



THE ROLE OF BACKGROUND MUSIC IN STUDENT CONCENTRATION AND PERFORMANCE: A REVIEW OF THE LITERATURE

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Abstract: *This paper investigates how background music (BGM) influences student concentration and achievement. A systematic literature search (1993-2025) identified experimental and meta-analytic studies, which were coded for music type, task demand, and participant preferences. Findings show lyric-free, low-arousal instrumental music moderately improves attention on simple tasks, whereas lyrical or high-arousal music disrupts focus. Implications for classroom practice and research gaps are discussed.*


Keywords: *academic performance, attention, background music, cognitive load, instrumental music, lyrical music, student concentration.*

Introduction

The ability of students to maintain focus while learning directly influences academic outcomes, yet modern classrooms are increasingly filled with competing auditory stimuli. Background music has emerged as a potentially powerful, low-cost tool that could either bolster or undermine concentration, depending on its characteristics. Understanding when and how BGM supports learning is therefore essential for educators, curriculum designers, and policymakers seeking evidence-based strategies to enhance student performance.

This review paper examines the existing literature on BGM and its effects on student performance. First, we outline the historical origins of the field, beginning with the “Mozart effect” study that sparked widespread interest in music-induced cognitive changes. Next, we evaluate research on lyric-free, low-arousal instrumental music, highlighting evidence that such soundscapes can improve on-task attention, mood, and performance in simple or repetitive tasks. We then contrast these benefits with findings on lyrical or high-arousal music, which frequently overloads working memory and impairs focus. Following this dichotomy, we explore conditional and mixed results, emphasizing how task difficulty, musical genre, tempo, familiarity, and individual differences (e.g., personality traits, personal preference) moderate the impact of BGM. Finally, we synthesize the converging patterns identified across studies and discuss practical implications for incorporating BGM into educational settings.

By organizing the discussion in this logical sequence (historical context, supportive evidence for instrumental BGM, detrimental effects of lyrical or high-arousal music, moderating variables, and synthesis), we provide readers with a clear roadmap to navigate the complex interplay between music and cognition. This framework not only clarifies the current state of knowledge but also identifies gaps that future research must address to



harness background music effectively for improving student concentration and academic performance.

Literature Review

The effects of music on cognitive function have long been a subject of scholarly interest. The first large-scale investigation of music's cognitive impact was the Nature report by Rauscher et al. (1993), which described a brief enhancement of non-verbal reasoning after listening to Mozart. This finding popularized the "Mozart effect" and opened a research field on background music (BGM) in learning environments.

Positive effects of lyric-free BGM

A growing body of empirical work shows that low-volume, instrumental, or ambient tracks can improve on-task concentration and mood. In a naturalistic classroom study, 61 Montessori children (ages 3-6) displayed fewer unfocused behaviors and higher engagement when continuous instrumental, slow-paced music from streaming services was played during skill-practice activities, whereas the same music hindered comprehension during lectures (Duna Strachan, 2015). A randomized trial with 100 design students conducted by Khairul Ázmi et al. (2024) found that lo-fi and modern classic remixes boosted attention, memory, mood, and concentration compared with a silent control. Systematic reviews confirm that instrumental BGM often masks distracting ambient noise, reduces stress, and modestly enhances performance on low-complexity tasks, especially when the music is familiar or preferred by the listener (Park et al., 2020).

Negative effects of lyrical or high-arousal BGM

Conversely, music containing lyrics tends to place additional demands on working memory and reduce sustained attention. A randomized controlled trial (RCT) study with 102 university participants demonstrated a significant decline in concentration scores when lyrical BGM was presented, leading authors to recommend lyric-free selections for work or study contexts (Shih et al., 2012). Similar conclusions emerge from meta-analytic evidence that lyrical BGM produces a general detrimental effect on memory and language-related tasks, while instrumental BGM may yield occasional benefits (Cheah et al., 2022).

Mixed and conditional findings

Several studies report that BGM's impact depends on task difficulty, genre, and individual preference. Classical or jazz music, characterized by lower average frequencies, was associated with higher sustained-attention indices in a café-based experiment, yet the differences were not always statistically significant (Park et al., 2020). Findings from Ananya Gupta et al. (2025) suggest that fast-tempo or unfamiliar genres often increase arousal without improving accuracy, supporting the arousal-mood hypothesis that moderate arousal and positive affect mediate any performance gains. A recent systematic review by Cheah et al. (2022) highlighted that BGM can be beneficial for easy tasks but detrimental for demanding cognitive operations and that introverted individuals may experience larger performance decrements than extraverts.



Synthesis

Collectively, the literature suggests three converging patterns: (1) lyric-free, low-arousal instrumental music can enhance concentration and mood for low cognitive-load activities; (2) lyrical or high-arousal music frequently impairs attention and memory; and (3) individual differences in music preference and task characteristics critically moderate these effects. These insights provide a nuanced foundation for the present review of BGM's role in student concentration and academic performance.


Conclusion

The review emphasizes that background music (BGM) does not exert a consistent influence on learning; its impact hinges on acoustic features, task demands, and learner characteristics. Consistent evidence shows that low-volume, lyric-free, low-arousal instrumental tracks can attenuate distracting ambient noise, lower stress, and modestly boost task-focused attention, mood, and performance on simple activities. In contrast, music with lyrics or high arousal typically overloads working memory, reducing concentration and impairing memory-intensive tasks. Crucially, these effects are moderated by variables such as task difficulty, genre, tempo, familiarity, and individual differences in personality and preference; introverts, for example, are more vulnerable to performance decrements under lyrical BGM. By synthesizing these converging patterns, the present review clarifies the conditions under which BGM can be a low-cost pedagogical aid and where it may be detrimental. It also identifies persistent gaps, notably the need for longitudinal, classroom-based investigations that integrate neurocognitive measures and account for cultural and age-related variations. Building on the arousal-mood and cognitive-load frameworks, the review offers a nuanced, evidence-based roadmap for educators and policymakers to harness instrumental BGM strategically, while prompting future research to refine its application across diverse educational contexts.



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