

Some Contemporary Interactive Aspects of Music Teaching in the Learning Process

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Abstract

This study investigated music teaching within the framework of contemporary education trends, integrated within the educational process. Music teaching is more and more often in interaction with various aspects of pupils' lives. It actively contributes to the psychological, emotional, motor and cognitive development of each pupil. The aim of this work is to point out that primary education pupils' active engagement in music may have an impact on their success in memorizing non-musical content. This emphasizes the importance of active engagement in music and its inclusion in other educational courses. The research was conducted by the method of experiment with one group, where the independent variable was the exposure of pupils to two weeks of everyday musical activities, and the dependent variable was the success in memorizing pairs in the Memory game. After examining the results, it was shown that the difference between the initial and final testing of the memorization capability of pairs in the Memory game, in the duration of 1 minute, was 107 pairs more in the final testing. The results confirm the assumption that continuous engagement in music has a positive impact on the cognitive aspect of personality (memory).

Key words: active music playing; contemporary curriculum; memory; music teaching.

Introduction

Origins for the Implementation of Music Teaching within the Concept of Contemporary Teaching

One's intellectual and social activity and life are determined by the historical and social events and various cultural and ideological phenomena. Those phenomena have

an important impact on the wholeness and quality of the integration of each individual within the social environment, where the educational system has a great importance. The National Education System is based on the European educational model and is determined by actual social and globalization development trends and changes, as well as pluralism of the approach in teaching the pupils, with the determination and description of the educational outcome of the class. Due to the need of joining different educational systems into a unique one in the European space, there is a need for continuous revision and actualization of the new standards of the particular national educational practices so that they would be in accordance with the value system and practices in the European space.

European education policies are changing, and the main aspects of those changes are the following: changes happen under the influence of the economic factors which are the outer side of the education; changes rarely come from motivation and innovation within the educational process; economic approaches are prevalent in the determination of the aims and in the concept; centralized educational policies are abandoned; innovations do not pander to the interest of an individual pupil, but more to school as an organization; educational innovations are getting international attributes and are included into the exchange of ideas, and therefore the comparative educational policy becomes more important (according to Wielemans, In: Žiljak, 2004, p. 230).

Resolution of the European Union Council on Lifelong Learning (2002) determines education as an activity which has to achieve higher quality and become more efficient, needs to gain openness and attractiveness and fully open to the influence of other parts of the society on all levels, local, national and international, while knowledge transfer should be more efficient and more complete. Development of the educational policies of the European space should make European economy the most competent and the most dynamic world economy based on knowledge. Such a strategy may lead to the multiplication of jobs and social cohesion as the final aim of the economic, educational and cultural unification of the European Union members. By monitoring the realization of those aims and additional stimuli, there are attempts to achieve this process in a fast and more efficient manner.

Some Curriculum Guidelines of the Educational Process

Since the inevitable current educational policy changes are increasingly becoming more evident, curriculum as an algorithm provides logistic support to education as a technological process. Accompanying fast and unpredictable social, economic and political changes, there is also the transformation of a traditional into a contemporary curriculum. Lately a trend has been noticed of the unconscious inclination towards contemporary European educational trends, which are commonly insufficiently determined. What has also been noticed is the abandonment of the traditional educational paradigm, which in many cases proved successful. The indicators are insufficient results in terms of primary school pupils' performance, as shown in the PISA project (OECD, 2011). The question is raised whether the trend of hyper

evaluation of all contemporary, unconfirmed and insufficiently examined, applicable and adjusted educational factors will lead us to the wanted market results.

The contemporary curriculum is determined by different approaches and increased humanization of education, such as the individualized teaching approach. During its transformation (Cindrić, 2010) the following mutual categories have crystallized: learning objectives, learning tasks, learning contents, conditions, learning organization and technology, and evaluation of pupil's achievements, while Herrick and Tyler (Bežen, 2008) determine the following elements of the curriculum system: learning objectives, learning activities, learning methods, organization of learning and evaluation. In spite of all the positive changes and results of the educational practice, it has become clear that the 'hidden' curriculum, which happens daily in classrooms and is completely unpredictable, is the most important. Due to the above, there arises a need for the individualized approach to both teacher and pupil, thus also for a stronger interaction of all educational process subsystems.

Teaching Music – Developmental Paradigm of Pupils' Mental and Physical Development

Art education was formed through various modifications of the curriculum, programme and methodology, which in primary education means education through music, dance, art and drama. Thus, for example, in the Hungarian music curriculum, great attention is given to music education as a contribution to the development of pupils' sensibility, intelligence and character. At the same time, love for music is intentionally developed through experiential engagement, such as singing, playing, interpretation and music improvisation within the framework of pupils' possibilities. Furthermore, aesthetic criteria of music evaluation are encouraged by listening to selected compositions from literature and acquiring basic music components. The work on the pupils' music ear development is considered very important, and the said work is conducted through all stated elements as well as through traditional music of Hungary and other countries.

In Austria, music education starts from an early school age when interest, inclination and assertiveness are developed during musical activities such as: singing, music listening, playing, dancing and creative music expression. The development of the musical taste and music ear is achieved by constant acoustic and music surrounding as well as paying great attention to the individual personality of each pupil.

Musical curriculum of Ireland consists of three areas: interactive listening, interpretation and musical creativity. What is especially emphasized is the influence of music on the psyche, emotions and cognitive elements of pupils' personality, development of imagination, sensibility, inventiveness, rational judgment, as well as positive energy transmitted by music. This curriculum assumes that pupils of all age groups possess the ability and potential of self-realization in music, thus giving a great role to the individuality and diversity of each. Such music education recognizes the similarities among children and their joy during music activities. It is also emphasized

that such activities have an influence of concentration and discipline and contribute to the development of children's creativity and self-esteem.

The Croatian curriculum of the artistic area – music culture (2008) introduces pupils to the world of artistic and traditional music, valuable musical compositions, and develops musical taste and the habit of following and participating in valuable music events. The concept of music class starts with the need of the pupil for active singing, playing and dancing, as music and dance contribute to the development of personal talents. Regular music classes with elective courses and non-formal activities (choir, instrumental groups, folklore, listening to recorded music and music-digital workshops) sensitizes pupils to performing music on an amateur level, later enabling the choice of profession in the said fields (NOK 2008, p. 71).

Interaction of Music Class with Other Areas of Pupils' Lives

There is also an emphasis on the need of art for understanding different dimensions of human experience, such as: physical, emotional, aesthetic, intellectual, social, moral and spiritual experiences. Curriculum approaches art as a special value on the social and personal level, as a form of human cognition and consciousness experienced by sensory parts of pupils' personality. It explains that the purpose of art is the development of expression and understanding of art itself, aesthetic sensibility and sense of beauty. It develops knowledge, attitudes, skills and capabilities needed for understanding and adoption of musical sensitivity, literacy, criticism and ethics. It especially impacts creativity, abstract and critical thinking, exploration and creative spirit, persistence, emotional and aesthetic intelligence, and builds self-consciousness and self-respect, sense of measure and striving for excellence.

In many musical activities (singing, playing, and analysis of the listened musical piece), one of the key abilities is memory. Pastuović (1997) defines memorizing as one of the primary abilities, determining it as a process of acquisition, retention and use of information, and that process is based on the memorizing ability. Within the framework of behavioural psychology, concepts of memorizing and learning are closely related, and in the past years, according to the same author (ibid) they have become more equal. Cognitive psychology binds them in a way that teaching includes memorizing and vice versa because the first level of memorizing is acquisition, i.e. learning.

During participation in musical activities, because of the synchronization of different roles of hands and legs, both hemispheres of the brain are joined by additional synapses in neuron nets. Inside the brain, parts of specialized areas are activated respectively dealing with different aspects of musical behaviour. Thereby both cerebral hemispheres are equally included due to the complexity of musical experience which implies auditory, visual, cognitive, affective and motor systems. Research by Merzenich, Allard and Jenkins (1990) confirms that the brain neural circuits can be changed with the influence of exercises and in reaction to experience.

Diamond (1991) was researching post-natal maturation of the rat brain under the influence of environmental and other factors. The maturation of the rats' brain was accelerated by a stimulating environment, during which an increase was noticed in the thickness of the cortex in all age, body volume of nervous cells and the number of ganglion cells in the brain core. Further studies which were conducted by Diamond (1991) and Rosenzweig (1996) provide data on how an enriched environment enhances branching dendrite samples, changes the number and size of the dendrite thorns and numerous synapses on neurons.

Aims, Problems and Hypotheses

Concerning the significant role of cognitive elements in learning and healthy development of a pupil's personality, in this research cognitive ability-memorizing was separated. The connection between exposure of younger school age pupils to various music areas and their success in memorizing in a short term period was examined, according to gender, age and grade criteria. The problems of the research were to determine whether pupils were more successful in memorizing specific matter after continuous exposure to musical activities and if there were differences according to gender, age and grade. The following hypotheses have been formed on the basis of the problem:

- H_1 *There is a general difference in memory before and after experimental practice of musical activities in the samples of second and third grade male and female pupils.*
- H_2 *There is no difference in memory within the test sample between male and female pupils during the pre-phase of musical activity practice.*
- H_3 *There is a difference in the memory within the test sample between male and female pupils during the post-phase of musical activity practice.*
- H_4 *There is a difference in memory within the test sample between the second and third grade pupils during the pre-phase of musical activity practice.*
- H_5 *There is a difference in memory within the test sample between the second and third grade pupils during the post-phase of musical activity practice.*

Methods

Sample

The research was conducted on the sample of 125 examinees, male and female second and third grade pupils from six schools in Zagreb (Table 1).

Table 1. *The participants – according to gender and grade*

Grade	N				Σ
	M	%	F	%	
2 nd	26	20.8	40	32.0	66
3 rd	32	25.6	27	21.6	59
Σ	58	46.4	67	53.6	125

Procedure

Experimental research with one group was first conducted. The group had an initial and final examination and in-between was exposed to continuous musical activities. The initial testing of the participants' success in memorizing was done in a one-minute time period. Each participant had to make as many pairs of photos in the "Memory" game, and the maximum was 12 pairs of photos. The number of actual pairs was noted in the questionnaire table. During two weeks, the pupils participated daily in different musical activities, taught by the fifth year students of The Faculty of Teacher Education in Zagreb, who had successfully passed the exam in Teaching Methodology of Music Education. They were singing, playing with rhythmical percussions, listening to music, analysing pieces of music, dancing and expressing themselves in the area of musical creativity.

Measurement Tools

Measurement tools used in this research were: the Memory game, stopwatch and questionnaire with a table. The Memory game consisted of 12 different pairs of photos with musical motives. The questionnaire with a table consisted of empty fields in which data about school and class was written. The participant's code and number of paired photos of the Memory game was also written.

Results

The obtained data was processed by descriptive statistics method, using the statistical package SPSS 11.5. The analysis of the data was done by the differentiation principle according to gender, age and time measurement (initial and final). The results of the matching pairs of the Memory game are shown numerically and graphically. After collecting the data and sorting by the variability criteria, result frequencies of the measurement attribute (memorizing) were shown through the number of participants and the number of matching pairs of the Memory game. Standard deviation was also

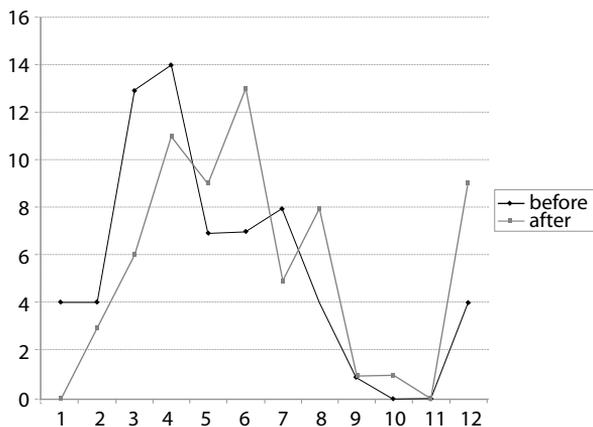


Figure 1. Frequency polygon before and after musical activities –success in matching pairs of the Memory game

incorporated, according to the time of measurement. From these data an inclination of the measuring data values towards central values of the number of pairs can be noticed (4 and 5), as the most represented with the participants from both grades.

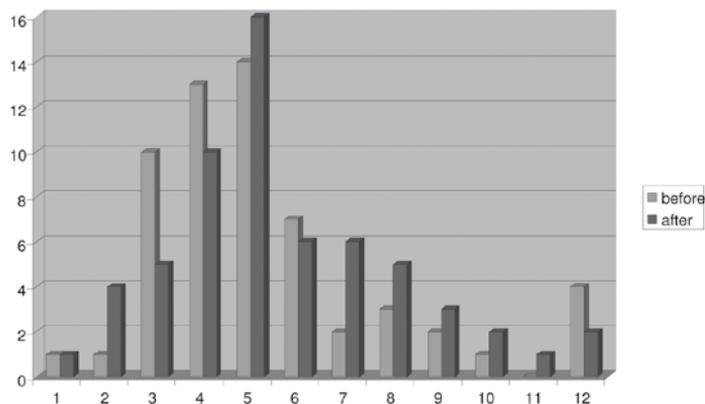


Figure 2. Result histograms before and after musical activities –success in matching pairs of the Memory game

The following table shows the total score of all pupils in all groups, for the measured variables, numerically expressed in percentages (Table 2). From this table, success can be determined according to two measurement criteria: gender and measuring time. During the observation of this data it is necessary to take into consideration the data regarding sample characteristics according to gender.

Table 2. The number of participants' pairs of the second and third grade – according to gender and time measurement

i	M		F		Σ
	N	%	N	%	
IN	298	46.4	344	53.5	642
FIN	367	48.9	382	51.0	749

In statistical data analysis after the calculation of the arithmetic mean of data for each grade individually, and average deviation pairs from arithmetic average, measures of central tendencies of the data were expressed numerically. Since it is a relatively small sample of examinees and measured appearance (memorizing) varies more, standard deviation (SD) was calculated.

The first hypothesis was tested with the paired-samples t-test for correlated (dependent) samples, and the results are shown in Tables 3 and 4.

Table 3. Results of the memory test obtained by the paired-samples t-test

	Mean	N	Std. dev.	Std. dev.
M1 – before music exposure	5.14	125	2.59	.23
M2 – after music exposure	5.99	125	2.71	.24

Table 3a. Difference between initial and final results on the memory test– total score

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. dev.	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Memory	-.86	2.78	.25	-1.35	-.36	-3.448	124	.0001

The presented results show that there is a statistically significant difference between memorizing before and after the experimental practice of the musical activity ($t=3.448$; $df=124$, $p<0.001$). This confirms that after the musical activity practice memory of the pupils from the samples increased, which confirms the first hypothesis.

In order to confirm whether the established pupils’ progress in capability of memorizing after exposure to musical activities is connected with gender, i.e. whether this can be applied to the pupils of both genders, the paired-samples t-test was conducted, and the results are shown in Tables 4 and 4a for male, and in Tables 5 and 5a for female pupils.

Table 4. Means and standard errors – male participants

	Mean	N	Std. dev.	Std. Error Mean
M1 – before music exposure	5.14	58	2.67	.35
M2 – after music exposure	6.33	58	2.82	.37

Table 4a. Difference between initial and final memory test scores – male participants

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. dev.	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Memory	-1.19	3.12	.41	-2.01	-.37	-2.904	57	0.005

The results in Tables 4 and 4a show a statistically significant difference between initial and final memory scores ($t=2.904$; $df=57$, $p<0.005$), which means that male pupils’ memory increased after the musical activity practice.

Table 5. Means and standard errors – female participants

	Mean	N	Std. dev.	Std. Error Mean
M1 – before music exposure	5.13	67	2.55	.31
M2 – after music exposure	5.70	67	2.60	.32

Table 5a. Difference between initial and final memory test scores – female participants

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. dev.	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Memory	-.57	2.43	.30	-1.16	46E-02	-1.914	66	.060

The results given in Tables 5 and 5a show that the difference between initial and final memory scores in female pupils was not confirmed ($t=1.914$; $df=66$, $p<0.060$),

but they border on statistical significance. In other words, it was not confirmed that after the musical activity practice female pupils' memory was increased, but it can be said that such tendency probably exists. In general, it can be concluded that the mentioned trend of improving the memory in the test sample applies more to the male than female second and third grade pupils.

In order to test the second hypothesis, the t-test for independent samples (independent-samples t-test) was conducted and the results are shown in Tables 6 and 6a.

Table 6. Means and standard errors before exposure to music – according to gender

Gender	1-M 2-F	N	Mean	Std. dev.	Std. Error Mean
M1 – before music exposure	1	58	5.14	2.67	.35
	2	67	5.13	2.55	.31

Table 6a. Equality of means results and equality of variances, before exposure to music – according to gender

	Levene's Test for Equality of Variances			t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Differ.	Std. Error Differ.	Lower	Upper
Initial Memory	Equal variances assumed	.184	.669	.008	123	.994	60E-03	-.47	-.92	.93
				.008	18.668	.994	60E-03	-.47	-.92	.93

Tables 6 and 6a show that the difference between male and female pupils' memory before the experimental musical activity practice was not statistically significant ($t=0.008$; $df=123$, $p<0.994$). It can be concluded that the pupils from two gender groups did not differ according to their memorizing capabilities in the pre-phase of musical activity practice, hence the second hypothesis was rejected.

For testing the third hypothesis, the t-test for independent samples was conducted (independent-samples t-test), and the results are shown in Tables 7 and 7a.

Table 7. Means and standard errors after the exposure to music – according to gender

Gender	1-M 2-F	N	Mean	Std. dev.	Std. Error Mean
M1 – after music exposure	1	58	6.33	2.82	.37
	2	67	5.70	2.60	.32

Table 7a. Equality of means results and equality of variances, after exposure to music – according to gender

	Levene's Test for Equality of Variances			t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Differ.	Std. Error Differ.	Lower	Upper
Final Memory	Equal variances assumed	.214	.645	1.290	123	.199	.63	.49	-.33	1.59
				1.282	16.938	.202	.63	.49	-.34	1.59

The obtained results (Tables 7 and 7a) show that the difference between female and male pupils' memory was not statistically significant before nor after the exposure to musical activities ($t=1.290$; $df=123$, $p<0.199$). It can be concluded that the pupils from two gender groups after the exposure to music did not differ according to their memorizing capabilities, despite a more noticeable positive effect of exposure to music on the memory of male pupils. Therefore, the third hypothesis was also rejected.

In order to test the fourth hypothesis, the t-test for independent samples was used and the results are shown in Tables 8 and 8a.

Table 8. Means and standard errors before exposure to music – according to pupils' grade

Grade	2-2 nd 3-3 rd	N	Mean	Std. dev.	Std. Error Mean
M1 – before music exposure	2	66	4.98	2.64	.32
	3	59	5.31	2.55	.33

Table 8a. Equality of means results and equality of variances before exposure to music – according to pupils' grade – total

	Levene's Test for Equality of Variances			t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Differ.	Std. Error Differ.	Lower	Upper
Initial Memory	Equal variances assumed	.331	.566	.688	123	.493	-.32	.47	-1.24	.60
				.690	22.264	.492	-.32	.47	-1.24	.60

The obtained results (Tables 8 and 8a) show that the difference between the memory of male and female second and third grade pupils was not statistically significant ($t=0.688$; $df=123$, $p<0.493$). Pupils from these two age groups did not differ according to their memorizing capabilities in the pre-phase of musical activity exposure. Thereby the fourth hypothesis was rejected.

After conducting the t-test for independent samples for testing the fifth hypothesis the following results were obtained (Tables 9 and 9a).

Table 9. Means and standard errors after exposure to music – according to pupils' grade

Grade	2-2 nd 3-3 rd	N	Mean	Std. dev.	Std. Error Mean
M1 – after music exposure	2	66	6.32	2.87	.35
	3	59	5.63	2.50	.33

Table 9a. Equality of means results and equality of variances after exposure to music – according to pupils' grade – total

	Levene's Test for Equality of Variances			t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Differ.	Std. Error Differ.	Lower	Upper
Final Memory	Equal variances assumed	.832	.364	1.427	123	.156	.69	.48	-.27	1.65
				1.438	22.940	.153	.69	.48	-.26	1.64

Results (Tables 9 and 9a) show that the difference in the participants' memory according to the age group after the exposure to musical activities was not statistically significant ($t=1.427$; $df=123$, $p<0.156$). Pupils from the two age groups did not differ in memorizing ability, even after making music. It is noticeable however, that the increase on the memory criteria was much higher for younger pupils, i.e. the second graders within the sample. For this reason additional t-test was used to test whether that difference in the memory increase among second grade pupils was significant or whether it can be attributed to a chance (Tables 10 and 10a).

Table 10. Results of the memory test obtained by the paired-samples t-test– second grade total

	Mean	N	Std. dev.	Std. Error Mean
M1 – before music exposure	4.98	66	2.64	.32
M2 – after music exposure	6.32	66	2.87	.35

Table 10a. Difference between initial and final results on the memory test–second grade total

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. dev.	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Memory	-1.33	2.82	.35	-2.03	-.64	-3.842	65	.000

The results (Table 10a) show that there was a statistically significant difference between memory of the second grade male and female pupils before and after the exposure to musical activities ($t=3.842$; $df=65$, $p<0.000$). The same test was used to test the group of third grade pupils (Tables 11 and 11a).

Table 11. Results of the memory test obtained by the paired-samples t-test – third grade total

	Mean	N	Std. dev.	Std. Error Mean
M1 – before music exposure	5.31	59	2.55	.33
M2 – after music exposure	5.63	59	2.50	.33

Table 11a. Difference between initial and final results on the memory test–third grade total

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. dev.	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Memory	-.32	2.65	.34	-1.01	-.37	-.934	58	.354

The results (Table 11a) show that the difference between memory of the third grade male and female pupils was not statistically significant before and after the exposure to musical activities ($t=0.934$; $df=58$, $p<0.354$). In other words, after musical activity practice the memorization abilities of the third grade pupils within the sample did not increase.

Discussion

The conducted research aimed to determine whether there is a significant difference in pupils' memorizing before and after participation in musical activities. The initial assumption before the measurement procedure was that active and continuous participation in various musical activities visibly influences the overall psycho-affective aspect of each pupil's development, as well as their memorizing ability. The memorizing ability was observed since it supports the quality and durability of the learning process as well as memorizing of the large amount of class and non-class material since the earliest school age. Regarding these assumptions, the obtained results showed a significant differentiation in the number of matching pairs by gender and grade. The results showed greater success of female pupils in matching pairs. In the initial and final measurements, most participants matched 4 or 5 pairs of the Memory game. Such distribution of results can be shown by normal distribution, with the tendency of most pairs around average values. There was a statistically significant difference in the memorization of the second and third grade pupils before and after the exposure to musical activities. Also, there was a statistically significant difference in memorization before and after the exposure only for male pupils. Age group, i.e. belonging to the higher grade did not account for the memorizing difference between male or female pupils, before nor after the exposure to musical activity. There was a statistically significant difference only between male and female second grade pupils within the same sample in the memorization before and after the exposure to music.

Conclusion

Music enters almost all areas of human life. Many of its components follow us from the first breath (breathing rhythm/heart beat), daily life (sleeping, feeding and resting rhythm), speedy tempo of living, harmonic (voices of people we like, nature sounds) and disharmonic (traffic, noise) sounds, until death. Musical ear is a possibility of each newborn child. We often show anxiety and impatience by tapping our fingers on the table. Often in ecstasy while listening to music or singing, we play rhythm with tapping our hand on the table or by clapping hands, tapping feet on the floor or nodding our heads. We are unaware how musical we are and how much music is within us. Those who are working with music professionally realize how much music helps them directly in everyday life. They learn to operate motor vehicles faster because of the better network of both cerebral hemispheres, which is a result of playing an instrument with both hands, and sometimes also with feet. They start to speak earlier and faster, have more long-term and stronger concentration because of the training during listening musical pieces and focusing on some of the music components. Their developed memory is also trained due to memorizing musical components whether in singing, playing or listening to music. Group playing in the orchestra develops ability for team work, and frequent solo performances build self-esteem and reduce inferiority complex. Since music activities are joyful for children and can be practiced through games even at a young age, it is responsible and desirable to expose them to such influences as soon

as possible. If we know that transfer of developed skills and habits (memorizing the whole, hearing concentration, sense for rhythm, sense for tempo, sense for dynamics, accurate intonation, group music-making, expressing emotions through movement, creative expression, etc.) happens in other aspects of a pupil's life (memorizing other units, help in learning, rhythm and tempo of native but also foreign language, team work, creativity, expressing emotions), we will know how to use music and its influence in other classes and areas. Contemporary class techniques of teaching are streaming exactly towards such a class, but also presume an open, competent and educated primary education teacher who will know how to intertwine all learned methodology in a way that knowledge which pupil will acquire with such teaching will stay the permanent part of his or her personality, and not just in the form of simple short-term reproduction which is easily forgotten. Such new winds of curriculum are turning the sails to the European understanding of contemporary teaching.

References

- Bežen, A. (2008). *Metodika znanost o poučavanju nastavnog predmeta*. Zagreb: Profil & Učiteljski fakultet Sveučilišta u Zagrebu.
- Cindrić, M., Miljković & D., Strugar, V. (2010). *Didaktika i kurikulum*. IEP – D2, Zagreb.
- Council resolution of 27 June 2002 on lifelong learning (2002/C 163/01), Official Journal of the European Communities.
- Diamond, M.C. (1991). Environmental influences on the young brain. In: K.R. Gibson & A.C. Petersen (Eds.). *Brain Maturation and Cognitive Development: Comparative and cross-cultural perspectives*. Hawthorne, New York: Aldine de Gruyter, 107-124.
- Merzenich, M.M., Allard, T. & Jenkins, W.M. (1990). Neural ontogeny of higher brain function, Implications of some neurophysiological findings. In: O. Franzen & P. Westman (Eds.): *Information Processing in Somatosensory System*. London: Macmillan, 239-311.
- Music Curriculum (2012) /online/. Retrieved on 9 July 2012 from http://www.curriculumonline.ie/en/Primary_School_Curriculum/Arts_Education/Music/Music_Curriculum/Music/.html
- Music Education in School (2012). /online/. Retrieved on 9 July 2012 from <http://www.eas-music.org/countries/austria-at/music-education/>
- Nacionalni okvirni kurikulum za predškolski odgoj i opće obvezno obrazovanje u osnovnoj i srednjoj školi. Zagreb: Ministarstvo znanosti, obrazovanja i športa, 2008.
- Pastuović, N. (1997). *Osnove psihologije obrazovanja i odgoja*. Zagreb: Znamen.
- Rosenzweig, M.R. & Bennet, E.L. (1996). Psychobiology of plasticity: Effects of training and experience on brain behavior. *Behavioral Brain Research*, 78(1), 57-65.
- Žiljak, T. (2004). Politike cjeloživotnog učenja u Europskoj Uniji i Hrvatskoj, U: *Anali hrvatskog politološkog društva*, 225-243, Zagreb.

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Suvremeni interaktivni aspekti nastave glazbe u procesu učenja

Sažetak

Ovaj rad razmatra nastavu glazbe u okvirima suvremenih edukacijskih trendova, integriranu u odgojno-obrazovni proces. Nastava glazbe sve je češće u interakciji s različitim aspektima učenikova života. Ona aktivno pridonosi psihičkom, emocionalnom, motoričkom i kognitivnom razvoju svakoga pojedinog učenika. Cilj rada je uputiti na mogućnost utjecaja aktivnoga bavljenja glazbom učenika primarnog obrazovanja na uspješnost zapamćivanja neglazbenih sadržaja. Time se stavlja naglasak na važnost aktivnoga bavljenja glazbom i njezina uključivanja u ostale nastavne sadržaje. Istraživanje je provedeno metodom eksperimenta s jednom skupinom, pri čemu je nezavisna varijabla bila izloženost učenika dvotjednim svakodnevnim glazbenim aktivnostima, a zavisna varijabla odnosila se na uspješnost zapamćivanja parova igre Memory. Rezultati istraživanja pokazali su da razlika između inicijalnoga i finalnoga testiranja mogućnosti zapamćivanja parova igre Memory u trajanju od 1 minute iznosi 107 parova više u finalnome testiranju. Rezultati potvrđuju pretpostavku kako kontinuirano bavljenje glazbom pozitivno utječe na kognitivni aspekt ličnosti (pamćenje).

Ključne riječi: *aktivno muziciranje; glazbena nastava; pamćenje; suvremeni kurikulum*