



# Jurnal Arsitektur Zonasi

Journal homepage:

<https://ejournal.upi.edu/index.php/jaz>



## The Effect of Various Music Genres on the Concentration Level of Architecture Students

Surya August Salam<sup>1</sup>, Viona Adinda Putri<sup>2</sup>, Shofi Nurhidayah<sup>3</sup>, Ronaldy Fabio<sup>4</sup>, Bambang Perkasa Alam\*<sup>5</sup>

<sup>1, 2, 3, 4, 5</sup> Universitas Indraprasta PGRI, Jakarta

\*Correspondence: E-mail: [perkasaalam.bambang@gmail.com](mailto:perkasaalam.bambang@gmail.com)

### ABSTRACT

The learning process among architecture students is often accompanied by background music. While music can create a calming and conducive atmosphere for studying, not all genres have the same effect on concentration. This research aims to analyze how different music genres affect the learning concentration of architecture students. The study uses a quantitative approach by conducting a classroom experiment involving thirty architecture students. During a two-hour learning session, four music genres—rock, classical, religious, and EDM—were played consecutively. Afterward, a questionnaire was distributed to measure students' perceived concentration levels under each genre. The results show that 93% of students prefer to study with music. Among the genres, classical music was identified by 43.3% of students as the most effective in enhancing concentration, while rock music was seen as the most distracting, with 60% stating it disrupted their focus. The majority, 90%, agreed that music genres do influence their concentration levels. It was concluded that classical music, with its calm rhythm and harmonic structure, supports focus and mental alertness during learning. Conversely, the intense and dynamic nature of rock music tends to disturb concentration. This study underlines the importance of choosing the appropriate music genre to maximize cognitive performance in academic environments, especially in demanding fields like architecture.

### ARTICLE INFO

#### Article History:

Submitted/Received 13 Nov 2024

First Revised 15 Jan 2025

Accepted 10 April 2025

First Available online 30 May 2025

Publication Date 02 June 2025

#### Keyword:

music genre,  
concentration,  
student

## 1. INTRODUCTION

Just like in schools, on campus there are also teaching and learning activities. Learning is the process of student interaction with educators and learning resources in a learning environment (Mardiana, 2021). The learning environment itself includes lecturers, students, facilities and infrastructure, learning systems, and learning media (Rusticus et al., 2023). These aspects must complement each other in order to become an ecosystem that supports one another. Lecturers play a role in the selection of learning systems (Gani & Van Den Berg, 2019) so that the material taught is conveyed to students properly and clearly. Adequate facilities and infrastructure also support learning (Barrett et al., 2019), so that a positive learning environment can be created. However, there is something that without realizing it is also part of the usual learning activities, namely listening to music (Vondroušová\* & Juklová, 2017).

Music is often a listening companion when studying (Jeklin, 2021), whether it is studying alone or together in the classroom. Listening to music can stimulate or stimulate emotional responses (Pinnock, 2015). The result of this stimulation makes brain performance more active, effective, and creative. The psychological reaction caused by music can create a conducive, calm, and comfortable mood so that learning is maximized (Bavarava et al., 2024; Henry et al., 2021).

Listening to music while studying is not without reason, often students, one of them in the architecture department, tend to be bored (Gümüşburun Ayalp & Çivici, 2020; Sayed Abul Khair et al., 2022) and lazy when they have to struggle with lessons continuously. This major is a complex major that combines writing, counting, drawing, and imagination in one unit, making the brain forced to work extra to absorb each lesson. Therefore, music is played as an effort to relax the brain so that it can reduce boredom and increase concentration on lessons. The music chosen by students indirectly shows their design taste or understanding of the design (Tayyebi & Demir, 2020). Research on the relationship between music and architectural education has been done before. There is a connection between these two fields in terms of enhancing creative thinking (Ölgen, 2020).

Concentration is the mental functions on an object such as concentration of mind, attention and so on. The process of concentration begins when someone focuses their mind and attention on a chosen object. Concentration in learning is needed so that memory related to lessons is increasingly sharp (Rusli & Rahmatullah, 2018) and can complete tasks optimally and in accordance with the time.

Are all genres of music able to have the same effect on learning, namely increasing student concentration or instead the music becomes a distraction that can disperse thoughts while studying (Lisa & Dwiyantri, 2022). Music is a work of sound art in the form of a song or musical composition that uses the thoughts and feelings of its creator through the elements of music, namely rhythm, melody, harmony, form and song structure and expression as a unit (Novera & Budiwirman, 2020; Prasetyo & Sumaryanto, 2019). Music groupings that have similar elements between one another are called music genres. Each music genre has different characteristics (Kilickaya, 2024). The character of a music genre can be identified from its various musical aspects, such as musical form, texture, tonality, rhythm, melody, harmony, sound color, and so on. There are many genres of music, ranging from pop, rock, jazz, to classical. Connoisseurs of relaxed music that is easy to hum usually listen to pop genre music because of the simplicity of the lyrics and the melody, and the tone is easy to remember. Meanwhile, if someone tends to like loud music, the rock genre can be one of the music

choices, because of its fast, powerful beat and dynamic intensity (Gong, 2020; Liu, 2024). Some songs also contain groans sung by the vocalist.

From several genres of music that can be heard, four genres of songs are taken, namely rock, religious, EDM, and classical, where from these four genres, research is carried out to find out, which of the four music genres are able to increase concentration for architecture students while studying and which ones can actually interfere with the course of learning. The purpose of this research is to study the music genre in relation to students' concentration in learning architecture.

## **2. LITERATURE REVIEW**

Research on the influence of music on learning concentration has long attracted the attention of scientists, especially in the fields of educational psychology and neuroscience. Music is believed to have the ability to affect mood, stress levels, and even an individual's cognitive performance. According to Hallam (Hallam et al., 2002), music can serve as an external stimulus that triggers emotional and physiological responses, thereby influencing the level of attention and concentration during learning activities. The effect greatly depends on the type of music, individual preferences, and the context of the learning activity.

One widely used theory to explain the relationship between music and concentration is the arousal theory. This theory states that an optimal level of arousal can enhance cognitive performance, including concentration. Music with a moderate tempo and harmonious melody, such as classical music, is often able to create a suitable arousal for studying. Conversely, music with a fast tempo and high intensity, such as rock or EDM, can cause overstimulation and thus decrease concentration (Thompson et al., 2001)

The research conducted by Rauscher, introduced the term "Mozart Effect," which refers to the temporary increase in spatial and reasoning abilities after listening to classical music, particularly Mozart's works. This effect has become the basis for many subsequent studies exploring the influence of classical music on various cognitive aspects, including memory, concentration, and creativity. However, some researchers have found that this effect is not universal and is strongly influenced by individual factors such as music listening habits and personal preferences (Rauscher et al., 1993).

In addition to classical music, other genres such as pop, rock, and EDM are also frequently studied. Pop music tends to have simple lyrics and memorable melodies, which can help create a relaxed learning atmosphere. However, if the lyrics are too prominent, pop music can actually distract attention from the material being studied (Salamé & Baddeley, 1989). Rock music, characterized by its fast tempo and loud sound, is generally less recommended for learning activities that require high concentration, as it can trigger stress and mental fatigue.

On the other hand, EDM (Electronic Dance Music) features consistent rhythms and repetitive beats. Some studies have found that EDM can serve as "white noise" for certain individuals, helping to mask distracting environmental sounds. However, the dynamic transitions and sudden tempo changes in EDM can also disrupt focus, especially for individuals sensitive to sound changes (Angel et al., 2010).

Religious music has also become a focus in studies on learning concentration, especially in environments with strong cultural and spiritual backgrounds. Religious music often provides a calming effect and creates a positive inner atmosphere.

Personal factors such as music preference, learning habits, and sensitivity to sound greatly influence the effectiveness of music in enhancing concentration. According to North, individuals accustomed to studying with music tend to manage distractions better than those

who prefer silence. Therefore, it is important to consider individual aspects in research on music and concentration (North & Hargreaves, 1998).

Additionally, the context of the learning activity plays a significant role. Mechanical or repetitive learning activities, such as drawing or sketching (common among architecture students), are more easily combined with music than activities requiring verbal understanding or in-depth analysis. This is confirmed by Furnham & Bradley, who found that instrumental music is more suitable for visual and spatial tasks, while music with lyrics tends to interfere with verbal tasks (Furnham & Bradley, 1997).

Studies in various countries also show cultural differences in the choice of music genres for learning. In Western countries, classical and jazz music are often the main choices, while in Asian countries, pop and religious music are more popular. These differences reflect cultural values and social habits that influence perceptions of music and its use in educational contexts (Lehmann et al., 2007).

Based on the above discussion, it can be concluded that the influence of music on learning concentration is highly complex and influenced by many factors. This research seeks to enrich the literature by specifically examining the effects of four music genres—classical, rock, EDM, and religious—on the concentration of architecture students. Considering the unique characteristics of architecture students, who require high visual-spatial concentration, this study is expected to provide new contributions to the development of effective music-based learning strategies.

### 3. METHOD

This study uses a quantitative experimental method, with a direct in-class observation approach by providing music stimuli from various genres. This method was chosen to objectively measure the effect of music on architecture students' concentration in a real learning environment. The data collection process began with organizing a two-hour learning scenario in a studio class. The session was divided into four segments of 30 minutes each, and in each segment, a different music genre was played: classical, rock, religious, and EDM. Music was played at a consistent and moderate volume using classroom speakers to ensure that all participants experienced the stimulus equally.

During the session, students were not informed of the specific purpose of the experiment to avoid behavioral bias. After the learning session, students were asked to complete a questionnaire designed to measure their level of concentration, comfort, and perception for each music genre played. The questionnaire used a Likert scale from 1 to 5 to allow quantitative analysis. Data processing was conducted through simple tabulation and percentage-based visualizations using bar and pie charts. The data were then analyzed to identify which genres most supported or disrupted concentration. To strengthen internal validity, the questionnaire items underwent a limited trial and were revised based on input from educational experts.

This study has some novelty compared to previous studies. The specific context of architecture students, who cognitively require high visual-spatial concentration, is different from previous subjects (junior high school students or general students). Direct testing in real classroom sessions, rather than in controlled laboratory conditions, so that results are more representative of actual learning situations. Combining perception and learning performance, by assessing not only perception of concentration but also actual work (sketching tasks). Varied and contrasting genres, i.e. rock, classical, EDM and religious, which have rarely been comparatively studied in a single session of equal duration.

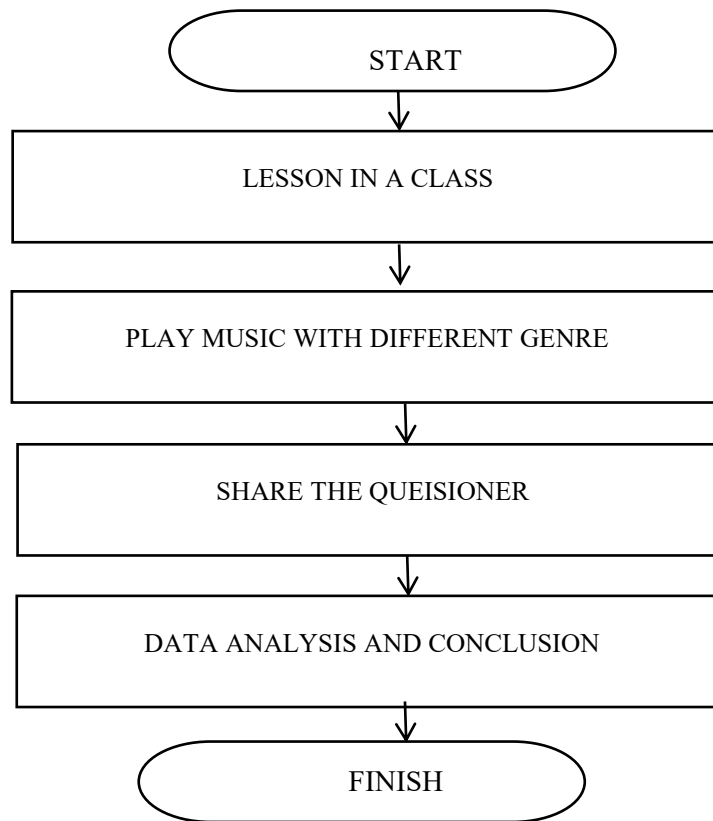


Figure 1. Research Flowchart  
(Source: analysis, 2023)

#### 4. RESULT AND DISSCUSION

After conducting the experiment for two full hours and obtaining data from the questionnaires that had been given to the thirty students, the following data was obtained:

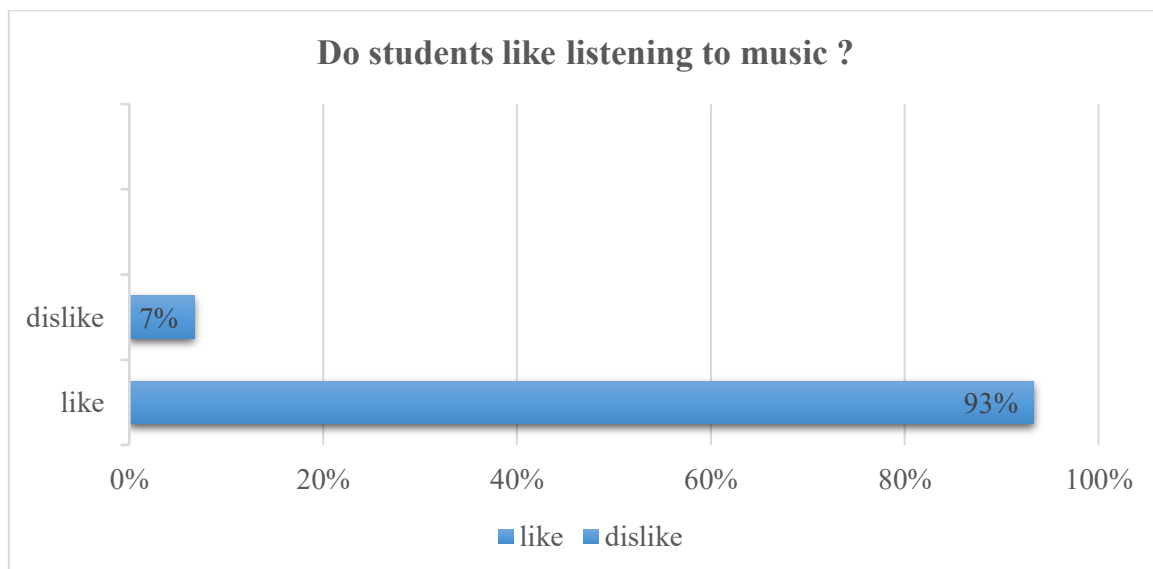


Figure 2. Percentage of Experiment Results to 30 Students  
(Source: analysis, 2023)

The results indicate that 93% of architecture students prefer to listen to music while studying rather than studying in silence. This finding suggests that music serves as a significant aid in creating a more enjoyable and productive learning atmosphere. Music can help alleviate

boredom and enhance motivation, particularly in the field of architecture, which often requires high levels of concentration and creativity. This preference also reflects students' need for additional stimuli that can help them remain focused and engaged in the learning process.

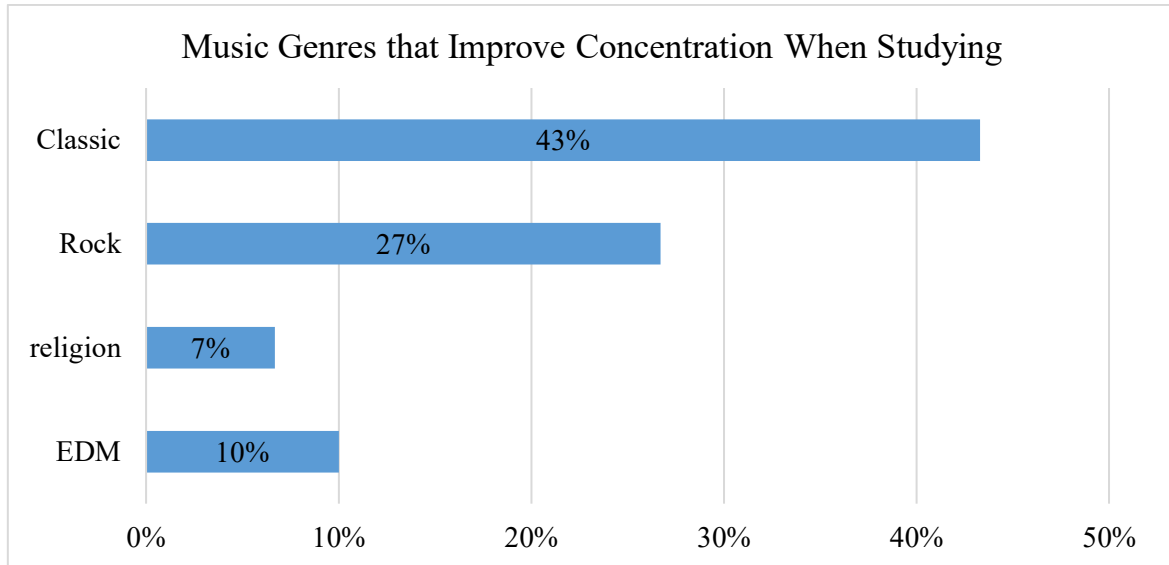


Figure 3. Percentage of Music Genres that Increase Studying Concentration (Source: analysis, 2023)

Among the four music genres played, 43.3% of students selected classical music as the genre that most effectively enhances their concentration. Classical music, characterized by its calm rhythm and harmonic structure, has proven effective in supporting focus and mental alertness during study sessions. Previous research has also indicated that classical music, particularly compositions by Mozart or Bach, can positively influence spatial abilities and assist in solving complex tasks, commonly referred to as the "Mozart effect." In contrast, religious music was chosen by only 6.7% of students, indicating that this genre may not be as effective as classical music in enhancing concentration.

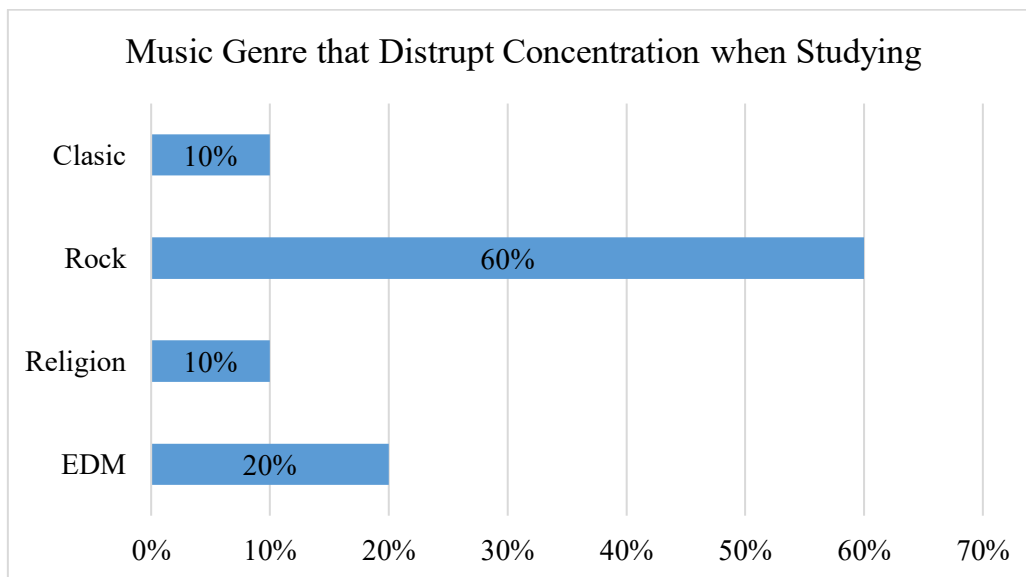


Figure 4. Percentage of Music Genres that Disrupt Study Concentration (Source: analysis, 2023)

Then the music genre that is considered to interfere with learning according to this research is rock music with a percentage of 60%. This means that more than half of the class dislikes learning accompanied by rock music, which is typically loud music. While religious and classical music is the music with the smallest percentage of 10% of the four genres. This indicates that this music does not really interfere with the learning process. This study found that rock music is considered the most distracting genre, with 60% of students reporting that it disrupts their focus. The fast-paced, loud, and dynamic characteristics of rock music can create stress or diminish cognitive endurance, particularly in learning environments that require calmness and concentration. The vocal styles often associated with rock music, which may include growling or screaming, can lead to sensory overstimulation, making it difficult for students to concentrate on the material being studied. Meanwhile, religious and classical music exhibited lower disruption percentages, at 10% each, indicating that these genres do not significantly interfere with the learning process.

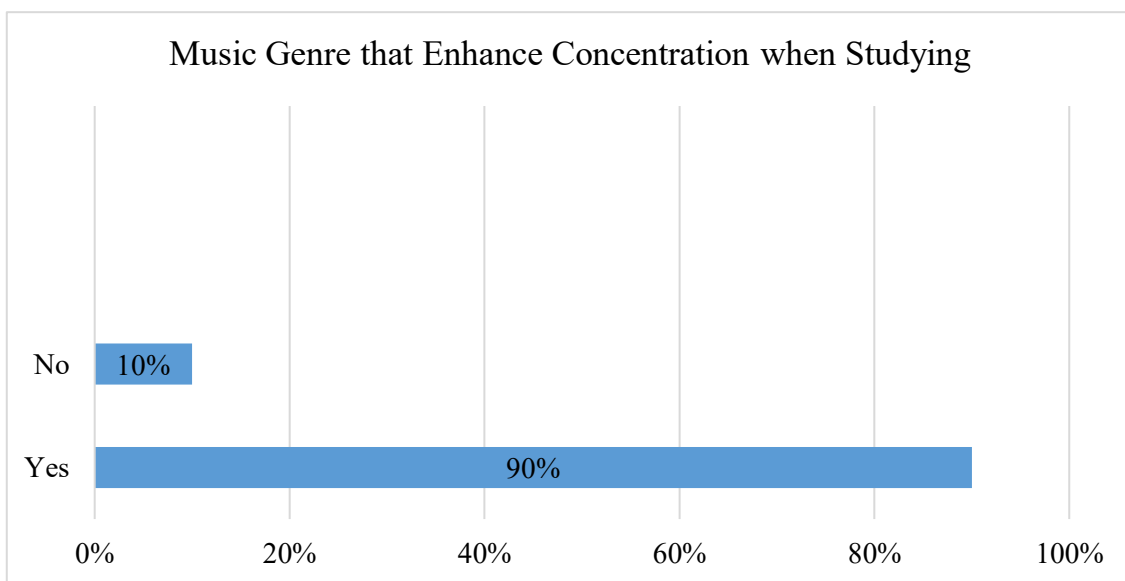


Figure 5. Percentage Effect of Music Genre in Enhancing Study Concentration  
(Source: analysis, 2023)

The final question in the questionnaire asked whether the genre of music affects students' concentration while studying, and 90% of students agreed that music genre influences their concentration levels. This finding underscores the awareness among architecture students regarding the impact of music on their ability to concentrate and complete academic tasks. Music functions as a tool to create an optimal learning environment, which is particularly crucial in the field of architecture that demands visual thinking, technical precision, and creativity. These findings also highlight the importance of selecting the appropriate music genre to maximize cognitive performance in academic settings.

The results show that most architecture students are used to studying with music in the background. This is inseparable from their need for stimulus that can maintain learning enthusiasm and concentration in the face of complex tasks. The field of architecture itself requires visual thinking, technical rigor and creativity simultaneously, which causes high cognitive stress. In this context, music becomes a tool to create an optimal learning atmosphere.

With classical music in particular, this genre ranks highest in improving concentration. Previous research suggests that classical music, particularly compositions by Mozart or Bach, has a positive influence on improving spatial abilities and solving complex tasks (the Mozart effect). In addition, the harmonious and minimal vocal characteristics of classical music make

it unobtrusive to the logical and imaginative thought processes that are dominant in architectural studies.

Meanwhile, rock music, which most students chose as the most distracting music, is characterized by fast tempo, loud sound, and high guitar distortion. In learning conditions that require calmness and focus, rhythms that are too intense can trigger stress or reduce cognitive endurance. The sound of vocalists with growling or screaming effects in some rock songs can also cause sensory over stimulation.

EDM (Electronic Dance Music), despite its consistent rhythm and repetitive beat, has a fairly neutral effect depending on the sub-genre and tempo. Some students find the steady rhythm helpful as it resembles white noise, but others find it distracting due to the dynamic transitions that appear in some parts of EDM songs.

Religious music received quite varied responses. For some students, this music provides inner peace and a positive spiritual atmosphere. However, because it sometimes contains strong lyrics and deep messages, some students feel distracted because the meaning of the music triggers reflections that are not relevant to the learning task.

From the overall responses, it was found that the choice of music while studying is highly influenced by personal preferences, the context of learning activities, and the level of sensitivity of each individual to the type of sound. Students who are used to a quiet study environment tend to be distracted by music with a fast tempo or dominant vocals. Conversely, students who are used to multitasking or have a habit of studying in public places may be more tolerant of strong rhythms.

Statistically, although genre classification provides a general overview, individual factors remain important variables. Therefore, in the context of architectural education, lecturers and institutions may consider providing learning spaces with audio flexibility so that students can adjust the learning stimulus according to their individual preferences.

Furthermore, these findings support the importance of music literacy in an educational context. Understanding the basic characteristics of each genre can help students choose the type of music that suits their learning needs. On the other hand, further research is needed to explore the influence of other variables such as music listening duration, lyrics in songs, and study time (morning/afternoon/evening) on concentration effectiveness.

## 5. CONCLUSION

Based on the data above, the research sample on average listens to music as a companion when studying and tends to be selective in choosing the genre of music played. Music genres can affect the level of concentration of students while studying, so the selection of genres is a step taken by students so that music does not interfere with the course of learning. From the data in figure two, classical music is the most common choice as a music genre that can improve learning concentration. The average classical music has a beat in accordance with the heartbeat of a relaxed human being in optimal learning conditions, which is sixty to eighty times per minute. Thus, this music is able to stimulate and maintain an optimal learning environment. The melodic and instrumental chord structure can help the body reach a state of alertness but relaxation so that this music can maintain our focus while studying. Classical music also has a very distinctive beat from its composers, has a timeless quality, high intellectual beauty, so it can synchronize the body and mind. Therefore, this genre of music is the top choice of architecture students as a companion music when studying.

Meanwhile, the music that can actually interfere with learning concentration according to the results of this study is rock music. This music is indeed considered loud music, where the music is dominated by emphasis on the arrangement. On high notes, you can often hear the

growls created by the vocalists. For these reasons, the sample considered this music to be unsuitable as a music companion when studying, as the sound caused by the music can disrupt concentration. This music is more suitable for relaxing or exercising which requires a fast rhythm to be more energized.

The conclusion obtained from this research is that music can improve concentration when studying, because music can increase brain performance to work extra. However, not all types or genres of songs can have this positive effect. Some types of songs actually trigger a loss of focus because they tend to be noisy and disrupt student concentration. Therefore, the selection of music genres as a companion to learning activities is important in order to maximize the potential of the brain to concentrate on what is being done.

## REFERENCE

- Mardiana, S. (2021). Pengaruh Model Learning Together (belajar bersama) dalam Memahami Wacana Tulis di Kelas XI SMA RK Delimurni Delitua. *Sintaks: Jurnal Bahasa & Sastra Indonesia*, 1(1), 4–8. <https://doi.org/10.57251/sin.v1i1.114>
- Rusticus, S. A., Pashootan, T., & Mah, A. (2023). What are the key elements of a positive learning environment? Perspectives from students and faculty. *Learning environments research*, 26(1), 161–175. <https://doi.org/10.1007/s10984-022-09410-4>
- Gani, F., & Berg, G.V. (2019). Lecturers' Perceptions of the Use of Learning Management Systems: A Case Study in Open Distance Learning. *Int. J. Web Based Learn. Teach. Technol.*, 14, 15-27.
- Barrett, P., Treves, A., Shmis, T., Ambasz, D., & Ustinova, M. (2019). The Impact of School Infrastructure on Learning. *International Development in Focus* (pp. 1–71).
- Vondroušová\*, J., & Juklová, K. (2017). Music As An Influential Factor In Learning (pp. 380–391). *Cognitive-crcs*. <https://doi.org/10.15405/epsbs.2017.10.35>
- Jeklin, A. (2021). Listening to Background Music While Studying - Emotional Drive or Cognitive Overload? Rödel, Anna Tatiana, (June), 95.
- Pinnock, G. (2015). Using live reggae instrumental acoustic music to influence students' mathematics test scores. *Journal of Mathematics Education*, 8(2), 115-125.
- Bavarava, A., & Sudarshan, J. V. (2024). The Impact of Music on Mood and Emotion: A Comprehensive Analysis.
- Henry, N., Kayser, D., & Egermann, H. (2021). Music in Mood Regulation and Coping Orientations in Response to COVID-19 Lockdown Measures Within the United Kingdom. *Frontiers in psychology*, 12, 647879. <https://doi.org/10.3389/fpsyg.2021.647879>
- Gümüşburun Ayalp, G., & Çivici, T. (2021). Critical stress factors influencing architecture students in Turkey: a structural equation modelling approach. *Open House International*, 46(2), 281-303.
- Khair, S. M. A. S. A., Mohd, T., Rohani, P., & Rahim, M. A. (2022). Exploring Architecture Student's Behaviour in Using Google Workspace for Design Studio Learning During COVID-19 Pandemic. *Journal of Academic Research in Progressive Education and Development*, 11(3), 1476-1492.
- Tayyebi, Seyed Farhad & Demir, Yuksel. (2020). Musical Preferences Correlate Architectural Tastes: An Initial Investigation of the Correlations Between the Preferred Attributes. *Advanced Journal of Social Science*. 7. 96-108. 10.21467/ajss.7.1.96-108.
- Ölgen, B. (2020). A Literature Review on the Use of Music in Architectural Design Education. *Design and Technology Education*, 25(2), 74-88.
- Rusli, R., & Rahmatullah, M. A. (2017, August). The Description of Learning Concentration Viewed from the Suggestibility Levels (Case on Students of Psychology Department

- Lambung Mangkurat University Banjarbaru). In 8th International Conference of Asian Association of Indigenous and Cultural Psychology (ICAAIP 2017) (pp. 120-122). Atlantis Press.
- Lisa, S. N., & Dwiyantri, E. (2022). Literature Study of Work Accompaniment Music Effect on Employee Productivity in Several Companies. *Journal of Public Health Research and Community Health Development*, 5(2), 73-79.
- Novera, D., & Budiwirman. (2020). An Analysis of Guguak Manyambah Song Created by B. Andoeska in Minangkabau Song. *Proceedings of the International Conference On Social Studies, Globalisation And Technology (ICSSGT 2019) An*, 458(Icssgt 2019), 139–146. <https://doi.org/10.2991/assehr.k.200803.018>
- Prasetyo, N., & Sumaryanto, T. (2019). Catharsis : Journal of Arts Education Form , Structure of Music in Magic Genjring Art at Randusanga Kulon Village , Brebes District , Brebes Regency. *Catharsis: Journal of Arts Education*, 8(3), 229–238
- Kilickaya, Ozlem. (2024). Genre Classification and Musical Features Analysis. *International Journal of Latest Engineering Research and Applications (IJLERA)*. 09. 18-33.
- Liu, Z. (2024). The Relationship between Music Preferences and Personality Traits. *Journal of Education, Humanities and Social Sciences*, 34, 6-11. <https://doi.org/10.54097/xdecw721>
- Gong, J. (2020, July). The correlations between music preferences and personality. In *2020 5th International Conference on Humanities Science and Society Development (ICHSSD 2020)* (pp. 47-52). Atlantis Press.
- Angel, L. A., Polzella, D. J., & Elvers, G. C. (2010). Background music and cognitive performance. *Perceptual and Motor Skills*, 110(3), 1059–1064.
- Furnham, A., & Bradley, A. (1997). Music while you work: The differential distraction of background music on the cognitive test performance of introverts and extraverts. *Applied Cognitive Psychology*, 11(5), 445–455.
- Hallam, S., Price, J., & Katsarou, G. (2002). The effects of background music on primary school pupils' task performance. *Educational Studies*, 28(2), 111–122.
- Lehmann, A. C., Sloboda, J. A., & Woody, R. H. (2007). *Psychology for Musicians: Understanding and Acquiring the Skills*. Oxford University Press.
- North, A. C., Hargreaves, D. J., & McKendrick, J. (2004). The effects of music on atmosphere and purchase intentions in a cafeteria. *Journal of Applied Social Psychology*, 34(8), 1685–1706.
- Rauscher, F. H., Shaw, G. L., & Ky, K. N. (1993). Music and spatial task performance. *Nature*, 365(6447), 611.
- Salame, P., & Baddeley, A. (1989). Effects of background music on phonological short-term memory. *The Quarterly Journal of Experimental Psychology*, 41(1), 107–122.
- Thompson, W. F., Schellenberg, E. G., & Husain, G. (2001). Arousal, mood, and the Mozart effect. *Psychological Science*, 12(3), 248–251.