



## The Role of Classical Music on Math Learning Methods for Elementary School Students

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ABSTRACT	ARTICLE INFO
<p>This study aims to determine whether Mozart's classical music has an effect on mathematics learning outcomes of elementary school students and to find the proper learning method to be applied to mathematics lessons. The research method used is a literature study where researchers take references from research that has been done and articles that have been published to strengthen the arguments. The purpose of this study is to investigate the impact of Mozart's classical music on the math learning outcomes of elementary school students and to determine the most effective learning method to use during math lessons. The research methodology involves a literature review where the authors reference previous research and published articles to support their arguments, which are then summarized in the conclusion. The study findings show that Mozart's classical music has a positive effect on the math learning outcomes of elementary school students. We recommend that teachers incorporate classical music into their math lessons and make connections between the material being taught and familiar things in the students' environment. This study concludes that Mozart's classical music affects the learning outcomes of elementary school students in mathematics with recommendations for learning methods, namely linking the materials taught with familiar things around the environment and inserting classical music during learning.</p> <p>© 2021 Kantor Jurnal dan Publikasi UPI</p>	<p><b>Article History:</b> <i>Submitted/Received 27 Sept 2021</i> <i>First Revised 27 Oct 2021</i> <i>Accepted 30 Oct 2021</i> <i>First Available online 5 Nov 2021</i> <i>Publication Date 11 Nov 2021</i></p> <p><b>Keyword:</b> <i>Classical music,</i> <i>Mozart,</i> <i>Math,</i> <i>Learning methods,</i> <i>Elementary school.</i></p>

## 1. INTRODUCTION

Mathematics is a field of study that has been taught since elementary school, and some people, or almost everyone, already feel familiar with the name math (Fasheh, 1982; Franke, et al., 2007). Mathematics comes from the Greek 'mathematics,' which means to study (Fried, 2009; Sidoli, 2018). There are many definitions of the meaning of mathematics, according to several experts. Mathematics is the science of logic regarding form, structure, magnitude, and related concepts (Rahmah, 2018). Mathematics is divided into three major parts: algebra, analysis, and geometry (Apsari, et al., 2020; Yau, 2020). However, some opinions say that mathematics is divided into four parts: arithmetic, algebra, geometry, and analysis with arithmetic, including number theory and statistics (Atiyah, 2001; Debnath, 2011; Halmos, 1980).

Math is often considered a somewhat complex subject for students because it involves many formulas and language that is difficult to understand at its level (Eisenhart, et al., 1993). In addition, many students prefer to avoid learning math. It is caused by several factors, one of which must be corrected when choosing the appropriate learning method (Stein, et al., 2008). Not infrequently, students feel afraid and lazy when dealing with this math lesson (Aljaberi, 2015). Therefore, an appropriate learning method and learning support component must be sought to motivate students to be more interested in mathematics.

The selection of Mozart's music as a learning support component is considered effective in influencing student learning motivation in the classroom. In learning math, listening to Mozart's classical music can balance the concentration between the left brain and the right brain. It is because Mozart usually conveys strong emotions with music, contrasting passion and emotion (Suurpää, 2015). With these things, a hypothesis is formed that Mozart's classical music can affect the method of learning mathematics for elementary school students.

## 2. METHODS

The research method used is a literature study. The literature study method is an activity related to the method of collecting library data, reading and recording, and managing research materials (Indihadi & Sudarman, 2021; Hardianto, et al., 2021). The kinds of documents or literature sources which include journals, research reports, scientific magazines, newspapers, relevant books, seminar results, and so on (Adams, et al., 2017). This method is carried out by researchers after they determine the research topic and the determination of problem formulation and before they go to the field to collect the necessary data (Purbayanti & Suryadi, 2019). The data from the research that has been collected will be used as a reference to strengthen the arguments that arise later and existing arguments.

## 3. RESULTS

From several journals obtained, we found discussions related to the selection of Mozart's classical music that affects learning and brain outcomes. Mozart's classical music was proven to increase motivation to learn mathematics as well as in math learning outcomes (Rauscher & Hinton, 2006; Albright, 2012). It can be seen from the initial motivation data from the control class and experimental class that the percentages of 58.86% and 59.77% increased to 67.97% and 81.09%. In the study, a cooperative learning type with the Think Pair Share type was chosen. The purpose of this type of learning is that students have the opportunity to work

alone and cooperate with others. Students' thinking patterns can be influenced to be more creative and able to think logically and teach students to respect each other's opinions.

Music is known to improve mood, change the mental state of a student, and support the learning environment so that good grades can be produced and become more productive (Jennings & Greenberg, 2009). Playing Mozart classical music as an accompaniment to cooperative learning type Think Pair Share can increase students' motivation and learning outcomes in mathematics because with music playing, students will be in a relaxed, relaxed and fun condition.

Mozart's classical music is proven to provide peace for the body, especially for someone who is experiencing stress (Rosanty, 2014). It is reinforced by the statement that listening to Mozart's classical music can affect the body, mind, and emotions so that a sense of calm and peace can arise, as well as reduce pressure due to stress (Nagarajan, 2016). The study was conducted on Ahmad Dahlan University Faculty of Psychology students who were experiencing stress in preparing their thesis (Rosanty, 2014). Music titled *Andante Sostenuto* From The Violin Sonata In C Major, K. 296, and *Andantino* from the Concerto for Flute and Harp in C Major, K. 299 by Mozart was played. From the results of this study, qualitative data were obtained in the form of research subjects feeling changes after attending classical music listening training, Mozart. These changes include feeling comfortable, relaxed, anxious, and fearful when wanting to consult with lecturers. Through this, it can be shown that there is an effect of Mozart's classical music listening training on reducing stress levels in Psychology students who are working on a thesis at Ahmad Dahlan University Yogyakarta. It is explained that listening to Mozart's music or music, in general, can be used as a way to cure stress because music has the power to create a relaxed state in individuals so that there is a balance of metabolism between the body and hormonal (Cervellin & Lippi, 2011; Fancourt, et al., 2014).

## 4. DISCUSSION

### 4.1. Reasons for Choosing Mozart's Classical Music

Classical music is music created or rooted in the Western art tradition, and orchestral music covers the period from around the 9th century to the 21st century (Clarke, 2017). The use of classical music in the process of learning mathematics in elementary school children is done because classical music is familiar to the community (Richland, et al., 2012; Rauscher & Hinton, 2006). In addition, based on several studies on the effect of classical music in the learning process also show good results and are practical to use (Gao, et al., 2020; Rashidi & Faham, 2011).

The use of classical music in learning will be able to stimulate the brain's ability during the teaching and learning process. Music stimulates the growth of functions in the brain and stimulates the growth of memory stores (Zatorre, 2003; Krout, 2007). Classical music can stimulate the growth and expansion of brain functions because classical music has a calm sound and rhythm (Thaut, 2015; Chanda & Levitin, 2013). It will trigger waves in the brain that can calm and stimulate the neuron network system in the brain (Al Prakoso, et al., 2017; Ramdinmawii & Mittal, 2017).

Listening to classical music in the process of learning mathematics will also balance the concentration between the right brain and the left brain (Zulkurnaini, et al., 2012). The left brain is related to academic functions, which include the ability to speak, read and write, memory, numerical logic, and analysis (Khabiri & Heidari, 2011; Smith & Jonides, 1998). At the same time, the right brain functions as a place to develop things that are artistic, creative, feelings, emotions, language styles, musical rhythms, imaginary imagination, colors,

recognition of self and others, and personality development (Sousa, 2006; Trevarthen, 2012). It is necessary to include music, art, aesthetics, or other things related to the right brain in the learning experience and life of children to balance the tendency of left brain dominance (Winner, 2000; Levy, 1988). All of these evoke positive emotions that make the brain think more effectively. Putting on music is an effective way to occupy our right brain while concentrating on left brain activities. However, not all music can be used to support the learning process (Scripp, 2002; Gous-Kemp, 2014). One of the music that can be used to support the learning process is classical music.

At the molecular level, the body will vibrate at a fixed and stable wavelength. Meanwhile, music has a vibration or frequency (Raghu, 2018). When the body gets a response in the form of music, the frequency of this music can resonate or conflict with the body's frequency (Lee, et al., 2005). When the frequency is similar, the body will feel comfortable so that the body can learn better and be in a relaxed but alert state (Mead, 1999; Chapple, 1981).

Music is also very influential on teachers and students. Music can improve mood, change the mental state of a student, and support the learning environment so that good grades can be produced and become more productive (Reis & Renzulli, 2004; Kim & André, 2008). By using classical music in learning, it is hoped that elementary school students will not be bored to learn because classical music can improve their mood, mental state, and learning environment (Kim & Kim, 2018; Woody, 2004). When soft music is played as students enter the classroom, it can focus students' attention and increase physical energy levels. Students usually enter the classroom with a variety of concerns, feelings, and preoccupations. The role of music is to create a positive atmosphere that will then help them to become more focused on the lesson (Hallam, et al., 2018).

#### 4.2. Learning Room

The mathematics learning design in this study can be seen in the figure below.

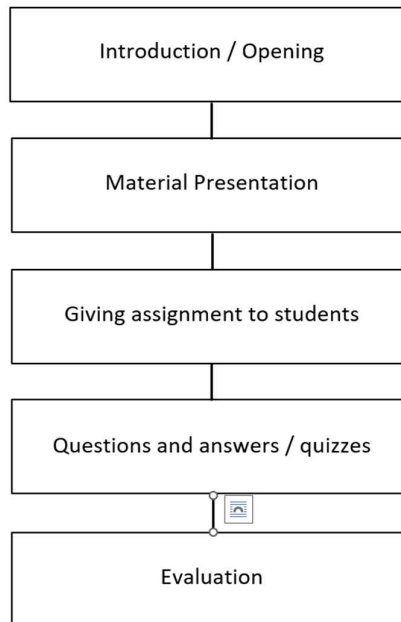


Figure 1. Chart of mathematics learning design in this study

There are several points on the learning design chart, such as:

- Introduction/opening: In this activity, the educator conveys what material will be presented or discussed at the meeting.
- Submission of material: This activity must be interactive. So, not only the teacher who conveys the material, but students are also allowed to explain related to the meeting material.
- Questions and answers/quizzes: This activity can also be carried out during the presentation of the material so that students can understand better if they are directly tried.
- Evaluation is carried out by educators both after the exam and after each learning activity.

### 4.3. Learning Methods that Can Use Classical Music and Other Usable Music Genres

Using classical music in the learning process has several benefits, such as increasing learning motivation, reducing stress, and balancing brain abilities. So, classical music can be applied in any learning design or method. In addition, the effectiveness of using classical music is also positive. Based on the results of research conducted by [Roffiq, et al. \(2017\)](#) on elementary school children at Purwacaraka Surakarta Music Studio show that playing classical music affects improving student learning achievement.

Based on educational psychology, there are eight learning methods: storytelling, demonstration, experimental, question and answer, field trip, project, assignment, and discovery ([Dunlosky, et al., 2013](#); [Rahmawati & Sumedi, 2020](#)). The storytelling is a learning method delivered orally directly to students. This storytelling method is one of the teaching methods that teachers often apply because it is easy to implement and does not require additional equipment. In this storytelling method, classical music can be used as an accompaniment to the material presented so that students are not bored when listening to the material. In addition, teachers can also use classical music in delivering material, such as material that is turned into songs with classical music genres, so that students understand better and are easier to remember. Furthermore, learning with the tour method can also use classical music, for example, during the trip to eliminate boredom. For other learning methods classical music can be used as an accompaniment or background in learning by adjusting the volume accordingly so as not to interfere with learning but give a pleasant impression.

As for the learning design that we make, classical music can be applied during the delivery of material as a learning accompaniment or create a learning song with a tune using classical music. Apart from the material delivery, classical music can also be used during quizzes or math assignments because classical music can help students solve mathematical problems ([Gumanti, et al., 2018](#)). In addition to classical music, other music genres can accompany learning activities, such as pop music, instrumental music, rock, and others. However, these music genres must be adjusted to the learning method used.

## 5. CONCLUSION

From the discussion, it can be concluded that Mozart's classical music can affect the method of learning mathematics for elementary school students. The supporting reason is that listening to classical music can balance concentration between the right and left brain. In addition, music can improve mood, change a student's mental state, and support the learning environment so that good grades can be produced and more productive. As for the learning design, classical music can be applied during the delivery of material as an accompaniment to learning or making learning songs with tones using classical music. In addition to the delivery

of material, classical music can also be used during quizzes or math assignments because classical music can help students in mathematical problem-solving. According to the researcher, the proper method of learning mathematics for elementary school students is linking the materials taught with familiar things around their environment. Of course, during the learning process, Mozart's classical music can be inserted to create a conducive learning environment and facilitate students' understanding of the material being taught.

## 6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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