

Role of Music in Improving Focus and Memory Retention in Academic Students

M. Shriya ^{1*}, Bismirty Bhuyan ²

¹Student, MSc. Clinical Psychology, Dept. of Psychology, AIBAS.

²Assistant Professor, Dept. of Psychology, Amity University, Bengaluru.

***Corresponding Author:** M. Shriya, Student, MSc. Clinical Psychology, Dept. of Psychology, AIBAS.

Received date: Decembe 24, 2024; **Accepted date:** February 17, 2025; **Published date:** February 23, 2025

Citation: M. Shriya, Bismirty Bhuyan, (2025), Role of Music in Improving Focus and Memory Retention in Academic Students, *Psychology and Mental Health Care*, 9(2): DOI:10.31579/2637-8892/318

Copyright: © 2025, Satyendra Nath Chakrabarty. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Music has been recognized as one of the influences on cognitive functions, specifically on focus and memory retention. This research explores the effect of listening to music while studying and how it impacts students' concentration and ability to retain information. Using a mixed-methods approach, the study examines quantitative measures of cognitive performance and qualitative feedback from students. The findings aim to provide a clear understanding whether music can be an effective study and shaping educational strategies to enhance academic performance.

Keywords: music; focus; memory retention; cognitive performance; students; education; background music

Introduction

Focusing and remembering information is important for doing well in school, especially now when there are so many pressures and distractions. Because of this, students are trying different ways to boost their grades, and using music is one of them. Studies in psychology have looked at how music affects the brain, and the results are mixed. Some research shows that listening to music in the background can help people concentrate, feel better, and ease their worries. However, other studies warn that music might actually make it harder to focus, depending on things like the type of music, how loud it is, and what task someone is doing. The relationship between music and how well we think is still a topic of discussion, showing both good and bad sides. For example, types of music like classical or instrumental can create a calm and focused space, helping people concentrate on tough tasks. On the other hand, lively or words-filled music can be distracting, especially when someone needs to focus hard, like when studying for tests or reading. This study will look into how music affects students' focus and memory. It will check if different types of music can help students stay focused and remember things better. By using surveys and cognitive tests along with interviews or observations, the study will see how much music really helps students think better. It will also look at when music is the most helpful, like which genres work best, the right volume, and what tasks are involved, to find the best music setups for doing well in school. This research hopes to give a clearer picture of how music can be used to help learning.

Need for the study:

The increasing complexity of academic expectations makes it essential to explore innovative methods to support student performance. Many students already listen to music while studying, but there is no consensus on whether this habit is beneficial or detrimental. The existing research on the impact of music on cognitive functions has produced mixed findings, leaving a gap in understanding the precise effects on focus and memory retention. This study is needed to provide more clarity and evidence-based guidance for students, educators, and researchers. By investigating how music influences cognitive abilities in academic settings, the research could inform the development of more effective study strategies and learning environments. Additionally, understanding the diverse effects of music on concentration and memory can help address individual differences among students, leading to more personalized approaches to education. The study aims to contribute to the educational field by exploring whether integrating music can enhance academic performance, making it a valuable area of research for both theoretical and practical applications.

Review of literature:

A study was conducted to examine the 'impact of background music on the academic performance of primary school students'. The study involved 50 primary school pupils and focused on how background music

influenced their concentration and task performance. The findings indicated that background music, particularly calming music, had a positive effect on students' concentration, leading to better performance in arithmetic tasks. Compared to a control group studying in silence, students exposed to background music demonstrated higher levels of focus and accuracy, suggesting that the right kind of music can enhance cognitive performance in academic settings. ([Hallam, Price & Katsarou 2002](#)). A study was conducted on the 'relationship between music and cognitive abilities among children', involving 144 participants aged 6 to 15 years. The study found that children who were exposed to music lessons demonstrated improved IQ scores and performed better on memory tests. The results revisited the concept of the "Mozart Effect," suggesting that music training has a positive impact on cognitive development, particularly enhancing memory and attention skills in children. This study supports the idea that engaging in music lessons can lead to broader cognitive benefits beyond musical skills. ([Schellenberg, 2005](#)). A study was conducted on the 'effects of music as a distraction during cognitive tasks', with a sample of 118 university students. The study found that loud and complex music negatively impacted students' concentration, serving as a distraction during study tasks. In contrast, soft and simple music had a neutral to positive effect on concentration, suggesting that the complexity and volume of background music play a crucial role in determining its impact on cognitive performance. This research highlights the importance of selecting the right type of music for enhancing focus during academic activities. ([Furnham & Strbac 2002](#)). A study was conducted on the influence of 'background music on learning performance 'among 87 junior high school students. The study revealed that music, especially instrumental music, enhanced learning efficiency and improved memory retention. Additionally, a positive correlation was identified between listening to music and reduced anxiety levels during study sessions, suggesting that instrumental background music not only aids in academic performance but also creates a more relaxed and focused study environment for students. ([Chou .P.T & Lin. C.C 2015](#)). A study was conducted to examine the 'effect of background music tempo on reading comprehension and memory retention', involving 80 undergraduate students. The findings indicated that slow-tempo music had a positive influence on both reading comprehension and memory recall, enhancing the students' ability to retain information. In contrast, fast-tempo music negatively impacted memory retention, suggesting that the tempo of background music is a significant factor in determining its effect on cognitive tasks. ([Kang & Williamson 2014](#)). A study was conducted on the 'impact of background music on cognitive performance across different age groups', involving 120 participants, including students and older adults. The study found that younger participants, particularly students, performed better on memory tasks when listening to classical and instrumental music compared to studying in silence. These results highlight age-related differences in how music affects cognition, with younger individuals benefiting more from music during cognitive tasks, suggesting that music may have varying impacts based on age. (Patston & Tippett 2011)

Research methodology:

Aim: The aim of this study is to examine the effect of music on enhancing focus and memory retention in academic students. It seeks to determine if listening to music during study sessions can improve concentration and information recall.

Research question:

Does listening to music while studying improve students' focus and memory retention?

Objectives

1. To assess the impact of music on students' concentration and memory performance.
2. To identify which aspects of music (if any) contribute positively or negatively to study environments.
3. To provide insights for students and educators on how music can be utilized for academic improvement.

Operational definition:

Music:

Music is made up of carefully chosen sounds or styles, like classical music, instrumental pieces, or nature sounds, played at a steady volume and speed while studying.

Focus:

Focus is how well students can pay attention and stay on task without being distracted. This is often checked using simple surveys or by looking at how they perform on tasks that require attention.

Memory retention:

Memory Retention means how well students can remember and keep the information they learn during their study time. This is tested by asking them to recall information right away or after some time, or through standardized memory tests.

Academic students:

Academic Students are those who are attending a school or college, especially those taking part in formal studies, like high school or college learners, who experience organized learning settings.

Sample:

The study's sample consisted of 100 college students aged 15 to 25 years, selected to examine the impact of music on focus and memory retention. Participants were recruited specifically from within this age range to ensure relevance to the academic student population.

Inclusion criteria: required participants to be college students aged between 15 and 25 years.

Exclusion criteria: involved excluding individuals below 15 years and above 25 years to maintain a consistent and relevant age group for the research.

Hypothesis:

Alternate Hypothesis (H₁):

Listening to music while studying will significantly improve focus and memory retention among academic students compared to studying without music.

Null Hypothesis (H₀):

Listening to music while studying will not have a significant effect on focus and memory retention among academic students compared to studying without music.

Procedure:

A sample of 100 college students aged 15 to 25 years will be recruited through academic networks and online platforms, ensuring that participants meet the age criteria and are active students. Participants will initially complete the Music Use Questionnaire (MUQ) via a Google Form, assessing their typical music habits, such as the frequency of music use while studying, preferred genres, volume levels, and perceived effects on focus. This baseline information will provide insights into each

participant’s relationship with music in daily life and academic contexts. After participating in the study sessions, under both music and silence conditions, they will complete the Everyday Memory Questionnaire (EMQ), which evaluates memory retention through tasks related to daily memory functions, like remembering details and recalling studied material. The EMQ will help determine whether studying with or without music impacted their everyday memory and academic recall performance.

Scale:

Scale Name	Items	Author and year	Scoring	Interpretation
Music Use Questionnaire	Shortened version of this scale with 10 items (original =20 items)	The Music Use Questionnaire (MUSE) was developed by Chin, K., & Rickard, N. S. (2012)	Likert Scale 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree	10-19 – low impact of music 20-29- Mild Impact Of Music 30-39 – Moderate Impact Of Music 40-50 -High Impact Of Music
Everyday Memory Questionnaire	Shortened Version of this scale with 10 items (original =28)	Everyday Memory Questionnaire (EMQ) developed by Sunderland, Harris, and Baddeley (1983).	Likert Scale 1 = Never 2 = Rarely 3=Occasionally 4 = Frequently 5 = Very Frequently	10-19 -Low Frequency 20-29- Mild Frequency 30-39-Moderate Frequency 40-50 – High Frequency

Data analysis:

Table 1:

Descriptives	Part A (totalt score) Part B(Total score)	
	N	100
Missing	0	0
Mean	31.8	27.2
Median	30.0	27.0
Standard deviation	7.40	5.78
Minimum	16	12
Maximum	50	42

This summary looks at two sections (A and B) of a test, with each section having 100 test-takers. For Part A, the average score is 31.8, with scores mostly spread around 7.40 points. The middle score, known as the median, is 30.0. Part B has a lower average score of 27.2 and a median score of 27.0, with scores that are more consistent, only varying about

5.78 points. The scores in Part A go from 16 to 50, showing a bigger spread than in Part B, where scores range from 12 to 42. Because Part A has a higher spread in scores, it means there’s more difference in how people performed. Both sections have complete data with no missing scores, making it easier to analyze the results.

Table 2:

Correlation Matrix

		Part A (total score)	Part B (Total score)
Part A (total score)	Pearson's r	—	
	df	—	
	p-value	—	
Part B (Total score)	Pearson's r	-0.059	—
	df	98	—
	p-value	0.563	—

The correlation matrix shows how the total scores of Part A and Part B are related. The Pearson correlation coefficient (r) is -0.059, which means there is a very weak negative connection. With 98 degrees of freedom (df), the p-value is 0.563, which is not significant ($p > 0.05$). This tells us there is no proof of a meaningful relationship between the scores of Part A and Part B in this data set.

Discussion:

The results of the study show that music did not really help students focus or remember things better. There wasn't much difference between the times when students listened to music and when it was quiet. This makes us rethink the idea that playing music in the background always helps with thinking and learning. It could be that what kind of music people like, how loud it is, or the speed of the music affected the results. Also, the tasks might have been too complicated. Other things like how hard the tasks were, what the students already knew, and the noise level in the room could have made it hard to see a clear effect. These findings are similar to some earlier studies that point out how different types of music can change how well people think. For instance, soft, instrumental, or classical music often helps with concentration, while loud or complicated music can make it hard to focus. In this study, not having control over the type of music played might have led to the unclear results.

Results:

Part A scores are much higher and vary more than Part B scores. The slight negative relationship between scores in Part A and Part B ($r = -0.059$, $p = 0.563$) indicates that there is no real connection between them. Also, scores do not show any important links to Gender or Age in either part. Since the p value is greater than 0.005 it shows that there is no significant relationship, hence alternate hypothesis is rejected while null hypothesis is accepted

Implications:

1. **Better Study Methods:** Listening to music might be a good way to help students study better by making it easier to focus and remember what they learn.
2. **Customized Learning Spaces:** Ideas may lead to creating specific playlists or using background music in study spots to aid concentration.

3. **Help for Students with Learning Challenges:** Music could assist students with ADHD or other learning challenges in staying focused and remembering information more effectively.

limitations:

1. The study does not control for variations in music volume and tempo, which can have different effects on cognitive performance depending on individual preferences.
2. Other external factors like sleep, stress levels, and study habits are not controlled for, which might influence the cognitive outcomes observed.
3. The study primarily focuses on immediate cognitive performance and does not account for long-term effects of music on memory retention and focus.

Future research suggestions:

1. Personalized Music Approaches

Explore how personal tastes, like favorite music styles, speed, and how well someone knows a song, affect music's role in improving concentration and memory. And Create playlists using AI that are customized to help boost mental performance.

2. Exploring Music and Multitasking

Look into how background music impacts students when they try to manage different academic tasks at once. Investigate if some music styles help lessen distractions while multitasking.

3. Effects of Silence and Music

Look at how studying in total quiet compares to studying with music. This will help us figure out when music really helps and also, explore if taking short breaks of silence between songs can improve how we remember things.

4. Exploring Music's Impact on Neurodiverse Learners

Look into how music influences attention and memory among students with ADHD, autism, or learning challenges and create tailored musical activities for these students to improve their learning experiences

References:

1. Ritter, S. M., & Ferguson, S. (2017). The influence of background music on cognitive performance: A meta-analysis. *Psychology of Music, 45*(6), 744-767.
2. Mehta, R. (2012). The effects of background music on memory and recall: A review of literature. *Journal of Educational Psychology, 31*(4), 279-290.
3. Jäncke, L. (2012). Music and memory: From brain to behavior. In R. H. Zatorre & I. Peretz (Eds.), *The cognitive neuroscience of music* (pp. 149-169).
4. Hallam, S., Price, J., & Katsarou, G. (2002). The effects of background music on primary school pupils' task performance. *Educational Studies, 28*(2), 111-122.
5. Schellenberg, E. G. (2005). Music and cognitive abilities. *Current Directions in Psychological Science, 14*(6), 317-320.
6. Furnham, A., & Strbac, L. (2002). Music as distraction: The effect of background music on cognitive task performance. *Psychology of Music, 30*(2), 119-123.
7. Chou, P. T., & Lin, C. C. (2015). Background music listening in junior high school students: Effects on learning and anxiety reduction. *Journal of Educational Research, 108*(3), 172-181.
8. Kang, H., & Williamson, V. J. (2014). Background music tempo and its effect on memory retention. *Psychology of Music, 42*(6), 869-881.
9. Patston, L. L., & Tippett, L. J. (2011). The effect of background music on cognitive performance: A comparison of younger and older adults. *Psychology of Music, 39*(3), 278-292.

APPENDIX:**Adapted music use questionnaire:**

1. I listen to music to help me concentrate while studying.
2. Music helps me focus on academic tasks.
3. I use music to improve my mood when preparing for exams.
4. Music helps me relax during study breaks.
5. I find that music aids in remembering study material.
6. I listen to music to block out distractions while studying.
7. Music helps me stay focused for longer study sessions.
8. I prefer studying with music rather than in silence.
9. Listening to music enhances my performance on academic tasks.
10. I feel more energized when listening to music during study sessions.

ADAPTED EVERYDAY MEMORY QUESTIONNAIRE:

1. I forget where I've put things.
2. I forget appointments or meetings.
3. I lose my train of thought during conversations.
4. I forget the names of people I just met.
5. I forget to do things I had planned to do.
6. I forget the details of conversations I've had.
7. I make mistakes because I forget important details.
8. I lose things I use regularly (e.g., keys, wallet, glasses).
9. I forget important dates (e.g., birthdays, anniversaries).
10. I forget what I've read.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here:

Submit Manuscript

DOI:10.31579/2637-8892/318

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://auctoresonline.org/journals/psychology-and-mental-health-care>