



Formation of Competence for Choosing Inspirational Music for the Method of "Motivation" used on the Basis of Creativity in Teaching Physical Chemistry

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Annotation: In this article, the formation of the ability to choose inspiring music for the use of the "Motivation" method in teaching physical chemistry in higher education institutions, is to study the effect of music types on increasing students' attention, mastery rate, and level of understanding.

Keywords: "Motivation" method, creative approach, emotional memory, rhythm, emotional "integration", classical music, modern music, retro music, level of awareness.

Introduction

In our previous articles, it was mentioned the use of music for the "Motivation" method, which is used in the teaching of concrete and technical subjects that are difficult to master. Let's first answer the question why should we use music as motivation?

About musical education Ancient Greek manuscripts say: "Musical education is the most powerful weapon, because rhythm and harmony penetrate to the deepest depths of the human soul." Music is an art that gives us great opportunities for the creative development of a person. Music can stimulate and entertain, empower and fill with emotion. From the very first notes, the melody fascinates and develops the brain. Psychologists say that learning difficulties in children occur because the interhemispheric connections of the brain are not developed. Music is perceived by both hemispheres and improves interhemispheric communication. The right music has been scientifically proven to increase the level of speech skills, improve short-term memory and motor coordination in children. Children who receive music education (by choice) do better in a comprehensive school. Skilled musical exposure can therapeutically develop strong intellectual potential. [1]

Music affects the development of all mental processes affecting the intellect. Develops memory, thinking, imagination. It can be seen that music helps to develop the simplest mathematical skills, listen to information in the form of elementary instructions, the ability to absorb and develop mathematical skills. Music has a beneficial effect on learning foreign languages. To date, various programs using music and computer technologies are implemented in educational institutions of various levels. This need is determined by the time itself. The research results of M. Borisova mainly showed the average and low level of intellectual development of schoolchildren, and the level of students of the Music School was above average. The leading role here belongs to the classical music of famous composers such as J. Bach, L. Beethoven, W. Mozart, P. Tchaikovsky, M. Glinka and others. This is confirmed by the scientific research of scientists from different countries. [1]

Music provides an opportunity for emotional "integration", develops stable, long-term memory. Researchers claim that music stimulates creativity, enhances and improves abilities, students' self-esteem, and sensory motor skills. The brain expects music as a useful activity. When you listen to



music, the brain releases dopamine, which gives it pleasure. Brain scans have shown increased blood flow in areas that produce dopamine when listening to pleasant music. Dopamine increases motivation and makes you want to continue doing enjoyable activities.

Some academics are studying the intersection between music and science. For example, Mahadev Kumbar of Nassau Community College has developed tutorials showing that various chemical processes have musical aspects. John Berry of the University of Wisconsin, Madison uses the concepts of chemical synthesis to create music. And Steve Everett of the University of Illinois at Chicago created a musical score to detail the chemistry of the beginnings of life on Earth. Several chemists became not only musicians, but also composers and conductors. Among them are Alexander Borodin, Edward Elgar, George Berg and Lejaren Hiller. Peter Banks' observations reinforce the connection between music and chemistry. [2]

The abstract nature of physical chemistry and spectroscopy makes the subject difficult for many students to grasp. However, bridging art and science has the potential to provide innovative teaching methods that facilitate the understanding of abstract concepts. Neil Garrido presented a high school project based on Anaïs Pitto-Barry's research on converting selected infrared absorbances of molecules to audible frequencies. This process provided students with a unique understanding of molecules and chemical bond vibrations, as well as an opportunity to develop their creativity by creating musical pieces related to the molecules they synthesized. We believe that studying chemistry from an alternative perspective opens up new perspectives for students' learning, but also for the intersection of scientific and artistic disciplines. [3]

Teachers need to use new and innovative tools to engage and motivate their students. This is especially important because many students find education to be a stale and boring environment - they have to suffer in order to progress. Education doesn't have to be a scary environment. Using music as a learning tool can be used by any teacher to create a fun and exciting environment where students are actively engaged and learn to value their classroom experience. [4]

Carolina University has developed a process that is available to any 8th grade science teacher interested in using music to enhance instructional content. In this study, 8th grade secondary school students (n=41) actively interacted with contemporary songs created to enhance chemistry learning. Data were collected and analyzed to determine the effects of music therapy on student achievement and motivation compared to a control group (n = 35). The existing literature provides a basis for the benefits of music listening and learning. This study identifies a new line of research called "Music-Based Teaching" that increases the motivation of 8th graders to learn chemistry. The unintended results of the study are of additional importance because the teacher who is teaching has experienced a new passion and excitement for his profession. [5]

PRACTICAL PART. "Effect of music on students' behavior, emotional and mental perception, attention, mastery rate"

The purpose of the music chosen for the "Motivation" method during the lesson is to increase students' emotional and mental perception, attention, level of understanding, mastery rate. But can all the music around us provide this quality?

I asked the 2nd year students of the chemistry faculty of the higher educational institution to participate in the experiment - 62 students.

The experiment was conducted in two stages:

Questionnaire and Musical experiment.

The purpose of the survey was to analyze how students perceive different styles of music.



Questionnaire № 1

1. Do you like listening to music?
2. Does listening to music change your mood?
3. Do you think that listening to music for 5-10 minutes during the lesson will increase your interest in the lesson?
4. Do you agree that if classical music plays during the break, students will not be tired during the school day?
5. Do you believe that music can improve human intelligence?
6. What kind of music do you like the most (cross the line): classical, modern, rap music?

Table 1. Survey results

№	Questions	Yes	No	I don't know
1.	Do you like listening to music?	62	-	-
2.	Does listening to music change your mood?	62	-	-
3.	Do you think that listening to music for 5-10 minutes during the lesson will increase your interest in the lesson?	50	6	6
4.	Do you agree that if classical music plays during the break, students will not be tired during the school day?	32	10	20
5.	Do you believe that music can improve human intelligence?	48	4	10
6.	What kind of music do you like the most (cross the line): classical, modern, rap music?			

Classical – 17, modern – 42, rap – 3;

The musical experiment was conducted during the lectures of "Physical Chemistry".

Initially, classical music was played for 5-6 minutes at the beginning of the lesson and the lesson was started, 2-3 minutes of music was used in the middle of the lesson when the students' attention was lost.

In the following days, retro tapes were used, and students' attention, mastery rate was determined through test questions, and the level of understanding was determined through control questions. The results are presented in the table below:

Table 1.

№	Indicators	The state of regular lecture training of students	A control group condition used a musical experiment
1.	Attention	20-25%	80%
2.	Mastery rate	35-40%	65-70%
3.	Level of understanding	25%	60%

In conclusion, it can be said that the choice of music for the method of motivation should be close to the heart and body of the students according to their behavior and condition, from a biological point of view, if there is music embedded in their genes, it is possible to achieve a higher level of their understanding and mastery rate. From this point of view, while modern music maximizes the attention of students, retro music has more advantages.



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