, Oklahoma, USA).

As the SMQ examined 6 relatively independent dimensions of motivation using the t-test for independent samples, the significance of differences among the respondents across all 6 dimensions was examined. Before the application, the results in each dimension were condensed using sums. The analysis was made separately for grades 5, 6, 7 and 8.

Results and Interpretation

The results of the SMQ descriptive statistics for all students attending grade 5 to grade 8, by groups and grades, are shown in Table 2. A review of the table shows that both groups show relatively uniform values in the assessment of individual dimensions of motivation, whereupon only the dimensions of *anxiety* and *locus of internal control* show slightly lower values of arithmetic mean and a relatively high variability in responses. From this it can be concluded that the respondents of both groups are uniform in their estimations of motivation dimensions and that both groups are more uncertain in personal assessment of anxiety while determining the success in and mastery of the teaching contents of Science and Biology, and they are significantly more uncertain in assessing the variables indicating the locus of internal control. Comparing the results of the analysis by grades shows that younger students are more confident in assessing the dimensions of motivation, while older students show greater uncertainty regarding their assessment. Analyzing the data by dimensions of motivation, it can be seen that the students of both groups are uniform in their assessment, but that they differ in terms of grades they attend. The data show that the lowest values are achieved by students attending grades 7 and 8, them showing considerable variability in assessment. This is particularly pronounced for students in grade 8 of both groups, for almost all dimensions of motivation, except anxiety, which is described in this way by the grade 7 sub-sample. The results show that students are generally motivated to learn during Science and Biology classes, but apart from intrinsic motivation, external reward in the form of good

grades is still important to them. It is certainly a good result of research that students do not feel anxious about testing their knowledge. The question is whether the teacher methodology affects the reduced anxiety. It is likely that students are well prepared for the written tests through the repetition of the necessary teaching content, thus anxiety itself is not very pronounced. As grade 8 students do not consider learning Biology so important, it is necessary to find ways in pedagogical practice that will lead to their greater interest in STEM subjects.

Table 2: SMQ descriptive statistics results by groups and grades

samples		experimental group					control group				
	raz	AS	± SD	min	max	α_3	AS	± SD	min	max	α_3
DIM 1	5.	21,70	2,43	15,00	25,00	-1,17	22,06	2,31	18,00	25,00	-0,62
	6.	20,74	3,15	15,00	25,00	-0,41	21,16	1,89	16,00	24,00	-0,92
	7.	20,71	2,90	14,00	25,00	-0,85	20,74	2,36	16,00	24,00	-0,80
	8.	19,28	3,32	13,00	25,00	-0,09	19,80	4,24	8,00	25,00	-1,63
DIM 2	5.	20,40	2,98	15,00	25,00	-0,13	21,06	2,69	16,00	25,00	0,08
	6.	21,78	2,81	15,00	25,00	-0,64	21,05	2,76	15,00	25,00	-0,93
	7.	20,14	3,23	13,00	24,00	-0,70	18,78	3,36	13,00	25,00	0,01
	8.	18,00	4,13	12,00	24,00	-0,02	19,75	4,82	5,00	25,00	-1,93
DIM 3	5.	20,5	2,74	15,00	24,00	-0,20	20,78	3,44	14,00	25,00	-0,26
	6.	19,96	4,13	9,00	25,00	-0,89	20,00	3,80	10,00	25,00	-1,16
	7.	19,48	3,49	13,00	25,00	-0,45	18,35	3,23	12,00	23,00	-0,03
	8.	17,67	4,63	12,00	25,00	0,21	19,90	4,83	6,00	25,00	-1,42
DIM 4	5.	19,65	2,35	15,00	23,00	-0,64	19,61	2,83	15,00	24,00	-0,20
	6.	19,52	2,48	15,00	25,00	0,33	19,16	2,59	15,00	24,00	-0,12
	7.	19,00	3,13	13,00	23,00	-0,56	18,87	2,29	10,00	24,00	-0,96
	8.	18,06	3,40	12,00	23,00	-0,57	18,60	3,66	11,00	24,00	-0,76
DIM 5	5.	20,40	2,39	15,00	24,00	-0,53	20,22	2,76	15,00	24,00	-0,53
	6.	20,39	3,06	15,00	25,00	-0,20	20,16	3,48	13,00	25,00	0,01
	7.	20,00	3,10	14,00	25,00	-0,11	20,13	2,46	16,00	25,00	0,22
	8.	18,33	4,00	9,00	25,00	-0,73	17,85	3,67	8,00	23,00	-0,01
DIM 6	5.	13,15	3,59	7,00	19,00	0,22	13,67	3,91	6,00	21,00	0,22
	6.	13,74	3,85	5,00	21,00	-0,22	14,37	4,52	6,00	22,00	-0,01
	7.	11,48	4,04	5,00	20,00	0,60	12,61	3,06	8,00	19,00	0,67
	8.	13,11	3,89	6,00	19,00	-0,58	13,85	4,59	6,00	23,00	0,13

N VARIABLES INDEX: DIM1 (dimension 1) intrinsic motivation; DIM2 (dimension 2) extrinsic motivation; DIM3 (dimension 3) personal assessment of the importance of Biology learning; DIM4 (dimension 4) locus of internal control; DIM5 (dimension 5) personal success assessment; DIM6 (dimension 6) anxiety during testing Biology knowledge.

Normality for the experimental group was also tested for all SMQ dimensions (Table 3). The results show a normal distribution of the data.

Table 3: Results of normality testing for students in the experimental group attending grades 5 to 8 (max D-test value; p-level of significance, K-S-Kolmogorn-Smirnov test for normality testing)

	GRADE 5		**GRADE 6**		**GRADE 7**		**GRADE 8**	
	max D	K-S p	max D	K-S p	max D	K-S p	max D	K-S p
DIM1	0,19	p > 0,20	0,15	p > 0,20	0,21	p > 0,20	0,13	p > 0,20
DIM2	0,16	p > 0,20	0,15	p > 0,20	0,19	p > 0,20	0,10	p > 0,20
DIM3	0,19	p > 0,20	0,16	p > 0,20	0,15	p > 0,20	0,17	p > 0,20
DIM4	0,22	p > 0,20	0,15	p > 0,20	0,15	p > 0,20	0,16	p > 0,20
DIM5	0,15	p > 0,20	0,14	p > 0,20	0,17	p > 0,20	0,15	p > 0,20
DIM6	0,13	p > 0,20	0,11	p > 0,20	0,17	p > 0,20	0,19	p > 0,20

Normality was also tested for all SMQ dimensions and for the experimental group (Table 4). The results of normality testing show that all the variables in all grades show normal distribution (p> 0.05), therefore parametric statistical methods were used in further data processing.

Table 4: Results of normality testing for students in the control group attending grades 5 to 8 (max D-test value; p-level of significance, K-S-Kolmogorn-Smirnov test for normality testing)

	GRADE 5		**GRADE 6**		**GRADE 7**		**GRADE 8**	
	max D	K-S p	max D	K-S p	max D	K-S p	max D	K-S p
DIM1	0,21	p > 0,20	0,20	p > 0,20	0,20	p > 0,20	0,26	p < 0,15
DIM2	0,17	p > 0,20	0,23	p > 0,20	0,10	p > 0,20	0,22	p > 0,20
DIM3	0,21	p > 0,20	0,17	p > 0,20	0,16	p > 0,20	0,19	p > 0,20
DIM4	0,16	p > 0,20	0,18	p > 0,20	0,14	p > 0,20	0,15	p > 0,20
DIM5	0,22	p > 0,20	0,16	p > 0,20	0,11	p > 0,20	0,16	p > 0,20
DIM6	0,12	p > 0,20	0,09	p > 0,20	0,19	p > 0,20	0,11	p > 0,20

To determine the statistically significant difference of the respondent sub-samples by groups and grades, in the motivation variable, a t-test (Table 5) was carried out for the mentioned independent variables.

Table 5: T-test results of SMQ among groups of respondents by grades.

	GRADE 5			**GRADE 6**			**GRADE 7**			**GRADE 8**		
	t	p	p-var	t	p	p-var	t	p	p-var	t	p	p-var
DIM 1	0,46	0,65	0,84	0,51	0,61	0,03	0,00	0,97	0,35	0,42	0,68	0,30
DIM 2	0,71	0,48	0,67	-0,84	0,40	0,95	-1,4	0,18	0,87	1,19	0,24	0,53
DIM 3	0,72	0,47	0,34	0,04	0,97	0,73	-1,1	0,27	0,72	1,45	0,15	0,86
DIM 4	-0,05	0,96	0,43	-0,46	0,65	0,85	0,10	0,89	0,83	0,47	0,64	0,77
DIM 5	-0,21	0,83	0,55	-0,23	0,82	0,55	0,20	0,88	0,29	-0,4	0,70	0,72
DIM 6	0,42	0,67	0,71	0,49	0,63	0,47	1,1	0,30	0,20	0,53	0,60	0,50

The results of the t-test show that there is no difference between the experimental and control groups in the sum of the arithmetic mean of each dimension and it can be seen that $p > 0.05$, while *p-var* implies that the variances are homogeneous and there is no difference between the variances between the observed groups. All students, of both control and experimental groups, were highly motivated to work.

From the descriptive statistics results it can be seen that the arithmetic mean of the first dimension examining intrinsic motivation is above 20 in all grades (except for the grade 8 students, who show a decrease in motivation), which indicates that there is a great intrinsic motivation for learning Science and Biology. Since using Moodle is a new way of working for all students, with a particular challenge for online learning, this probably contributed to their greater motivation to work. The second dimension, which examines extrinsic motivation, also has a large arithmetic mean, which shows how important for students is a good grade on exams, as well as teacher praise, or external reward. In the third dimension examined, by which students evaluate the importance of learning Science and Biology, the arithmetic mean of grade 8 is lower than that of the other grades, as they do not rate learning Biology much important. Younger students find learning Biology and Science important. The fourth dimension, which refers to the locus of internal control, has an arithmetic mean between 18 and 20 in the experimental and control groups. The fifth dimension, which examines how students evaluate their performance, has an arithmetic mean above 20 for all grades except grade 8, where it is lower, which tells us that grade 8 students have worse performance estimates. Lower grade students are rated as more successful. The sixth dimension, which determined the existence of anxiety during Science and Biology knowledge testing, has low arithmetic mean in both the experimental group and the control group (about 13), indicating that students do not experience anxiety in Science and Biology knowledge testing. The anxiety score is good because obviously students did not show high levels of stress when writing tests, which may indicate that they are well prepared for the exams. From the students' answers it can be concluded that sometimes the teaching contents of Science and Biology are interesting to the students because of their subject matter, therefore they learn them out of curiosity without expecting a reward or a grade. It can be said that such students are intrinsically motivated, that is, they have an internal motivation for learning. Gardner (1985) showed that female students are more likely to have an intrinsic interest than male students, which is in contrast to the results of this study, because no statistically significant difference in interest was found with regard to the gender of the students. In teaching practice, it would be good to have a greater number of intrinsically motivated students, who would actively learn and successfully achieve the required educational outcomes. However, we are aware that the major motivational tool for learning is outside the

students themselves in the form of a reward or a grade. Accordingly, the results of the particle analysis examining the second dimension (extrinsic motivation) show that it is important for students to get a good grade in Science and Biology, which correlates with the research conducted by Carlone (2004), Osborne, and Collins (2001), which also showed that part of students show extrinsic interest in natural sciences, such as passing exams or gaining school success. The reward system, which is present in Croatian schools, reduces the occurrence of intrinsic motivation because it rarely encourages creativity, and requires the achievement of certain behaviors that the teacher rewards with an appropriate grade, due to which students are reluctant to do tasks that are not graded (Novoselić et al., 2014). This research also shows a great extrinsic motivation for all students, emphasizing that it is somewhat lower at grade 8 students. It can be said that grade 8 students show a declining motivation to learn Science and Biology and are not influenced either by external rewards. In personal assessment of the importance of learning Science and Biology, the arithmetic means of the experimental and control groups of all grades are also high (around 20.00), the lowest AM of the grade 8 experimental group being 17.67, indicating that students are nevertheless aware of the importance of knowledge of Science and Biology and their impact on their later life, which is in accordance with similar researches (Jenkins, 2005; Osborne and Collins, 2001). The locus of internal control (fourth dimension) is the highest at the youngest students who state that they are preparing thoroughly for the knowledge exam, put effort into learning and, if they encounter a problem, look for a cause. According to Vizek Vidović et al. (2003), students most often mention the following causes of success or failure, which can be classified into three categories: ability / personality traits, motivation / activities, and external factors. Successful students often attribute their success to their own abilities, not to external factors over which they have no control. In contrast, students who experience repeated failure attribute it to bad luck, and if they again experience failure, they attribute it to external factors (teacher attitudes toward the student, difficult tasks in the test, difficult subject). A study by Ames (1992) found that learning-oriented students were more likely to ask themselves how they would better understand certain content, leading them to continuous and quality learning. Therefore, in today's schools it is important to develop the competence of students related to *learn how to learn* and to help them understand the purpose of schooling, which is to acquire knowledge and competencies, and not just to get good grades. The fifth dimension of motivation examines the student's assessment of their own performance, and according to Black and Deci (2000), this group of particles refers to the control of student emotions so that they can be successful in mastering content in Science and Biology. This research has shown that students attending grades 5 and 6 have higher arithmetic means in the fifth dimension and assess themselves as more successful than their older schoolmates

believing they can achieve excellent success in Science and Biology. It is good for younger students to believe in themselves and their abilities, but the question is how to maintain that belief in themselves in the later years of schooling, since student belief in their own abilities and high appreciation of school success is an important factor in their future school achievement. The last, sixth dimension of motivation, which relates to feelings of anxiety during the assessment of knowledge in Science and Biology, shows that the students who participated in the research do not feel great anxiety during the assessment of knowledge in these subjects, but still they do show some anxiety. We describe anxiety itself as a state of fear, tension, or insecurity that is caused by a particular situation. Active, continuous learning and a thorough preparation of the students, both for the classes and for the knowledge assessment, will certainly reduce and overcome the feeling of anxiety. Vizek Vidović et al. (2003) state that ambitious students care about achieving great success, make great efforts, but at the same time they are overwhelmed by the fear of failure, and may therefore experience anxiety. The results of the research show that students are motivated to learn Science and Biology, but it is significant that the lowest motivation is present at the oldest students attending grade 8, when they should soon choose their future school, vocational or grammar school. The question arises about their motivation in other teaching subjects and their guiding principle in choosing the future school, which correlates with the research of Güvercin, Tekkaya, and Sungur (2010), which also showed that student motivation declines with the years of schooling. The traditional paradigm of teaching with the prevailing frontal teaching has dominated the Croatian schools, and only recently has there been a trend towards a more modern teaching with an active student and the application of modern learning resources at the center. As traditional teaching is not a motivational learning environment, teaching that is dominated by active teaching methods, research-based learning that arouses curiosity, linking curriculum content to everyday life, e-learning, complete online learning can have a motivating effect and motivate the student to learn. Students who are motivated to learn will acquire competencies that will enable them to be active and aware citizens who are responsible for themselves, society and the environment. In future research, it would be interesting to analyze the motivation to learn Biology in students attending grades 7 and 8 of many primary schools as well as high school students, and compare the results.

Conclusions and Practical Implications

The research examined the impact of online learning on student motivation for learning Science and Biology, and found no statistically significant difference between subgroups of respondents (control and experimental groups) regarding their motivation to learn Science and Biology. Such a conclusion suggests that

teaching in an online environment also strongly motivates students to learn, as does modern teaching that uses active methods of teaching and class work. All students, both of experimental and control groups, were highly motivated to learn, and no statistically significant difference was observed in any of the tested dimensions of motivation. The results of the t-test showed that in all examined dimensions (intrinsic motivation, extrinsic motivation, personal assessment of the importance of learning Biology, locus of internal control, personal assessment of one's own performance, anxiety during testing the knowledge of Biology) a high student motivation is present and it can be concluded that for all grades, for all dimensions examined, there is no difference among the variances or between the observed subgroups. In the context of global social changes in the education system, it is essential to change the approach to acquiring students' basic competences. As a good teacher competency profile is a prerequisite for acquiring student competences during the formal education of future teachers and their professional development, special attention should be paid to the development of digital competence of future and current teachers, since only a digitally competent teacher will be able to develop digital competence in students for the purpose of better understanding and application of knowledge in the field of natural sciences. Certainly one of the ways is using e-learning systems that can be a tool to promote better understanding.

Research Limitations and Suggestions for Further Research

The efforts of the teacher to design and upload Science and Biology teaching contents on the e-learning system need to be mentioned, since there were no ready-made, designed contents for these elementary school subjects. Therefore, it would be a good idea to share already designed contents so that other teachers could use them as well. The challenge was to communicate with the students of the experimental group, which took place exclusively via e-messages.

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REVIJA ZA ELEMENTARNO IZOBRAŽEVANJE
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GLASBENE DIDAKTIČNE IGRE IN GLASBENO-RAZVOJNI DOSEŽKI PRVOŠOLCEV

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Povzetek/Abstract V prispevku smo preučevali, kako redno izvajanje glasbeno didaktičnih iger pri pouku drugih šolskih predmetov vpliva na dvig rezultatov glasbenih sposobnosti. Za namen raziskave, v katero je bilo vključenih 71 prvošolcev, smo izvedli eksperiment, v okviru katerega smo v izbrani osnovni šoli štiri mesece izvajali glasbeno didaktične igre pri različnih predmetih. Učenci so na začetku in na koncu izvedenih dejavnosti reševali glasbeni preizkus, ki smo ga razvili za namen raziskave. Rezultati raziskave so pokazali, da so otroci eksperimentalne skupine na testiranju dosegli boljše rezultate kot učenci kontrolne skupine pri večini nalog.

Ključne besede:
glasbena didaktična igra, melodični posluh, ritmični posluh, glasbena ustvarjalnost, igranje na male instrumente

Keywords: didactic musical games, melodic abilities, rhythmic abilities, music creativity, playing on small instrument

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Didactic Musical Games and Music Development Achievements of Year One upils

Our research interest was to determine how regular use of didactic musical games during the other school lessons influences the development of music skills and performance during the music lessons. The study sample included 71 year one children of the selected elementary school who conducted music didactic games in various subjects for four months. At the beginning and at the end of the four months period the children carried out specially developed 13 music tasks to determine their level of knowledge in various music skills. The children of the experimental group achieved better results on the tests than those of the control group in all measured categories.

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Teoretična izhodišča

Otrok že od rojstva nenehno raziskuje ter si s tem pridobiva nova znanja. Seveda pa je to raziskovanje neposredno povezano z igro, ki je velikokrat spontana, a hkrati kompleksna dejavnost, preko katere se otroci učijo in spoznavajo nove stvari ter razvijajo svoje zmožnosti in sposobnosti. Vključena je v otrokov vsakdanjik, saj mu pomeni nekaj samoumevnega, nujnega in zanimivega (Tomšič Čerkez in Župančič, 2011; Klassen in Willoughby, 2003; Huyen in Nga, 2003). Tudi glasba, tako kot igra, veliko pripomore predvsem na naraven in prijeten način k razvoju otroka, zaradi česar je bistvenega pomena v posameznikovem in družbenem življenju (Campbell, 2004). Hkrati pa je glasba pomemben del estetske in umetnostne vzgoje, saj zagotavlja uravnotežen celostni, čustveni, socialni, spoznavni ter psihomotorični razvoj otrokove osebnosti (Kopačin, 2013; Welch et al., 2011; Chan et al., 1998; Forgeard et al., 2008; Pfordresher et al., 2015). Manasteriotti (1983) navaja, da se glasbene igre izvajajo že v predšolskem obdobju, kjer otrok z gibi izrazi določene lastnosti glasbe. Glasbene igre pa tako prispevajo k razvoju otrokovih gibov, sluha in govora. Poleg tega pa spodbujajo pozitivno razpoloženje. Pri pouku glasbe uporabljamo glasbene didaktične igre, ki so podobne glasbenim igram. To so posebna vrsta didaktičnih iger, ki razvijajo otrokove sposobnosti, pomembne za dojemanje, doživljanje, poustvarjanje in ustvarjanje glasbe (Voglar, 1989).

Otroška igra

Fromberg (1987, v Marjanovič Umek in Zupančič, 2006) igro opredeljuje kot simbolno dejavnost, ki predstavlja realnost. Trdi, da je igra pomenska, ker povezuje doživetja in izkušnje udeleženca. Meni, da je igra užitkarska, prostovoljna in notranje motivirana dejavnost, opredeljena s pravili. Poudarja tudi doživljajsko lastnost igre, saj otrok pri njej razvija določene dejavnosti in cilje. Podobno igro pojmuje Pellegrini (1991, v Marjanovič Umek in Zupančič, 2006), ki jo opredeljuje kot notranje motivirano dejavnost, pri kateri si otroci sami postavljajo cilje. Vedejo se spontano, igrajo pa se lahko z že znanimi igračami, lahko pa raziskujejo še neznane predmete. Svojo dejavnost sami nadzirajo. Igra je lahko tudi domišljijska oziroma nerealna. Pellegrini poudarja igro kot svobodno dejavnost, brez zunanjih pravil. Če pa so pri igri pravila, si jih otroci sami zamislijo in jih spreminjajo. Od otrok igra zahteva aktivno udeležbo. Oerter (1993, v Zupančič, 1999) povzema in hkrati dopolnjuje, kar sta o igri opredelila Pellegrini in Fromberg. Igro pojmuje kot vrsto dejanj, za katero je značilna odsotnost posledic ter šibke povezave med dejanjem in izidom, saj ni mogoče vnaprej predvideti rezultata. Igra pa omogoča tudi oblikovanje alternativne stvarnosti, preko katere si otrok razvija ustvarjalnost in domišljijo.

Pšunder (1997) pravi, da vsak otrok potrebuje igro, da zadosti svoji notranji potrebi, ki je usmerjena k nekemu cilju, na katerega pa ne vplivajo zahteve okolja. Za dosego tega cilja otrok uporablja različne igralne dejavnosti, v katerih uživa, igra ga prevzame in zato je pri tem tudi aktiven. Igra je grajena po otroški logiki, saj otrok realnost predela v skladu s svojimi doživljanji. V igro vnaša svoje želje, doživetja in interese, rešuje konflikte ter napetosti iz svojega realnega življenja. Igra je hkrati nekakšna priprava za življenje, zanjo je značilno tudi, da je prijetna dejavnost, s katero otroci prevzemajo nadzor nad svojim življenjem in eksperimentirajo. Posameznik jo izvaja predvsem zaradi lastnega zadovoljstva. Otrok se začne že takoj po rojstvu igrati. Igra postaja vedno bolj sistematična, ustvarjalna ter posledično podobna delu. Je nujno potrebna za duševni in telesni razvoj otroka, vpliva na telesno rast, razvoj različnih zmožnosti, pridobivanje izkušenj in znanja kakor tudi na čustveno ter socialno življenje. Pri igri otrok spoznava fizično ter družbeno okolje in družbena pravila, na podlagi izkušenj se uči mišljenja in reševanja problemov. Otrok prek te dejavnosti spoznava vrstnike, pridobiva določene vrednote, vživlja se v vloge odraslih ter kaže čustva. Z otrokovim odraščanjem se spreminja tudi vsebina iger (Borič, 2010; Tomšič Čerkez in Zupančič, 2011 Welch et al., 2011; Chan et al., 1998; Forgeard et al., 2008; Pfordresher et al., 2015). Bognar (1987) meni, da bi moral biti otrokov čas, preživet v šoli, prežet z igranjem. Učenje naj ne bi bilo nekaj nasprotnega igri, čeprav je večkrat tako. To se dogaja predvsem zato, ker se je igra v šoli razvijala kot nenaravna in celo prisilna dejavnost. Če pa bi bila sprejeta kot naravna, svobodna in nujna dejavnost, bi bilo učenje ob igri nekaj povsem normalnega (Bognar, 1987; Kolb, 2014). »V šoli, kjer bo prevladovalo naravno učenje, ne bo med igro in učenjem nobenih bistvenih razlik« (Bognar, 1987, str. 49). Igra je zato učinkovit način za izobraževanje, ker spodbuja otrokovo pozornost in ga motivira k dejavnosti, ki ni enolična in otrok ne utrudi. Igra omogoča različne vrste aktivnosti in mora imeti vedno določeno vzgojno-izobraževalno nalogo. Pri pouku mora imeti ta dejavnost vlogo uresničevanja vzgojno-izobraževalne naloge, zato pri pouku uporabljamo didaktične igre (Bognar, 1987; Anikina in Yakimenko, 2015; Kolb, 2014). Igre so najbolj dobrodošle v prvi triadi osnovne šole, saj prek njih otroku omogočimo postopen prehod k šolskemu delu. Otrokova pozornost je sprva nenamerna, kratkotrajna, zato je pri tem zelo pomembna zanimiva motivacija (Pšunder, 1997; Denis in Jouvelot, 2005).

Didaktične igre

Didaktična igra je igri podobna dejavnost. Kljub temu mora imeti vse lastnosti igre in otrok jo mora kot tako tudi doživljati. Poleg tega je igra pri pouku lahko učinkovita le pod vodstvom dobrega in strokovno podkovanega učitelja (Bognar, 1987; Kolb, 2014). Didaktična igra ima pred ostalimi dinamičnimi metodami to prednost, da

posameznika vključi celostno. Dobra didaktična igra mora udeleženca popolnoma prevzeti. Prinaša mu novo izkušnjo, omogoča mu preizkušanje na lastni koži. Didaktična igra ima velik potencial in možnosti za najširšo uporabo, da ima posameznik občutek, da nadzoruje okolje in zato spreminja reakcije. Te igre so primerne tako za homogene kot tudi nehomogene skupine otrok, saj njihova uporaba izboljšuje zmožnosti udeležencev z manj predznanja ter tistimi z zmanjšanimi sposobnostmi. Pridobljeno znanje prek didaktičnih iger je dolgoročno, saj udeleženci temo začutijo in doživijo (Bognar, 1987; Mrak Merhar et al., 2013).

Glasbene didaktične igre

Glasbene didaktične igre lahko popestrijo tudi pouk glasbene umetnosti, učencem dajejo možnost soustvarjanja dejavnosti, razvijanja sposobnosti izvajanja, poslušanja ter ustvarjalnosti (Tornič Milharčič in Beuermann, 2005). Voglar (1989) navaja, da so te igre posebna vrsta didaktičnih iger, z otrokom privlačno vsebino in z nalogami, ki zahtevajo in razvijajo duševne funkcije, aktivnosti in sposobnosti, potrebne za dojemanje, doživljanje, poustvarjanje in ustvarjanje glasbe. Seveda pa mora učitelj pri otrocih vzbuditi interes za določeno dejavnost in za sprejemanje glasbene vsebine (Voglar, 1989). Tudi Borota (2013) navaja, da so glasbene didaktične igre zanimive in privlačijo otroke, ki v njih sodelujejo na različne načine. Glasbene didaktične igre razvijajo pozornost, ohranjajo motivacijo za učenje ter sodelovanje v glasbenih dejavnostih in povečujejo zanimanje za glasbo. Poleg pravil in navodil pa vsebujejo tudi glasbene dejavnosti, kot so petje, igranje na glasbila in ustvarjanje. Zaradi tega so glasbene didaktične igre sestavni del glasbenih dejavnosti v šoli. Pri pouku se uporabljajo večinoma pri ponavljanju, utrjevanju, uporabi novega znanja in pri ustvarjanju (Borota, 2013; Denis in Jouvelot, 2005; Baratè et al., 2013).
Glasbene didaktične igre lahko različno razvrstimo. Voglar (1989) jih je razvrstila v sedem skupin glede na glasbene vsebine:

- Igre, pri katerih otroci določijo lastnosti zvokov: otrok mora razlikovati in prepoznati zvoke po barvi, višini, trajanju in glasnosti.
- Igre, pri katerih otroci ugotavljajo smer zvokov: otrok mora določiti smer zvoka, to pokazati ali pa zvokom slediti.
- Igre, pri katerih otroci ugotavljajo različno hitrost: prepoznava hitrega ali počasnega tempa pri glasbenih dejavnostih – petju, poslušanju in izvajanju.
- Igre, s katerimi otrokom razvijamo čut za ritem: otrok razvija zmožnost zapomnitve, prepoznavanja ritma, ritmično reprodukcijo, primerjanja in razlikovanja ritmičnih motivov ter razvijanje ritmično ustvarjalne zmožnosti.

- Igre, s katerimi otrokom razvijamo melodični posluh: otrok zaznava melodične linije in si mora zapomniti ter prepoznavati melodike.
- Igre, s katerimi otrokom oblikujemo pevske zmožnosti: otroke navajamo na to, da prisluhnejo okolju ter tišini, navajamo jih na pravilno dihanje ter pravilno, izrazito in jasno izgovorjavo. Gum, slovenščina spoznavanje okolja.
- Igre, ki uvajajo otroke v skupinsko muziciranje, razvijajo posluh za obliko in večglasje: otroci muzicirajo in pri tem morajo upoštevati drug drugega, skupno morajo ustvariti zvočno sliko. Gum.

Od tujih avtorjev je Storms (1995, v Borota, 2013) ustvaril zbirko glasbenih didaktičnih iger, ki jih je razvrstil v tri kategorije:

- Igre, s katerimi razvijamo osebne sposobnosti in spretnosti (igre za razvijanje poslušanja in zbranosti ter glasbeni kvizi za utrjevanje glasbenega spomina, pozornosti in zaznave).
- Igre, s katerimi razvijamo socialne veščine (igre za izgrajevanje enotne skupnosti in komunikacije).
- Igre, ki spodbujajo samoizražanje in improvizacijo (igre iskanja, uganjevanja ter odkrivanja lastne glasbene ustvarjalnosti).

Borota (2013) je pri razvrščanju iger upoštevala namen, cilje in naravo dejavnosti. Glasbene didaktične igre je razvrstila v pet skupin:

- Igre za razvoj slušne zaznave in pozornosti na zvok (razvijanje poslušanja, zaznave ter pozornost na zvok).
- Igre za spoznavanje parametrov zvoka (razlikovanje barve, glasnosti, trajanja in višine zvoka).
- Igre za širjenje in utrjevanje glasbenega spomina (pomnjenje, prepoznavanje in uporaba zvočnih vzorcev).
- Igre za razvoj elementarnih glasbenih sposobnosti in ustvarjalnosti (petje, igranje na glasbila ter glasbeno ustvarjanje).

Glasbene didaktične igre so pomemben del vzgojno izobraževalnega procesa, saj učitelj preko igre vzpostavi stik z učenci, jih spodbudi k delu in motivira. Nenazadnje z igro pri učencih razvija določena znanja in sposobnosti (Denis in Jouvelot, 2005; Baratè et al., 2013).

Glasbeni razvoj

Glasbeni razvoj je zapleten in kompleksen proces, ki ga je težko do potankosti spoznati in razložiti. Prav v glasbenem razvoju so med ljudmi največje individualne razlike. Glasbeni razvoj je pomembno odvisen od številnih dejavnikov, ki ga podpirajo ali zavirajo, podobno kot razvoj otrokovega mišljenja, saj je z njim tesno povezan. Opisati splošne stopnje otrokovega glasbenega razvoja po bioloških starostnih obdobjih je zelo težko ali skoraj nemogoče (Slosar, 1995).

V spodnji tabeli lahko vidimo strnjen pregled glasbenega razvoja po starostnih obdobjih. Kljub temu pa nam tak pregled predstavlja le ogrodje (Shuer-Dyson in Gabriel (1981); Shuter-Dyson, 1999; Slosar, 1995):

Tabela 1: Pregled glasbenega razvoja otrok.

Starost v letih	
0 - 1	Reakcije na zvok.
1 - 2	Spontano ustvarjanje glasbe.
2 - 3	Pričetek produciranja pesmi, ki jih otrok sliši.
3 - 4	Ustvarjanje splošnega načrta melodije; razvoj absolutnega posluha, če se otrok uči igranja na instrument
4 - 5	Razlikovanje med višinami tonov in zmožnost reprodukcije preprostega ritmičnega vzorca s ploskanjem ali igranjem na instrument.
5 - 6	Razumevanje pojmov "glasneje", "tiše" in sposobnost ločevanja "enakega" od "različnega" v lažjem melodičnem ali ritmičnem vzorcu.
6 - 7	Izboljšanje posluha pri petju; boljše dojemanje tonalne glasbe kot atonalne.
7 - 8	Zmožnost prepoznavanja konsonance v nasprotju z disonanco.
8 - 9	Izboljšanje izvajanja ritmičnih vzorcev.
9 - 10	Izboljšanje ritmične percepcije in glasbenega spomina; osvojitev dvodelne glasbene oblike; občutek za kadence.
10 - 11	Oblikovanja občutka za večglasje (harmonijo).
12 - 17	Izboljšanje kognitivnega in čustvenega reagiranja na glasbo.

Shematski opis otrokovega glasbenega razvoja je torej naslednji: z rastjo otroka se izpopolnjujeta njegovi temeljni glasbeni sposobnosti: ritmična in melodična. Na njuni osnovi se razvijejo glasbene sposobnosti višjega reda kot na primer harmonski posluh - sposobnost poslušanja glasbene vertikale in njena analiza (po devetem letu). Takoj za tem se pri povprečno razvitih otrocih pojavljajo sposobnosti razumevanja in doživljanja glasbenih vsebin, vrednotenja glasbenega dela ali izvedbe kot tudi sposobnost adekvatnega izražanja teh kvalitet v lastni produkciji ali reprodukciji (Shuer-Dyson in Gabriel (1981); Shuter-Dyson, 1999; Slosar, 1995). Temeljne glasbene sposobnosti se razvijajo v predšolskem obdobju in na razredni stopnji

osnovne šole, glasbene sposobnosti višjega reda pa se začnejo razvijati v četrtem ali petem razredu osnovne šole in se nadaljuje še na srednji stopnji šolanja. Slosar (1995) postavlja neke vrste "glasbeno zrelost" med sedemnajstim in osemnajstim letom starosti. Zato je potrebno poudariti pomen pouka glasbene umetnosti v času otrokovega zorenja, ki ga ima za njegov glasbeni razvoj.

Empirični del

Glede na to, da narašča delež anketirancev (ravnatelji, učitelji, starši), ki se jim zdi število ur pouka v prvem triletju previsoko (Bela knjiga, 2011), smo želeli ure pouka popestriti in sprostiti z glasbenimi didaktičnimi igrami. Ob vstopu v šolo, ko so otroci odtrgani od igre, smo želeli z glasbenimi didaktičnimi igrami povečati motivacijo učenja in obseg utrjevanja pridobljenega znanja preko glasbenih didaktičnih iger pri prvošolcih ter hkrati izboljšati njihove glasbene sposobnosti. V prispevku smo tako preučevali, kako redno izvajanje glasbenih didaktičnih iger tudi pri pouku neglasbenih šolskih predmetov, vpliva na uspešnost učencev pri glasbeni umetnosti oziroma na dvig rezultatov in učinkov glasbenih sposobnosti, kot so glasbeno izvajanje, poslušanje in ustvarjanje.

Na osnovi oblikovanih ciljev smo postavili hipotezo, da bodo otroci eksperimentalne skupine po načrtovanem in sistematičnem izvajanju glasbenih didaktičnih iger tudi med poukom neglasbenih šolskih predmetov, imeli v primerjavi z otroki kontrolne skupine bolj razvite glasbene sposobnosti/spretnosti:

- pri melodičnem in ritmičnem posluhu,
- ritmične in melodične reprodukcije,
- pri branju grafičnih zapisov zvočnih trajanj in zvočnih višin,
- analitičnega poslušanja in
- igranja na instrumente in ritmične ustvarjalnosti.

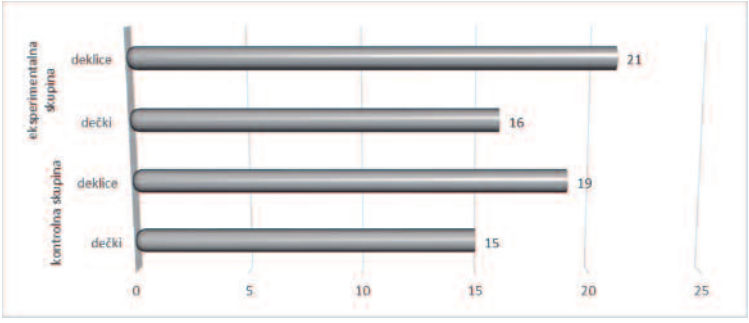
Različni glasbeni pedagogi in psihologi pojem »glasbene sposobnosti« različno definirajo. Nekateri glasbeno sposobnost enačijo z »glasbenim talentom«, s »smislom za glasbo«, z »muzikalnostjo«, z »glasbeno inteligentnostjo«, nekateri pa med temi poimenovanji iščejo in nakazujejo razlike (Denac, 2010). Tudi glasbena didaktika dr. Mirko Slosar (1999) in dr. Breda Oblak (1999) navajata, da z glasbenimi dejavnostmi izvajanja, poslušanja in ustvarjanja razvijamo različne glasbene sposobnosti. Peskova (1997) je pojme, ki se nanašajo na stopnjo in strukturo glasbenih sposobnosti, tudi natančno definirala in razdelila. Zagovarja pa, da so glasbene sposobnosti rezultat glasbenih dejavnosti (izvajanje, poslušanje in ustvarjanje), ki hkrati dajejo tudi možnost pregleda dosežkov ter njihovega izboljšanja in dopolnjevanja.

Metodologija

Uporabili smo kavzalno eksperimentalno metodo znanstvenega raziskovanja. Na izbrani osnovni šoli v Primorski regiji smo izvedli eksperiment, v okviru katerega smo štiri mesece izvajali glasbene-didaktične igre tudi pri pouku ne glasbenih šolskih predmetov. Učenci so na začetku in na koncu izvedenih dejavnosti reševali glasbeni preizkus (sestavljen iz 13 nalog), ki smo ga razvili za namen raziskave. Naloge, ki so jih učenci reševali na osnovi petstopenjske ocenjevalne lestvice, so bile oblikovane upoštevajoč spremenljivke, ki glede na stroko najbolj celovito prikazujejo določene glasbene sposobnosti.

Vzorec

V vzorec je bilo zajetih 71 otrok (37 otrok eksperimentalne in 34 kontrolne skupine), ki so v šolskem letu 2011/2012 obiskovali prvi razred osnovne šole.



Graf 1: Vzorec otrok, sodelujočih v raziskavi

Iz zgornjega grafa lahko razberemo, da je v raziskavi sodelovalo 40 deklic ali 56,34% delež vzorca (21 ali 29,58% delež vzorca v eksperimentalni skupini) in 31 dečkov ali 43,66 % delež vzorca (16 ali 22,53% delež vzorca v eksperimentalni skupini).

Postopek zbiranja podatkov

Po odobritvi ravnatelja in staršev otrok za testiranje glasbenih sposobnosti in spretnosti, smo skupaj z učiteljicami razredov v oktobru 2011 izvedli testiranje učencev takoj na začetku raziskave. Testiranje je potekalo individualno, ko smo otroke posneli, in skupinsko, ko so otroci imeli pred seboj testno polo, ki so jo reševali po skupinskem poslušanju. 37 otrok eksperimentalne skupine je po prvem (začetnem) testiranju štiri mesece med poukom slovenščine, matematike, spoznavanja okolja, športa, likovne in glasbene umetnosti izvajalo različne glasbene

didaktične igre, kot motivacijo pred pričetkom učne ure ali na koncu učne ure kot utrjevanje učne snovi, ki so jo pri pouku usvojili. Z učiteljicama, ki sta izvajali glasbene didaktične igre tudi pri pouku ne glasbenih šolskih predmetov, smo se pogovorili o povzemanju in prirejanju že znanih glasbenih didaktičnih igrah, ki so jih našle v priročnikih k didaktičnim kompletom za glasbeno umetnost (Oblak, 1999; Pesek, 2000; Slosar, 1999) ter glasbene didaktične igre Mire Voglar (1980), ki jih je razdelila v sedem skupin glede na glasbene vsebine. Glasbene didaktične igre so učiteljice same priredile, nekaj pa je bilo tudi takih, pri katerih so otroci po večkratnih ponovitvah in priredbah, sami predlagali spremembo pri izvajanju.

Igre, pri katerih so otroci morali razlikovati in prepoznati zvoke po barvi, višini, trajanju in glasnosti, so izvajali pri pouku spoznavanja okolja in glasbeni umetnosti. Pri športu in glasbeni umetnosti so izvajali glasbene didaktične igre, pri katerih so morali otroci ugotavljati smer zvoka, to pokazati ali zvoku slediti in glasbene didaktične igre, kjer so otroci ugotavljali različno hitrost tempa pri glasbeni dejavnosti. Glasbene didaktične igre, s katerimi otrokom razvijamo čut za ritem, zmožnost zapomnitve, prepoznavanja ritma, ritmično reprodukcijo, primerjanja in razlikovanja ritmičnih motivov ter razvijanje ritmično ustvarjalne zmožnosti, so učenci izvajali pri pouku slovenskega in italijanskega jezika, matematike, športa in glasbeni umetnosti. Glasbene didaktične igre, s katerimi otrokom razvijamo melodični posluh, kjer otroci zaznavajo melodične linije in si morajo zapomniti ter prepoznavati melodike, so izvajali pri glasbeni umetnosti in slovenskem ter italijanskem jeziku. Pri pouku slovenskega in italijanskega jezika, spoznavanja okolja in glasbene umetnosti, so otroci izvajali glasbene didaktične igre, s katerimi otrokom oblikujemo pevske zmožnosti: otroke navajamo na to, da prisluhnejo okolju ter tišini, navajamo jih na pravilno dihanje ter pravilno, izrazito in jasno izgovarjavo. Glasbene didaktične igre, ki uvajajo otroke v skupinsko muziciranje, razvijajo posluh za obliko in večglasje, kjer otroci muzicirajo in pri tem morajo upoštevati drug drugega, skupno morajo ustvariti zvočno sliko in so pomembne tudi pri otrokovem socialnem razvoju, so izvajali pri pouku glasbene umetnosti. Glasbene didaktične igre so učiteljice z otroki izvajale od začetka oktobra do sredine februarja, torej šestnajst tednov z dvema tednoma šolskih počitnic vmes, jesenskih in novoletnih. Povprečno so otroci izvajali vsaj pet različnih glasbenih didaktičnih iger v tednu. Po štirih mesecih načrtovanega in sistematičnega izvajanja različnih in skrbno izbranih glasbenih didaktičnih iger med poukom omenjenih predmetov, smo otroke eksperimentalne skupine v mesecu februarju 2012 ponovno testirali. Otroci kontrolne skupine pa so izvedli samo začetni in končni test brez načrtovanega sistematičnega izvajanja dodatnih glasbenih didaktičnih iger med poukom tudi ne glasbenih šolskih predmetov. Po spremenljivkah od 1-8, kjer je testiranje potekalo individualno, smo sposobnosti ocenjevali in ovrednotili s številom točk na

petstopenjski Likertovi lestvici, pri čemer so otroci po izvedeni nalogi dobili od ene (ni odziva) do petih (zelo razvit posluh) točk (glej Preglednico 2). Ocenjevanje vseh otrok sta izvedla dva raziskovalca, pri čemer je avtorica ocenjevala v živo in nato ocene preverila preko posnetkov.

Drugi ocenjevalec je ocenjevanje izvedel preko posnetkov. Pri ocenah sta dosegla več kot 95% ujemanje. Pri ocenah, kjer se nista strinjala, sta ponovno izvedla ocenjevanje in predstavila vsak svoje argumente, dokler nista prišla do skupne enake ocene.

Tabela 2: Ocenjevalni listi za posamezne spremenljivke

melodični posluh *ritmični posluh* *pevska tehnika* *igranje na otroška glasbila* *ritmična ustvarjalnost* *melodična ustvarjalnost*	♪ zelo razvit posluh/pevska tehnika/spretnost igranja na instrument/ritmična ustvarjalnost/melodična ustvarjalnost –5 točk; ♪ razvit –4 točke; ♪ manj razvit - 3 točke; ♪ nerazvit – 2 točka; ♪ ni odziva – 1 točka.
melodična reprodukcija *ritmična reprodukcija* *analitični posluh* *melodična avdiacija* *ritmična avdiacija* *orientacija v grafičnem zapisu zvočnih trajanj* *orientacija v grafičnem zapisu zvočnih višin*	♪ 4 pravilni odgovori – 5 točk; ♪ 3 pravilni odgovori – 4 točke; ♪ 2 pravilna odgovora – 3 točke; ♪ 1 pravilni odgovor – 2 točki; ♪ 0 pravilnih odgovorov – 1 točka.

Merjenje razvitosti *melodičnega posluha* (MELPOS) je obsegalo petje pesmi Čukova ženitev. Vrednotili smo razmerja tonskih višin. Učenec, ki je pri petju ljudske pesmi zapel vse tonske višine intonančno čisto in čigar melodija je bila tonalno stabilna, smo vrednotili s petimi točkami. Štiri točke je dobil učenec, ki je imel pri izvajanju ljudske pesmi intonacijo manj zanesljivo in je nekatere stopnje lestvice intonančno manj natančno zapel. Učenec, ki je imel melodično linijo tonalno nestabilno, njegova intonacija pa je bila pri večini intervalov nezanesljiva, je dobil tri točke. Kot nerazvit melodični posluh pa smo ocenili komaj prepoznavno melodično linijo in nezmožnost reprodukcije melodije v določeni tonaliteti in ponovitve zapetega in zaigranega melodičnega motiva. Tudi *ritmični posluh* (RITMPOS) smo merili na podlagi petja pesmi Čukova ženitev. Vrednotili smo razmerja tonskih trajanj, upoštevanje poudarjenih in nepoudarjenih dob, upoštevanje tempa in metruma. S pomočjo že omenjene pesmi smo ovrednotili razvitost *pevske tehnike* (PEVTEH), pri čemer smo opazovali sproščenost telesnih in obraznih mišic, razvitost pevskega dihanja ter intenzivnost in razločnost izreke. Spretnost *igranja na otroška glasbila*

(IGRANJE) smo merili tako, da so otroci spremljali pesem Čukova ženitev (metalofon, ksilofon, palčke, lastni instrumenti). Spretnost smo vrednotili glede na držo instrumenta in sproščenost gibov pri igranju na instrument, glede na skladnost izvajanja dob in prve podelitve. Na enak način kot pri vrednotenju spretnosti igranja na otroška glasbila, smo merili *ritmično ustvarjalnost* (RITMUST). Tu so si otroci sami izmislili spremljavo. Opazovali smo, ali je spremljava oblikovana spontano in izvirno, ali je spremljava vsebinsko in ritmično skladna z vsebino pesmi. Razvitost *melodične ustvarjalnosti* (MELUST) so otroci pokazali z izmišljanjem melodije na besedilo uganke Anje Štefan (2007): »Vsaka jasna noč natrosi, tisoč drobcenih luči, se iskrijo in bleščijo, dokler spet se ne zdani.« Za vsako posamezno kategorijo smo imeli izdelane točno določene kriterije. Učenca, ki je zapel vse intervale zelo čisto, čigar melodija je bila tonalno stabilna in ki je ki je melodijo zapel z različnimi tonskimi višinami (pet sli šest različnih tonskih višin) ter bil pri izvajanju natančen, smo ocenili s petimi točkami. Štiri točke je dobil učenec, ki je v svoji melodiji uporabil tri ali štiri različne tonske višine, ki je imel pri izvajalsko zahtevnejših intervalih intonacijo manj zanesljivo in je nekatere stopnje lestvice intonančno manj natančno zapel. Učenec, ki je v svoji melodiji uporabil tri različne tonske višine, ki je imel melodično linijo tonalno nestabilno, njegova intonacija pa je bila pri večini intervalov nezanesljiva, je dobil tri točke. Kot nerazvit posluh pa smo ocenili komaj prepoznavno melodično linijo z enim ali dvema tonskima višinama, ki je bila izvajana s pomočjo učitelja, nezmožnost reprodukcije melodije v določeni tonaliteti in ponovitve zapetega in zaigranega melodičnega motiva. *Ritmično/melodično reprodukcijo* (RITMREP/MELREP) smo ocenjevali s ponavljanjem štirih ritmičnih/melodičnih motivov, katerih težavnost se je stopnjevala. Razvitost smo ovrednotili s številom točk in sicer za vsako pravilno ponovitev je učenec dobil 1 točko. Pri spremenljivkah od 9 – 13, kjer je testiranje potekalo skupinsko, pa smo otroke ocenjevali glede na število pravilnih odgovorov. Pri preverjanju *analitičnega poslušanja* (ANALPOS) so otroci poslušali štiri glasbene primere. Ugotoviti so morali, kolikokrat se ponovi nek motiv, kdo je izvajalec, katere instrumente slišijo. Za preverjanje *ritmične/melodične avdiacije* (sposobnost razlikovanja dveh različnih ritmičnih vzorcev/melodičnih motivov) (RITMAVD/MELOAVD) so otroci poslušali po dva in dva ritmična vzorca/melodična motiva, ju primerjali in grafično ponazorili. Ugotoviti so morali, ali sta bila vzorca/motiva enaka ali ne. Rešiti so morali štiri primere. Pri preverjanju *orientacije v grafičnem zapisu zvočnih trajanj/višin* (GRAFTRA/GRAFVI) so otroci poslušali štiri ritmične vzorce/melodične motive in ob tem spremljali grafični zapis zvočnih trajanj (s črtami so bili označeni dolgi toni, s pikicami pa kratki) oziroma višin (melodični motiv, ponazorjen s krogci v različnih višinah). Označili so, ali je grafični zapis res enak vzorcu/motivu, ki so ga slišali. Rešiti so morali štiri naloge. Za štiri pravilne odgovore so dobili pet točk, za nobenega pa eno točko.

Postopek obdelave podatkov

Pridobljene podatke smo obdelali z računalniškim programom SPSS. Izvedli smo klasično univariatno statistiko. Za preverjanje hipotez smo uporabili t-test. Izvedba t-testa se glede na predpostavko enakosti varianc razlikuje, zato smo predhodno izračunali Levenov test enakosti varianc. Če je bila stopnja značilnosti pri Levenovem testu $p \geq 0,05$, ničelne hipoteze (variance so enake) nismo mogli zavrniti. Pri samem t-testu smo kot statistično značilne upoštevali razlike, kjer je bila stopnja značilnosti $p \leq$ od 0,05.

Rezultati in razprava

Rezultati

Med skupinama po prvem testiranju ni bilo statističnih razlik. Primerjava med učenci kontrolne in eksperimentalne skupine je pokazala pri drugem glasbenem preizkusu naslednje rezultate.

Iz Tabele 3 lahko razberemo, kakšne so bile povprečne vrednosti pri testiranju otrok obeh skupin po štirimesečnem izvajanju glasbenih didaktičnih iger pri pouku slovenščine, matematike, spoznavanja okolja, športa in glasbene umetnosti, kot motivacija pred pričetkom učne ure ali na koncu učne ure kot utrjevanje učne snovi, ki so jo pri pouku omenjenih šolskih predmetov usvojili. Pri osnovni opisni statistiki smo ugotovili, da so se pri obeh skupinah pokazale kot najbolj razvite sposobnosti, sposobnosti analitičnega posluha (M_k = 3,97, M_e = 4,27), ritmične avdiacije – sposobnost razlikovanja dveh ritmičnih vzorcev (M_k = 3,26, M_e = 4,11), in ritmičnega posluha (M_k = 3,21, M_e = 4,57), kar kažejo visoke ocene srednje vrednosti. Najslabše razvita glasbena sposobnost pa se je pokazala sposobnost melodične reprodukcije (M_k = 2,56, M_e = 4,00). Kot je razvidno iz zgornje preglednice, so bili rezultati eksperimentalne skupine pri vseh spremenljivkah boljši kot pri otrocih kontrolne skupine. Otroci eksperimentalne skupine so se najbolje izkazali pri preverjanju ritmičnega posluha (M = 4,57), ritmične avdiacije – sposobnost razlikovanja dveh ritmičnih vzorcev (M = 4,49) ter v orientaciji v grafičnem zapisu (M = 4,38) zvočnih trajanj. Kot najslabši razviti glasbeni sposobnosti pri otrocih eksperimentalne skupine pa sta se pokazali sposobnost melodične reprodukcije in ritmičnega ustvarjanja (M = 4,00). Otroci eksperimentalne skupine so imeli torej največ težav pri natančni ponovitvi melodičnega motiva in ustvarjanju različnih ritmičnih vzorcev kot spremljava petja ljudske pesmi Čukova ženitev Otroci kontrolne skupine pa so najboljše povprečne

ocene dosegli pri preverjanju analitičnega posluha (M = 3,97), najslabše pa so se izkazali pri preverjanju melodične reprodukcije (M = 2,56).

Tabela 3: Statistike skupin po drugem testiranju.

	Skupina	N	aritmetična sredina	standardni odklon	Standardna napaka aritmetične sredine	Mediana	Modus	Asimetrija	Min.	Max.
MELPOS	KS	34	3,24	,78	,13	3,00	3	,362	2	5
	ES	37	4,30	,57	9,38E-02	4,00	4	-,069	3	5
RITMPOS	KS	34	3,21	,84	,14	3,00	3	,542	2	5
	ES	37	4,57	,60	9,91E-02	5,00	5	-1,078	3	5
PEVTEH	KS	34	3,03	1,03	,18	3,00	3	,824	2	5
	ES	37	4,32	,63	,10	4,00	4	-,358	3	5
IGRANJE	KS	34	2,88	1,04	,18	3,00	3	,421	1	5
	ES	37	4,05	,78	,13	4,00	4	-,096	3	5
RITMUST	KS	34	2,85	1,16	,20	3,00	2	,303	1	5
	ES	37	4,00	,71	,12	4,00	4	,000	3	5
RITMREP	KS	34	2,71	1,29	,22	2,50	2	,500	1	5
	ES	37	4,27	,80	,13	4,00	5	-,881	2	5
MELREP	KS	34	2,56	1,21	,21	2,50	2	,289	1	5
	ES	37	4,00	,71	,12	4,00	4	-,498	2	5
MELUST	KS	34	2,62	1,35	,23	2,50	2	,443	1	5
	ES	37	4,11	,66	,11	4,00	4	-,113	3	5
ANALPOS	KS	34	3,97	,83	,14	2,00	4	-,276	2	5
	ES	37	4,27	1,02	,17	5,00	5	-1,085	2	5
RITMAVD	KS	34	3,26	,79	,14	4,00	3	-,522	1	5
	ES	37	4,49	,69	,11	5,00	5	-1,544	2	5
MELAVD	KS	34	3,29	,87	,15	3,00	4	-,047	2	5
	ES	37	4,11	,88	,14	4,00	5	-,481	2	5
GRAFTRA	KS	34	3,35	1,01	,17	3,00	3	,148	2	5
	ES	37	4,38	,64	,11	4,00	4	-,528	3	5
GRAFVI	KS	34	3,29	1,03	,18	3,00	4	-,465	1	5
	ES	37	4,27	,73	,12	4,00	5	-,477	3	5

V Tabeli 4 so rezultati preizkusa skupin, s katerimi želimo preveriti enakost oziroma neenakost aritmetičnih sredin v podvzorcih (učenci kontrolne in eksperimentalne skupine). Pri vseh spremenljivkah, razen pri spremenljivki analitičnega posluha, so razlike v povprečjih med podvzorcema statistično značilne pri zanemarljivi stopnji tveganja (≤ 0,000).

Tabela 4: Neodvisni vzorci.

		t	P
MELPOS	Predpostavka enakih varianc	-6,580	,000
	Predpostavka neenakih varianc	-6,495	,000
RITMPOS	Predpostavka enakih varianc	-7,866	,000
	Predpostavka neenakih varianc	-7,757	,000
PEVTEH	Predpostavka enakih varianc	-6,463	,000
	Predpostavka neenakih varianc	-6,337	,000
IGRANJE	Predpostavka enakih varianc	-5,406	,000
	Predpostavka neenakih varianc	-5,342	,000
RITMUST	Predpostavka enakih varianc	-5,083	,000
	Predpostavka neenakih varianc	-4,984	,000
RITMREP	Predpostavka enakih varianc	-6,179	,000
	Predpostavka neenakih varianc	-6,064	,000
MELREP	Predpostavka enakih varianc	-6,185	,000
	Predpostavka neenakih varianc	-6,056	,000
MELUST	Predpostavka enakih varianc	-5,994	,000
	Predpostavka neenakih varianc	-5,838	,000
ANALPOS	Predpostavka enakih varianc	-1,350	,182
	Predpostavka neenakih varianc	-1,361	,178
RITMAVD	Predpostavka enakih varianc	-6,943	,000
	Predpostavka neenakih varianc	-6,904	,000
MELAVD	Predpostavka enakih varianc	-3,923	,000
	Predpostavka neenakih varianc	-3,924	,000
GRAFTRA	Predpostavka enakih varianc	-5,150	,000
	Predpostavka neenakih varianc	-5,056	,000
GRAFVI	Predpostavka enakih varianc	-5,130	,000
	Predpostavka neenakih varianc	-5,056	,000

To pomeni, da so v povprečju učenci eksperimentalne skupine, kjer so učitelji tudi pri pouku neglasbenih šolskih predmetih izvajali različne glasbene didaktične igre, kot motivacijo pred pričetkom učnih ur ali na koncu učnih ur kot utrjevanje učne snovi, ki so jo pri pouku usvojili, pri glasbenih preizkusih dosegli povprečno boljše rezultate kot učenci kontrolne skupine. Pri spremenljivki analitičnega poslušanja pa nismo ugotovili statistično pomembnih razlik ($p \leq 0{,}182$, $p \leq 0{,}178$), zato ne moremo trditi, da se kontrolna in eksperimentalna skupina razlikujeta pri preverjanju analitičnega posluha.

Razprava

Učenje preko iger velja za uveljavljen pristop na področju izobraževanja. Učence vključi celostno, jih popolnoma prevzame in prinaša učenje skozi nove izkušnje. V literaturi najdemo sicer veliko vsebine na temo učenja preko resnih računalniških iger (Anikina in Yakimenko 2015; Hainey et al., 2016), obstaja pa tudi veliko raziskav na temo učenja preko tradicionalnih iger v razredu (Klassen in Willoughby, 2003; Huyen in Nga, 2003). Slednje sicer ne temeljijo na tehnoloških rešitvah, je pa namen

teh iger isti kot pri računalniških igrah in ravno tako pričakovani rezultati – lažje, hitrejše in trajnejše dojemanje obravnavanih učnih vsebin. Pri naši raziskavi smo uporabili glasbene didaktične igre, ki učencem dajejo možnost soustvarjanja dejavnosti, razvijanja sposobnosti izvajanja, poslušanja ter ustvarjanja (Tornič Milharčič in Beuermann, 2005). Glasbene didaktične igre lahko potekajo kot frontalna oblika dela, s celim razredom in ne posamično za računalniškim zaslonom. Take igre so primerne tako za homogene kot tudi nehomogene skupine otrok, saj njihova uporaba izboljšuje zmožnosti udeležencev z manj predznanja ter tistimi z zmanjšanimi sposobnostmi, omogoča jim torej izkustveno učenje, ki predstavlja močan in preizkušen pristop k poučevanju in učenju, saj se ljudje najbolje učijo preko lastnih izkušenj (Kolb, 2014). Pridobljeno znanje prek didaktičnih iger je tudi dolgoročno, saj udeleženci temo začutijo in doživijo (Bognar, 1987; Mrak Merhar et al., 2013; Kolb, 2014).

Naša raziskava potrjuje navedene trditve. Osnovni namen raziskave je bil ugotoviti, kako redno izvajanje glasbenih didaktičnih iger tudi pri pouku ne glasbenih šolskih predmetov, poleg glasbene umetnosti, tudi pri slovenskem jeziku, matematiki, spoznavanju okolja, športu in likovni umetnosti, vpliva na uspešnost učencev pri glasbeni umetnosti oziroma na dvig rezultatov in učinkov glasbenih sposobnosti, kot so glasbeno izvajanje, poslušanje in ustvarjanje. Rezultati raziskave so pokazali, da lahko ničelne hipoteze o enakih aritmetičnih sredinah zavržemo oziroma sprejmemo alternativne hipoteze, s katerimi smo predvidevali, da bodo učenci eksperimentalne skupine v primerjavi z učenci kontrolne skupine po obdobju štirih mesecev dosegli boljše rezultate glede:

- razvitosti melodičnega in ritmičnega posluha,
- spretnosti igranja na instrumente in ritmične ustvarjalnosti,
- ritmične in melodične reprodukcije ter
- branja grafičnih zapisov zvočnih trajanj in zvočnih višin.

V svetu se je za tak način poučevanja, torej z didaktično igro, uveljavil tudi izraz *edutainment*, ki temelji na pojmih *izobraževanje* in *zabava* (Anikina in Yakimenko, 2015), za katerega je značilno, da sodobne oblike zabave vključujemo v šolski pouk, ki pa se lahko dogaja tudi izven učilnic, v bolj sproščenem vzdušju. Tudi John Dewey (1897, v Anikina in Yakimenko, 2015), ameriški filozof, psiholog in pedagog je verjel, da izobraževanje ne sme biti dolgočasen in neprijeten proces. Poudaril je, da ima pridobivanje znanja na zabaven način, velik pomen pri pridobivanju spretnosti za reševanje problemov in za razvoj ustvarjalnosti. Povzetek sodobne literature (Hainey et al., 2016) potrjuje, da je tako učenje najučinkovitejše predvsem v fazi pridobivanja znanja in razumevanja vsebine. Motivacija in učenje sta tesno povezani vrednoti, ki

se med seboj spodbujata (Denis in Jouvelot, 2005). Splošni cilj didaktičnih iger je približati učencem motivacijo za učenje, pri čemer didaktične igre prevzamejo vlogo učitelja, kot posrednika znanj (Denis in Jouvelot, 2005) in so zasnovane za namene, ki presegajo zgolj zabavo (Baratè et al., 2013). V naši raziskavi smo glasbene didaktične igre izvajali kot motivacijo pred pričetkom učne ure ali na koncu učne ure kot utrjevanje učne snovi, ki so jo učenci pri pouku usvojili. V obeh primerih so se igre izkazale za izredno učinkovite pri zgoraj omenjenih pridobljenih glasbenih veščinah. Številni strokovnjaki (Denac, 2002; Kopačin, 2014; Miendlarzewska in Trost, 2014; Schuckert in McDonald, 1968; Slosar, 2002;) se strinjajo, da je za petje, igranje na instrumente in s tem povezano melodično in ritmično ustvarjalnost nujen dobro razvit glasbeni posluh (melodični in ritmični posluh). Glasbeni posluh pri otrocih v osnovni šoli je bil v naši raziskavi dokaj enovit, saj na začetku eksperimenta pri rezultatih prvega testiranja med skupinama ni bilo opaznih razlik. Razlike v razvitosti glasbenega posluha med eksperimentalno in kontrolno skupino, ki so se pokazale ob drugem testiranju, so posledica tudi vključevanja glasbenih didaktičnih iger k pouku tudi ne glasbenih šolskih predmetov. Raziskovalci (Ilari et al., 2016), ki so ravno tako raziskovali napredek glasbenih sposobnosti dveh skupin otrok, od katerih se je eksperimentalna skupina eno leto dodatno glasbeno izobraževala, so prišli do podobnih ugotovitev. Otroci, vključeni v raziskavo, so v veliko večji meri razvili glasbene sposobnosti, kot tisti otroci, ki se v tem letu niso dodatno glasbeno izobraževali. Raziskovalci so prišli do zaključka, da na glasbeni razvoj vpliva veliko različnih dejavnikov med katere uvrščamo tudi glasbeno učenje. Z izvajanjem glasbenih didaktičnih iger so otroci poglabljali znanja neglasbenih šolskih predmetov in hkrati razvijali različne glasbene sposobnosti in spretnosti. Podobne rezultate pri napredku raznih glasbenih sposobnosti, spretnosti in znanj med kontrolno in eksperimentalno skupino potrjujejo tudi druge študije tako otrok iz socialno šibkejših okolij, kot otrok, ki so vključeni v razne oblike formalnega glasbenega izobraževanja (Drake et al., 2000; Slater et al., 2013; Slater et al., 2015). Zgoraj smo omenili, da so posledica razlik med skupinama v naši raziskavi tudi izvajanje glasbenih didaktičnih iger. Kar pomeni, da so lahko na razvoj glasbenih sposobnosti in spretnosti, vplivali tudi drugi dejavniki, kar v naši raziskavi nismo ugotavljali. Welch (1998) omenja, da je je razvoj glasbenega posluha v otroštvu povezan tudi s socialno-kulturnimi vplivi in priložnostmi, ki jih okolje otroka posreduje. V vsakem trenutku glasbeno vedenje otroka odraža povezavo otrokovega okolja z glasbenim vedenjem in ustvarja opazne razlike med posamezniki. Glasbenega vedenja ne bi smeli razumeti kot dokončnega, ampak odprtega za spremembe, predvsem tiste, ki so v domeni pouka glasbene umetnosti. Čeprav je lahko razvoj glasbenega posluha pri posameznikih hitrejši ali počasnejši, obstaja dovolj dokazov, da lahko z ustrezno podporo in ustreznim delom vsi otroci dosežejo sprejemljivo stopnjo razvitosti glasbenega posluha. Enako mnenje o razvoju glasbenega posluha dodajata Lehmann

in Kristensen (2014), ki sta s pregledom biografij znanih in uspešnih glasbenikov prišla do zaključka, da je razvoj glasbenega posluha odvisen predvsem od družbenega okolja, v katerem otroci odraščajo, in stalnim spremljanjem otrokovega napredka in motivacije. V našo raziskavo smo vključili otroke celega razreda ne meneč se za njihovo domače socialno okolje in dodatno izpostavljenost glasbi. Kljub temu smo zaznali statistično pomembne razlike pri napredku posameznih glasbenih sposobnosti in spretnosti celotne eksperimentalne skupine. To potrjuje, da vsakršna izpostavljenost glasbenemu okolju, ne glede na socialni status in razmere, pozitivno vpliva na glasbeni razvoj otrok. Raziskava je pokazala, da lahko določene spretnosti razvijamo neodvisno od razvoja glasbenega posluha (podobno so potrdile številne druge študije, kot (Ilari et al., 2016; Fancourt et al., 2013; Orsmond in Miller, 1999; Roden et al., 2014; Schellenberg in Moreno, 2010; Forgeard et al., 2008), kot na primer analitično poslušanje. Sem štejemo predvsem zaznavanje različnih glasbenih motivov, barve tonov, zaznavanje dolžine in višine zvoka … Izraz "poslušanje", po mnenju Goodmana (2010), zajema široko paleto načinov, lastnosti ali vrst slušne pozornosti. Vrste poslušanja in izrazi za poslušanje (upoštevanje stališč sogovorca, prisluškovanje, zaslišanje …) so se razvili z razvojem tehnologije (gramofon, telefon, radio …) Pomembno je, da svojo pozornost zavestno usmerimo v govorca ali poslušano delo. Z analitičnim poslušanjem glasbe se usposabljamo za utemeljevanje slišanega in občutkov, razpoloženja ob slišanem delu. Dobljena spoznavanja nam lahko še posebej pomagajo pri poučevanju glasbene umetnosti, saj lahko s pomočjo rezultatov sklepamo, da je mogoče tudi učence s slabimi predispozicijami za razvoj glasbenega posluha kvalitetno vključiti k pouku glasbene umetnosti tako, da jim prilagodimo določene vsebine. Predstavljeno raziskovalno delo posega tudi na področje medpredmetnega povezovanja, saj smo medpredmetno povezovali glasbeno umetnost in ostale ne glasbene predmete. Prepletanje klasičnih učnih vsebin se je pokazalo kot uspešno tako pri osnovnošolskem, kot pri srednješolskem izobraževanju (Huber et al., 2005; Stohlmann et al., 2012). Na primer prepletanje bralnega razumevanja in spretnosti pisanja s poučevanjem naravoslovnih vsebin se je v raziskavi (Parsons in Taylor, 2011) pokazalo, kot zelo uspešno, saj so učenci pokazali večji napredek na obeh področjih v primerjavi s tistimi, ki so obravnavali omenjene vsebine ločeno. Kot omenjeno, smo v naši raziskavi povezovali glasbene dejavnosti tudi z vsebinami ne glasbenih šolskih predmetov. Omejitev naše študije se pokaže pri preverjanju uspešnosti dojemanj in razumevanja vsebin omenjenih šolskih predmetov, saj tega nismo preverjali. Na podlagi naši rezultatov lahko zaključimo le, da je bilo povezovanje zelo uspešno na področju razvijanja glasbenega posluha. Kljub temu so številne študije pokazale, da učenje glasbe pozitivno vpliva na verbalni spomin (npr. kot podpora pri učenju tujih jezikov) in dolgoročni spomin (npr. pri utrjevanju pomnjenja besedil), ki je zelo pomemben pri vseh drugih šolskih predmetih (Welch

et al., 2011; Chan et al., 1998; Forgeard et al., 2008; Pfordresher et al., 2015). Preverjanje znanja pri ne glasbenih predmetih nameravamo izvesti v prihodnjih raziskavah. V naši raziskavi smo uporabili krajši longitudinalni pristop, kjer smo raziskavo izvajali skozi štiri mesečno obdobje. Potreba po longitudinalnih študijah učenja skozi igro se večkrat omenja v literaturi (Hainey et al., 2016), saj so le-te uporabne za pregledovanje sprememb skozi čas, po možnosti tudi desetletja. V zadnjem času se število longitudinalnih študij povečuje tudi na področju raziskav glasbenega razvoja otrok (Günther, 1998; Ilari et at., 2016; Roden et al., 2014; Rutkowski in Snell Miller, 2002; Slater et al., 2015), naše delo tako prispeva v zakladnico znanja o glasbenem razvoju otrok tudi iz tega vidika.

Sklep

Ena izmed ključnih dejavnosti pri pouku glasbene umetnosti je glasbena didaktična igra, ki mora biti vedno skrbno načrtovana ter ciljno naravnana. Otroci preko glasbene didaktične igre izrazijo določene lastnosti glasbe, uresničujejo naloge ter cilje glasbene umetnosti. V raziskavi, ki smo jo izvedli v obliki eksperimenta, nas je zanimal zlasti premik v doseganju glasbeno-razvojnih sposobnosti in spretnosti učencev pri izvajanju dejavnosti na osnovi didaktične igre. Določene spretnosti lahko razvijamo neodvisno od razvoja glasbenega posluha, kot na primer analitično poslušanje, kamor štejemo zaznavanje različnih glasbenih motivov, barve tonov, zaznavanje dolžine in višine zvoka. Na osnovi izsledkov izvedene raziskave lahko zaključimo, da je z glasbenimi didaktičnimi igrami mogoče tudi učence s slabimi predispozicijami za razvoj glasbenega posluha kvalitetno vključiti k pouku glasbene umetnosti tako, da jim prilagodimo določene vsebine. Rezultati so pokazali, da imajo otroci eksperimentalne skupine po štirimesečnem izvajanju glasbenih didaktičnih iger med poukom slovenščine, matematike, spoznavanja okolja, športa in glasbene umetnosti, najbolj razvite sposobnosti ritmičnega posluha (M_e = 4,57), ritmične avdiacije – sposobnost razlikovanja dveh različnih ritmičnih vzorcev (M_e = 4,49) ter orientacije v grafičnem zapisu zvočnih trajanj (M_e = 4,38), kar kažejo visoke ocene srednje vrednosti. Kot najslabše razvita glasbena sposobnost pa se je pokazala sposobnost melodične reprodukcije (M_e = 4,00). Raziskava je pokazala, da lahko s sistematičnimi in podrobno načrtovanimi dejavnostmi učinkovito razvijamo melodični in ritmični posluh ter analitično poslušanje pri učencih na tej stopnji razvoja. Razvitejši melodični in ritmični posluh prispevata tako k izboljšanju pevske tehnike kot k melodični in ritmični ustvarjalnosti. Prav tako aktivno in analitično poslušanje prispevata k boljšemu zvočnemu zaznavanju višine in trajanja zvoka, oboje pa vodi k boljši grafični orientaciji v zapisu. Izsledki te raziskave lahko pripomorejo k učinkovitejšemu razvijanju posameznih glasbenih sposobnosti in spretnosti v pedagoški praksi. Ker ocenjevanje doseženega znanja pri neglasbenih

šolskih predmetih (slovenski jezik, matematika, šport, likovna umetnost), kjer smo skozi štiri mesečno obdobje izvajali glasbene didaktične igre, ni bilo cilj naše raziskave, predlagamo, da prihodnje študije, namenijo večjo pozornost tudi tej problematiki. Slednje sodi v naš nabor bodočega raziskovanja na področju prepletanja glasbenih vsebin z drugimi učnimi vsebinami. Pomanjkljivost naše raziskave vidimo tudi v tem, da bi glasbene didaktične igre lahko izvajali dalj časa kot smo. Naše nadaljnje raziskovanje bomo razširili na daljše časovno obdobje z vmesnimi preverjanji, s čimer bomo dobili boljši vpogled v razvijanje posameznih glasbenih sposobnosti.

Summary

Children's researching skills are being developed through play since their birth, which is often spontaneous but at the same time a complex activity through which children learn new things and develop their abilities and skills. The play is a part of children's everyday life, because it presents something self-explanatory, necessary and interesting (Tomšič Čerkez and Župančič, 2011; Klassen in Willoughby, 2003; Huyen in Nga, 2003). By connecting games and music, we get didactic musical games that can be used during music lessons. According to Voglar (1989), this is a special kind of didactic games that help develop the child's abilities that are important for perception, experiencing, recreating and creating music. Didactic musical games are an important part of the educational process, as they support the teacher to motivate children through the game, establish a contact with them, and encourages them to engage with the content. Last but not least, the games develop certain skills and abilities in pupils (Denis in Jouvelot, 2005; Baratè et al., 2013). The purpose of this research was to use various didactic musical games during the lessons of all school subjects and to examine the children's responses, taking into account the principle of developmental suitability and the children's experience. We hypothesised that pupils in the experimental group who had performed specifically designed and systematically implemented various didactic musical games during the different lessons, actually had better developed musical skills/abbilities than the pupils in the control group, regarding:

- the development of melodic and rhythmic skills,
- rhythmic and melodious reproductions,
- reading the graphic notation of sound durations and sound pitches,
- analytical listening skills and
- the skill of playing on instruments and rhythmic creativity.

The pupils' music and development achievements were determined by testing. All the tests for checking the development of melodic and rhythmic skills, the skills of playing on instruments and rhythmic creativity, rhythmic and melodic reproduction, reading graphic notation of sound durations and sound pitch, and analytical listening skills had precisely designed evaluation scales, according to which the teachers helped us to assess the achievements of year one pupils. The sample included 71 children (37 children in the experimental group) who attended year one of elementary school in the 2011-12 school year. Testing was performed individually where we recorded each child, and in the group where the children worked on a test paper after group listening. There were no statistical differences between the groups after the first test. 37 children of the experimental group performed various didactic musical games during the lessons of Slovene language, mathematics, environment science, sport and music as a motivation before the beginning of the lesson or at the end of the lesson as the review. After four months of planned and systematic realization of various, carefully selected didactic musical games during the lessons of the aforementioned subjects, we tested the children again. The basic descriptive statistics confirmed that after four months of performing didactic musical games during the lessons of Slovene language, mathematics, environment science, sport and music, the children in the experimental group showed the most developed abilities of rhythmic skills, rhythmic audio presentation and orientation in the graphic notation of sound durations and sound pitches, which is shown in high mean score. However, the ability of melodic reproduction turned out to be the least-developed music ability (Table 2). Afterwards, we compared the groups' achievements and developmental abilities of children in line with individual variables. We confirmed four out of five hypotheses that pupils in the experimental group who had performed various didactic musical games for four months before the beginning of lessons as motivation or at the end of the lessons as a review of what they had learned, achieved better results than the pupils in the control group, regarding:

- the development of melodic and rhythmic skills,
- the skill of playing on instruments and of rhythmic creativity,
- rhythmic and melodious reproductions and
- reading the graphic notation of sound durations and sound pitches.

Music is very important component of human life. Therefore, it must also have a proper place in the educational process, since in the period of children’s intensive development, they satisfy their needs for experiencing and expressing their feelings and other experiences through music.

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Avtorica

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NAVODILA AVTORJEM

Osnovni namen revije je povezati širok spekter teoretičnih izhodišč in praktičnih rešitev v izobraževanju ter tako spodbujati različne metodološke in vsebinske razprave. Uredniški odbor združuje strokovnjake in raziskovalce iz več evropskih držav in s tem želi ustvariti možnosti za živahen dialog med raznovrstnimi disciplinami in različnimi evropskimi praksami, povezanimi z izobraževanjem.

Revija za elementarno izobraževanje torej objavlja prispevke, ki obravnavajo pomembna, sodobna vprašanja na področju vzgoje in izobraževanja, uporabljajo primerno znanstveno metodologijo ter so slogovno in jezikovno ustrezni. Odražati morajo pomemben prispevek k znanosti oziroma spodbudo za raziskovanje na področju vzgoje in izobraževanja z vidika drugih povezanih ved, kot so kognitivna psihologija, razvoj otroka, uporabno jezikoslovje in druge discipline. Revija sprejema še neobjavljene članke, ki niso bili istočasno poslani v objavo drugim revijam. Prispevki so lahko v slovenskem, angleškem ali nemškem jeziku.

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Planinšec, J. (2002). Športna vzgoja in medpredmetne povezave v osnovni šoli. *Šport*, *50* (1), 11–15.

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Fošnarič, S. (2002). Obremenitve šolskega delovnega okolja in otrokova uspešnost. V M. Juričič (ur.), *Šolska higiena: zbornik prispevkov* (str. 27–34). Ljubljana: Sekcija za šolsko in visokošolsko medicino SZD.

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