

The Impact of Music on The Education Motivation in Adolescents

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Abstract: This study aims to investigate the psychological influence of music on educational motivation in adolescents. A total of 600 students from 4 different schools were included in the study. Participants were randomized into two equal groups as experiment and controls. The “Music - education motivation” methodology was applied to the experimental group during one educational year. After a year, the educational motivation status of students was assessed by “Studying the Motivation of Adolescent Learning” (SMAL) and “Diagnosis of Educational Motivation of Schoolchildren” (DEMS) surveys. The results of a total of 350 students including 250 experimental (130 female, mean age 13.9±2 years) and 100 control (50 female, mean age 12.8±3 years) groups were analyzed. A statistically significant difference was found between the two groups according to the results of the SMAL survey ($p = .01$). Also, the DEMS questionnaire revealed that the self-improvement and communicative motivations of the students in the experimental group were significantly higher than controls ($p < .05$). In this study, it was shown that music-enriched education is associated with learning motivations in adolescents. As a result of the study, it can be said that the education model that includes music and art positively affects the educational motivation of teenagers.

Keywords: Psychology, Music, Education, Motivation, Adolescents.

INTRODUCTION

H. Gardner, who is the author of the theory of multiple intelligences, argued that music is associated with emotional and cultural development as well as intelligence (Gardner, 1993). He stated that music contributes to making accurate decisions and helps to think. The conducted researches also confirm that musical education is very important as a part of the modern educational approaches (Colwell & Davidson, 1996; Črnčec et al., 2006). It has been shown that students in multi-intelligence schools, where music education is given, get significantly higher scores than their peers in non-arts disciplines (Snyder, 1997). In addition, music lessons improve IQ and have positive effects on social behavior (Schellenberg, 2004).

Although there are articles stating that music has effects that increase intelligence, strengthen focus and motivate, scientific evidence on this subject is limited. At the same time, it is not known exactly what kind of change music causes in the electrical and hormonal activity of the brain. Functional neuroimaging studies show that music can modulate activity in brain structures such as the amygdala, nucleus accumbens, hypothalamus, hippocampus, and orbitofrontal cortex which are associated with emotions (Koelsch, 2014). The potential of this musical activity may suggest the use of music in motivation. Music triggers basic human needs, such as communication, cooperation, and social attachment. Especially in childhood, music can contribute to brain development, linguistic-syntactic processing and increase educational motivation (Hyde et al., 2009; Jentschke & Koelsch, 2009). However, it would not be wrong to say that different effects may occur according to the types of music listened to (Taruffi, et al., 2017).

The main goal of this study was to determine the effect of music on the educational motivation of teenagers and develop it by psychological and pedagogical methods. Here, we aimed to investigate students' motivations for education, learning, and personal development, not their school scores. Besides this, another aim of the research was to assess the musical tastes and national spirit of the pupils and explain the importance of aesthetic music education.

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METHODS

A total of 600 adolescent participants which consist of 7th, 8th, and 9th-grade secondary school students was included in this randomized controlled trial. Participants were selected from four different schools by cluster sampling. Then the students were randomized into two equal groups as experiment and control. "Music - education motivation" (MEM) methodology was applied to the experiment group for 45 minutes once a week during one schooling year in order to investigate the effect of music on education motivation. The content of the MEM method includes the followings;

1. First of all, the expectations and requests of the students from this lesson method were learned. Accordingly, the course methodology was created.
2. They were drawing pictures by listening to music, which included classical ones.
3. They used to try to identify the taste of water by listening to music, samples of which included "Arazbari" composed by Uzeyir Hajibeyov and "5th Symphony" by Ludwig van Beethoven.
4. They were singing a song (karaoke) chosen by themselves from the list we have given, which included Azerbaijan composer songs.
5. They were watching the presentations relevant to the effect of music on the brain, cognition, and other physical processes.
6. The students were given different rhythm lessons, from simple to complex, consisting of Azerbaijani national rhythms.
7. The pupils were asked to write at least two music name, which they love, into a piece of paper (they were instructed not to give information about these music samples to anyone). During the following lessons, some selected music samples were played so that they could find out whose music taste was familiar to this tune most. (visual evidence showing the relationship of played music with personal qualities).
8. The pupils were given two pieces of music samples in the same topic to listen (aesthetic and non aesthetic), and they were writing down on a paper about their emotional sphere of the color (Lusher color test) after each of the songs relevant to the music they listened to. As a result of this, it was made the decision about music samples that could be used in the methodology.

After the research program was ended at the end of the education year in order to compare the results, certain types of the survey tests such as "Studying the Motivation of Adolescent Learning" (SMAL) (Anatolyevna, 2004) and "Diagnosis of Educational Motivation of Schoolchildren" (DEMS) (Badmaeva, 2004) were applied both in experimental and control groups. Two hundred and fifty students who did not attend all lessons and did not answer all of the questionnaires were excluded from the study. Informed consent for participation in the study was obtained from the parents of the students. Ethics approval for the study was obtained from the Ministry of Education of the Republic of Azerbaijan (13 Nov 2018, 13-416/10-24). All study procedures followed the Helsinki Declaration for protecting human subjects.

Statistical Analysis

The analyses were performed using the statistical software package IBM SPSS version 22. Descriptive statistics were summarized with frequency and mean \pm SD, appropriately. Two independent groups compared with Mann-Whitney U tests. The Kruskal Wallis-H test was used to compare more than two independent groups. A $p < .05$ was accepted as statistically significant.

RESULTS

The results of a total of 350 students including 250 experimental (130 female and 120 male, mean age 13.9 \pm 2 years) and 100 control (50 female and 50 male, mean age 12.8 \pm 3 years) groups were analyzed. 131 (37%) students were in the 7th grade, 101 (29%) were in the 8th grade, and 118 (34%) were in the 9th grade. 101 (29%) students were studying at school number 232, 73 (21%) students at Atatürk High School, 78 (22%) students at Istanbul High School, and 98 (28%) students at Elitar Gymnasium. The demographic data of the participants according to groups are given in Table 1 in detail.

Table 1. Demographic indicators for experimental and control group.

Demographics		Experiment Group		Control Group	
		n	%	n	%
Sex	Female	130	52	50	50
	Male	120	48	50	50
Grade	7	91	36.41	40	40
	8	71	28.43	30	30
	9	88	35.26	30	30
School	School no: 232	76	19.21	25	25
	Ataturk Liseum	48	21.23	25	25
	Istanbul Liseum	53	29.27	25	25
	Elitar Gymnasium	73	30.47	25	25
Total		250	100	100	100

The SMAL scale is a questionnaire consisting of 18 questions adjusted for classes. The questions aim to assess students' educational and social motivations. The survey results are analyzed and scored, and continuous variables are obtained. High scores indicate high motivation. When the total scores of SMAL survey were compared, a statistically significant difference was found between the two groups ($p = .01$). In the subgroup analysis of the experimental group, the education motivation of female students seems to be higher compared to males ($p = .002$). It has been observed a statistically significant relationship between the school grade and education motivation ($p = .04$). There is no relationship between the school where the students study and their education motivation ($p = .25$) (Table 2).

Table 2. Subgroup analysis of the experimental group according to the SMAL survey results.

Demographic indicators		SMAL survey results		
		Mean	SD	<i>p value</i>
Sex	Females	57.25	.33	.002
	Males	44.51	.61	
Grade	7	88.68	.41	.04
	8	84.78	.51	
	9	54.65	.54	
School	School No: 232	43.15	.43	.25
	Ataturk Liseum	84.83	.42	
	Istanbul Liseum	65.26	.75	
	Elitar Gymnasium	72.84	.78	

The DEMS survey consists of 11 different questions and aims to measure students' learning and social impetuses. When the groups were compared according to the parameters of the DEMS questionnaire, it was found that the self-improvement ($p = .01$) and communicative ($p = .001$) motivations of the students in the experimental group were significantly higher than the control group. In addition, creativity ($p = .03$) and teaching content ($p = .03$) increased significantly in the experimental group compared to the controls. However, no statistical difference was found between the groups in other parameters of the survey (Table 3). Although not statistically significant, it was noted that the students' passion for prestige (6.26 % vs. 7%, $p = .5$) and fear of making mistakes (avoidance of failure) (4.98 % vs. 6.36%, $p = .06$) decreased in the experimental group.

Table 3. The results of DEMS survey in experimental and control groups.

Motivations	Experimental group, %	Control group, %	<i>p value</i>
Duty and responsibility	5.82	4.42	.06
Self-determination and self-improvement	22.74	19	.01
Well-being	8.41	11.78	.08
Affiliations	6	6.44	.12
Prestige	6.26	7	.50
Avoidance of failure	4.98	6.36	.06
Teaching content	5.43	3.92	.03
Learning process	3.53	3.44	.71
Communicative	3.31	7.93	.001
Creativity	7.82	6	.03
Success achievement	25	24	.23
Total	100	100	

DISCUSSION, CONCLUSION and SUGGESTIONS

In this study, we assessed the effect of the MEM methodology on the educational motivation of teenagers. One of the main features of the education model we apply is that the lessons are prepared according to the demands and expectations of the students. The results of the SMAL and DEMS surveys conducted after one year of training revealed that the educational motivation of the students increased significantly. This situation confirms the positive effect of the MEM method. In

the SMAL questionnaire, it was determined that as the school grade gets higher, the educational motivation decreases. This can be explained as such, as the grade rises, the load of the lessons increases and the content of the education does not respond to the needs, interests and learning methods of modern students. This fact was reflected in the conversations and interviews among the students. It must be said that 3 of the schools included in the study were private and 1 was a state school. However, the results of the SMAL questionnaire showed that there was no difference in the educational motivation of the students in the experimental group in terms of the location of the school they went to or the social facilities of their families. In addition, although not statistically significant, the results of the DEMS questionnaire revealed that the MEM methodology increased duty and responsibility, self-determination and self-improvement, success achievement, learning process, communicative, creativity, and teaching content motivation in adolescents.

Studies reveal the relationship between listening to music and motivation to learn a second language (Talamini et al., 2018). In addition, it is emphasized that music can have a positive effect on learning motivation and well-being in university students (Hu et al., 2021). Evidence is presented that music increases social skills. It has been shown that music therapy can improve mood, language, sensory perception, behavior, and social skills in adolescents with autistic spectrum disorders (Eren, 2015).

In this study, we analyzed students' educational and social motivations instead of school scores. Although it is mostly taken as the primary outcome in studies, the school score can be affected by confounding factors such as class heterogeneity, teachers, or sociodemographic characteristics of students. We also believe that school score is not the only indicator of success and learning motivation and social skills are also important. Learning motivation and social skills are important elements that develop people not only in school but throughout life. Especially adolescence is a period in which dreams about the future are formed.

There are some limitations of our study. The small number of participants, non-standardization of MEM content and duration can be considered as limitations. This study is the first study conducted in our country that evaluates the effect of music on educational motivation in adolescents. As a result of the study, it can be said that the education model that includes music and art positively affects the educational motivation of teenagers. At the same time, the methodology we apply increases not only the educational motivation but also the personal development and communication motivation of the adolescents.

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In the writing process of the study titled **“The Impact of Music on The Education Motivation in Adolescents”**, the rules of scientific, ethical and citation were followed; it was undertaken by the authors of this study that no falsification was made on the collected data. **“Academia Journal of Educational Research and Editor”** had no responsibility for all ethical violations to be encountered, and all responsibility belongs to the authors and that the study was not submitted for evaluation to any other academic publishing environment.