

Song-Powered Learning: Enhancing Vocabulary and Reading Comprehension of Junior Bael Students

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Abstract. The study examined the effects of classical, jazz, rock, and pop background music on the vocabulary and reading comprehension performance of BAEL students. Despite research on music-assisted language learning, there is limited research integrating affective factors and cognitive outcomes, such as vocabulary retention and reading comprehension, among university-level English majors. A quasi-experimental pretest-post-test design was employed, involving four intact classes assigned to different music conditions. Paired-samples t-tests were used to analyze prepost differences in vocabulary and reading comprehension. Results of the study showed significant differences in post-test scores across groups, with classical, jazz, and rock music yielding significant gains, while pop music showed no significant improvement. The classical group obtained the highest post-test performance, followed by jazz and rock, whereas the pop group recorded the lowest gain. T-test results indicated statistically significant differences between pre-test and post-test scores for the classical, jazz, and rock groups, but not for the pop group. Item-level analysis further showed consistent difficulty in abstract, low-frequency vocabulary and inferential reading comprehension across all groups. Overall, the findings indicate that background music can support vocabulary and reading development when aligned with cognitive demands, highlighting the pedagogical value of carefully selected music in tertiary language classrooms.

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INTRODUCTION

Music-assisted learning has been widely explored in language education, yet research findings remain inconsistent. Studies in cognitive psychology suggest that background music can either support or hinder learning depending on its characteristics and the cognitive demands of the task. Neuroscience research further supports this variability by demonstrating that music influences attention, memory consolidation, and neuroplasticity. For instance, certain musical features can facilitate learning by enhancing focus and encoding, while others may disrupt cognitive processing and reduce performance (Dos Santos et al., 2023; Echaide et al., 2020; Trzesniak et al., 2023). Kiss, Oo, Biró, and Józsa (2025) noted that music learning can provide students with significant emotional and educational benefits, including stress relief, increased confidence, self-expression, brain development, enhanced attention, and perseverance.

Empirical studies across diverse educational contexts show that music can enhance vocabulary learning and reading-related skills, although results vary. Research conducted in Indonesia, Bangladesh, and Europe indicates that melodic and pop songs can improve vocabulary

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recall, pronunciation, and phonological awareness (Afriyuninda & Oktaviani, 2021; Hamid et al., 2020; Schön et al., 2020). In Middle Eastern contexts, music-assisted instruction has been shown to reduce learner anxiety and increase classroom participation, though its effectiveness differs based on gender and learning conditions (Alosaimi, 2021; Namaziandost et al., 2021). Supporting studies confirm that familiar and meaningful songs enhance incidental vocabulary acquisition and sustained learner engagement (Li et al., 2022; Nguyen & Ho, 2021). Research also highlights melodic encoding, rhythmic reinforcement, and multimodal input as key mechanisms underlying vocabulary learning through music (Baills et al., 2021; Pavia et al., 2019; Ramezanali et al., 2021), alongside affective benefits such as reduced anxiety and increased motivation (Alosaimi, 2021; Dolean, 2020).

Lyrical music may interfere with verbal processing by introducing competing linguistic input, whereas instrumental music may enhance concentration and attentional focus when aligned with task demands and cognitive load (Du et al., 2020; Souza & Barbosa, 2023). Other studies report that background music can impair recall and comprehension during cognitively demanding tasks, especially when learners are required to process linguistic information simultaneously (Prabhu et al., 2022; Sun et al., 2024). Genre-specific studies further suggest that pop, jazz, and rap may support vocabulary development and auditory processing, whereas genres such as folk ballads or heavy metal tend to enhance motivation without producing significant gains in linguistic accuracy (Bokiev et al., 2018; Butt et al., 2021; Deogratias, 2022). Culturally relevant and narrative-driven songs demonstrate particularly strong instructional potential, as shown in David's (2020) study on Taylor Swift's Folklore trilogy, where clear articulation, emotional storytelling, and lyrics-on-screen facilitated vocabulary learning and reading comprehension among Filipino learners. These findings emphasize the importance of aligning musical genre and format with instructional objectives rather than assuming uniform pedagogical benefits. These mixed findings indicate that the effectiveness of music-assisted learning is shaped by multiple interacting variables, including learner proficiency, music genre, instructional design, and task complexity (Claudio & Bakke, 2022; Nayak et al., 2021).

Despite the growing body of literature on music-assisted language learning, several research gaps persist. First, most studies focus on young learners or general EFL populations, leaving university-level English majors underrepresented (Murphy Odo, 2021). Second, comparative studies that systematically investigate instrumental versus lyrical formats under controlled conditions are limited, and few studies simultaneously consider genre, learner proficiency, and baseline vocabulary knowledge (Bian, 2021). Third, while affective factors such as motivation and engagement are frequently discussed, they are rarely examined alongside cognitive outcomes such as vocabulary retention and reading comprehension within a single research design.

This study is grounded in cognitive, psycholinguistic, and affective theories of language learning that emphasize the pedagogical role of music, drawing on Krashen's (1982) Input Hypothesis and Mayer's (2005) Multimedia Learning Theory. These frameworks explain how comprehensible auditory input and multimodal presentation enhance cognitive processing, memory retention, vocabulary acquisition, and reading comprehension. The framework further identifies instrumental and lyrical song formats as key variables influencing learning outcomes, where instrumental music enhances focus and reduces linguistic interference, while lyrical formats provide contextualized input but may increase cognitive load (Souza & Barbosa, 2023; Du et al., 2020; Prabhu et al., 2022).

Addressing these gaps, the present study employs a quasi-experimental design to examine the effects of instrumental and lyrical background music on vocabulary learning and reading comprehension among junior BAEL students. By controlling for genre, learner proficiency, baseline vocabulary knowledge, and song familiarity, the study seeks to clarify how different musical formats interact with cognitive and linguistic processes in tertiary language classrooms. The findings are expected to contribute to multimodal learning theory (Villalobos, 2020) and provide evidence-based guidance for integrating music into higher education language instruction (Ghanbari & Hashemian, 2021).

Statement of the Problem

1. What is the vocabulary and reading performance level of junior BAEL students prior to the intervention?
2. What is the vocabulary and reading performance level of junior BAEL students after exposure to music genres specifically:
 - a. classical,
 - b. pop,
 - c. jazz, and
 - d. rock?
3. Is there a significant difference in the pre-test and post-test vocabulary and reading performance level across the four groups exposed to different song genres?

METHOD

This study employed a quasi-experimental pretest–post-test design to examine the effects of classical, jazz, pop, and rock music genres on the English language learning outcomes, following music-assisted language learning frameworks (Fonseca-Mora et al., 2011). Changes in vocabulary acquisition, reading comprehension, learner engagement, and retention were measured using multimodal assessment procedures (Paquette & Rieg, 2008). Four experimental groups were exposed to classical, pop, jazz, and rock music genres in instrumental and lyrical formats, based on evidence that varied auditory input influences comprehension and processing depth (Ludke, 2010). A delayed post-test administered one week after the intervention assessed short-term retention and comparative effectiveness across conditions (Banks & Zion, 2020).

The study involved a sample size of 35–45 participants per group, with a mixed gender distribution. Participants were junior Bachelor of Arts in English Language (BAEL) students from Benguet State University during the first semester of SY 2025-2026. One section was used for pilot testing and excluded from the main study, while four sections served as experimental groups to ensure balanced representation and control for confounding variables. Inclusion criteria required participants to be officially enrolled BAEL juniors aged 18–26, assigned to one of the four sections, and willing to complete both tests, while students absent during testing or with disclosed auditory processing or cognitive impairments were excluded. Participants shared comparable academic levels, curriculum exposure, and English proficiency backgrounds. Data were collected using a teacher-made vocabulary and reading comprehension test based on *God Sees the Truth, But Waits* (Tolstoy, 2008), selected for its linguistic clarity and instructional suitability (Nation, 2013; Khatib, 2011; Ghasemi & Hajizadeh, 2011). The instrument assessed vocabulary, literal comprehension, inferential understanding, and thematic interpretation, was validated by two language experts, pilot tested, and demonstrated high reliability (Cronbach's $\alpha = .87$; Zakariya, 2022).

Following ethical clearance and informed consent, participants' preferred music genres were identified through an online survey. A pretest was administered without background music to establish baseline performance. One week later, the post-test was conducted during regular class hours to minimize recall bias (Nation, 2013; Schmitt, 2008). During the one-time intervention [A3.1], each section was assigned a music genre and was exposed to 12-song nonstop playlists presented in alternating instrumental and lyrical formats while reading the text under controlled classroom conditions. Music volume was maintained at approximately 60 dB (30%) to minimize distraction (Vasilev et al., 2023; Sun et al., 2024). Responses were coded and analyzed using descriptive statistics and ANOVA to compare post-test scores while controlling for pretest performance, with interpretation assisted by certified statisticians (Field, 2018). Achievement levels for SOP 1 and 2 were interpreted using a five-point Likert-type scale adapted to the test's maximum score (Likert, 1932; Best & Kahn, 2006; Creswell, 2014).

RESULT AND DISCUSSION

Vocabulary Performance of Junior BAEL Students Before Intervention

This table presents the vocabulary performance of Junior BAEL students prior to the intervention across different background music conditions, namely jazz, classical, pop, and rock. It highlights the baseline levels of vocabulary achievement observed before any instructional or experimental treatment was implemented. The data serve as a reference point for comparing changes in vocabulary performance following the intervention.

Table 1 *Pretest Result/Before Intervention*

Section	N	Mean	SD	Description
3B	37	35	2.8	Knowledgeable
3C	37	34.4	3.35	Knowledgeable
3D	29	34.1	4.99	Knowledgeable
3E	32	34.5	4.76	Knowledgeable

Table 1 presents the pre-test vocabulary performance of the four Junior BAEL sections before the background music intervention. The vocabulary test used in the study was a researcher-made multiple-choice assessment designed to measure students' contextual vocabulary knowledge using phrases and sentences lifted directly from the literary text used in the intervention. It required participants to identify the meaning of target words based on their use in context, assessing contextual inference skills rather than isolated word recognition, and was administered as both a pre-test and post-test to measure vocabulary gains. All sections were classified under the descriptor Knowledgeable, indicating that students demonstrated an adequate level of vocabulary knowledge at the outset. Mean scores ranged from 34.1 to 35 out of a possible 40, suggesting high and relatively uniform baseline performance across sections. The clustering of mean scores, despite differences in sample sizes, indicates overall equivalence in vocabulary proficiency before exposure to any treatment condition.

Section-specific performance revealed that Section 3B (N = 37) achieved the highest mean score (M = 35, SD = 2.8) with the least variability (CI = 34.1–35.9), reflecting consistently strong vocabulary knowledge. Section 3C (N = 37) followed with M = 34.4 (SD = 3.35, CI = 33.3–35.5), and the substantial overlap in confidence intervals with Section 3B indicates no meaningful initial differences. Section 3D (N = 29) had the lowest mean score (M = 34.1, SD = 4.99) but still overlapped with other sections (CI = 32.2–36), while Section 3E (N = 32) had M = 34.5 (SD = 4.76,

CI = 32.8–36.2), reflecting slightly higher variability. These findings confirm comparable baseline vocabulary knowledge across all groups, a critical methodological requirement that strengthens internal validity in quasi-experimental research (Creswell, 2014, 2018; Field, 2018). Establishing baseline equivalence is essential to ensure that any post-intervention differences can be more confidently attributed to the treatment rather than pre-existing group disparities (Shadish, Cook, & Campbell, 2002).

Vocabulary Item Analysis

A closer examination of specific vocabulary items highlights initial learning challenges. Across all sections, learners struggled with mirth, whence, and alight, reflecting difficulty with low-frequency, archaic, or context-dependent words. In Section 3B, 23 learners struggled with mirth and 16 with whence, followed by premature and alight. Section 3C exhibited a similar pattern: mirth (22), whence (14), alight (13). Section 3D showed broader gaps with mirth and whence (13 each), as well as downcast and premature, while Section 3E, despite relatively stronger performance, still struggled with mirth (20), alight (12), and whence (10).

These findings align with research indicating that learners often encounter difficulties with abstract, emotionally nuanced, or historically rooted lexical items (Nation, 2015; Webb & Nation, 2017). Limited exposure and insufficient contextual grounding likely contributed to these difficulties, underscoring the need for explicit, repeated, and contextualized vocabulary instruction (Schmitt, 2019; Webb, 2020). Recent research further emphasizes that depth of word knowledge, including semantic associations, register, and contextual usage, is a strong predictor of successful vocabulary acquisition, particularly for low-frequency words (McLean, Kramer, & Beglar, 2020; Webb, 2020). Moreover, studies in second language acquisition highlight that repeated encounters with vocabulary in meaningful contexts significantly improve retention and retrieval (Uchihara, Webb, & Yanagisawa, 2019). This supports the observed need for richer contextual exposure in addressing learners' difficulties with such a lexical item.

Reading Comprehension

The pretest reading comprehension, as part two of the overall test, revealed consistent patterns of difficulty across sections, particularly with questions requiring inferential and evaluative reasoning. Question 22, which asked what Makar Semyonich initially admitted to, required learners to distinguish between initial and subsequent confessions. Question 23 focused on Aksionov's reaction upon discovering the real criminal, demanding interpretation of emotional and moral responses rather than literal recall. Question 39 asked about human justice systems, requiring thematic synthesis and evaluative skills. The consistently high error rates on these items across sections indicate challenges in higher-order reading comprehension, including inference-making, evaluation, and thematic interpretation.

The overlap between vocabulary difficulties (mirth, whence, alight) and challenging comprehension items suggests a strong interdependence between lexical knowledge and reading comprehension, supporting previous research emphasizing that vocabulary proficiency underpins inferential reasoning and meaning construction (Perfetti & Stafura, 2014; Cromley & Azevedo, 2016; Cain & Oakhill, 2014; Duke & Cartwright, 2021). Learners performed adequately on literal comprehension but struggled with questions demanding deeper cognitive processing, consistent with trends observed in applied linguistics studies. The results across all sections provide a solid methodological foundation for assessing the effects of background music interventions. The repeated difficulty with specific vocabulary items highlights the need for targeted, contextually rich vocabulary instruction. Likewise, the challenges in higher-order

comprehension tasks emphasize the necessity of instructional strategies that explicitly support inference-making, character analysis, and thematic interpretation.

Contemporary frameworks such as the Reading Systems Framework further argue that reading comprehension is a product of dynamic interactions among decoding, vocabulary knowledge, background knowledge, and higher-order cognitive processes (Duke & Cartwright, 2021). Additionally, research has shown that inferencing skills are particularly sensitive to vocabulary breadth and depth, as limited lexical access constrains the construction of coherent mental representations of text (Oakhill, Cain, & Elbro, 2019). These findings reinforce the observed pattern wherein lexical limitations hinder higher-order comprehension performance.

Effects of Background Music to the Test Performance of Junior BAEL Students

This study investigates the influence of four distinct music genres, such as classical, pop, jazz, and rock, on the academic performance of junior BAEL students. The core objective is to determine and compare the vocabulary and reading comprehension levels of these students following a specific intervention that involves exposure to the assigned music genres. Understanding how different auditory environments impact cognitive functions like attention and information processing is crucial for developing effective pedagogical strategies in language education.

Table 2 Students' Scores After Intervention

Section	Treatment	Stages	N	Mean	SD	Description
3B	Jazz	Post	37	36.6	2.44	Highly Knowledgeable
3C	Rock	Post	37	35.9	3.7	Knowledgeable
3D	Pop	Post	29	34.5	3.66	Knowledgeable
3E	Classical	Post	32	36.1	3.97	Highly Knowledgeable

Note. ** = high significant change; ns = no significant change
 if p-value > 0.05, then there is NO significant change (ns)
 if p-value < 0.05, then there is a significant change (*)
 if p-value > 0.01, then there is a HIGH significant change (**)

Table 2 presents the post-test mean scores, standard deviations, and effect sizes for the four Junior BAEL sections following exposure to different music genres during the intervention. Results demonstrate variations in vocabulary and reading comprehension performance across musical conditions, highlighting the influence of genre characteristics on learning outcomes. Learners in Section 3B, who were exposed to jazz music, showed a significant increase in mean scores from 35.0 (SD = 2.80) to 36.6 (SD = 2.50), $t(36) = -3.83$, $p < .001$, with a medium effect size ($d = 0.57$). The rhythmic complexity and alternating vocal elements in jazz may have supported attention and engagement during vocabulary tasks. While abstract and low-frequency words such as mirth, whence, premature, and alight remained challenging, the overall improvement underscores the potential of rhythmically structured music to facilitate lexical retention and processing. Inferential comprehension questions (e.g., Questions 22 and 23) continued to pose difficulties, reflecting the well-established relationship between vocabulary knowledge and reading comprehension (Perfetti & Stafura, 2014).

Similarly, Section 3C, which received rock music, demonstrated a significant increase from 34.4 (SD = 3.35) to 35.9 (SD = 2.95), $t(36) = -3.25$, $p = .003$, $d = 0.47$. The combination of instrumental segments and moderate lyrical content likely created a cognitively manageable environment, allowing learners to maintain focus on language tasks without excessive cognitive load. Despite overall improvement, persistent difficulties with low-frequency words (mirth, alight, premature) and inferential comprehension items (Questions 22, 23, 39) indicate that vocabulary depth continues to influence reading comprehension, consistent with research showing that manageable auditory conditions can enhance task persistence and engagement (Sun et al., 2024).

In contrast, Section 3D, which was exposed to pop music, showed minimal improvement, increasing only slightly from 34.1 (SD = 4.99) to 34.5 (SD = 4.80), $t(28) = -0.60$, $p = .555$, $d = 0.08$. The high lyrical density, emotional salience, and tendency for mental singing may have increased cognitive load, reducing focus on vocabulary tasks. Learners continued to struggle with abstract vocabulary (mirth, premature, downcast) and inferential comprehension (Questions 22 and 23), supporting evidence that background music with lyrics can interfere with reading and comprehension by introducing competing linguistic input (Sun et al., 2024).

Section 3E, which received classical music, exhibited the largest improvement, rising from 34.5 (SD = 4.76) to 36.1 (SD = 3.90), $t(31) = -3.97$, $p < .001$, $d = 0.59$. Fully instrumental tracks likely reduced cognitive interference and promoted sustained attention, facilitating more effective vocabulary encoding and comprehension. Although challenges persisted with low-frequency words (mirth, stammered, alight) and inferential questions, the overall performance confirms the advantage of instrumental music in tasks requiring high verbal concentration (Perfetti & Stafura, 2014).

Overall, the post-test results indicate that music genres with minimal or less intrusive linguistic content, particularly classical and jazz, are associated with higher vocabulary and reading comprehension gains. Across all sections, persistent difficulties with abstract and low-frequency words (mirth, whence, alight) and inferential comprehension items demonstrate that vocabulary depth remains a critical predictor of reading comprehension (Perfetti & Stafura, 2014; Cromley & Azevedo, 2016). These findings have important pedagogical implications. First, explicit vocabulary instruction with repeated, contextualized exposure to abstract or low-frequency words is necessary to address persistent lexical gaps. Second, instrumental or rhythmically structured music may enhance learner engagement and cognitive processing during vocabulary and comprehension tasks. Third, guided comprehension strategies, particularly for inferential and evaluative questions, should be employed to support higher-order reading skills alongside auditory interventions. Collectively, the study demonstrates that music-assisted language learning is most effective when integrated with structured vocabulary instruction, particularly for tasks requiring the application of abstract vocabulary and inferential reasoning.

Recent empirical studies suggest that background music can influence cognitive performance through its effects on arousal, mood, and attentional control (Kämpfe, Sedlmeier, & Renkewitz, 2011; Marsh, Vachon, & Sörqvist, 2018; Hofbauer, Lachmann, & Rodriguez, 2024). Specifically, variations in tempo and emotional valence have been shown to differentially affect cognitive task performance, with certain musical conditions enhancing focus while others may lead to cognitive interference (Hofbauer et al., 2024). Emerging evidence further demonstrates that self-selected background music can shape reading behavior and attentional patterns. Using eye-tracking measures, Que, Zheng, Hsiao, and Hu (2023) found that music preference and familiarity influence reading efficiency, suggesting that individualized auditory environments may either support or hinder comprehension depending on learner engagement and cognitive

load. In addition, recent studies highlight the role of lyrical content in moderating learning outcomes. Sun, Sun, Li, Shao, and Liu (2024) found that background music with lyrics particularly in a language familiar to the learner can interfere with reading comprehension due to competition for verbal processing resources, whereas instrumental music tends to impose less cognitive load. These findings reinforce earlier claims that lyrical music may disrupt language processing tasks that rely heavily on working memory. From a broader cognitive perspective, music has also been shown to influence brain function and learning processes. Neurocognitive research indicates that musical exposure and training can enhance attention, memory, and neural efficiency, thereby supporting cognitive performance in academic tasks (Assaneo, Lizcano-Cortés, & Ripollés, 2024; Toader et al., 2023). These findings suggest that music is not merely a background variable but a potentially significant cognitive modulator in learning environments. Moreover, affective factors such as anxiety and motivation play a crucial role in language learning contexts. Kim, Chong, and Lee (2024) found that music listening can reduce language anxiety and improve learners' attitudes toward language tasks, which may indirectly enhance performance by creating a more conducive emotional learning environment. This aligns with the affective filter hypothesis, where reduced anxiety facilitates better language acquisition.

Significant Difference in The Pre-Test and Post-Test of Junior BAEL Students

Table 4 presents the paired t-test results comparing the pre-test and post-test vocabulary scores across the four treatment groups, allowing an examination of how different music genres influenced vocabulary gains after the intervention.

Table 3 Paired T-Test for The Pretest and Post-Test Scores for Each Treatment

Section	Treatment	Stages	N	Mean	SD	T-Statistics	p-Value
3B	Jazz	Pre	37	35	2.8	-3.83	<0.001 **
		Post		36.6	2.44		
3C	Rock	Pre	37	34.4	3.35	-3.25	0.003 **
		Post		35.9	3.7		
3D	Pop	Pre	29	34.1	4.99	-0.598	0.555 ns
		Post		34.5	3.66		
3E	Classical	Pre	32	34.5	4.76	-3.97	<0.001 **
		Post		36.1	3.97		

Table 3 presents the paired t-test results comparing pre-test and post-test vocabulary scores across the four treatment groups, providing insight into how exposure to different music genres influenced learners' vocabulary acquisition. The results reveal distinct patterns of improvement depending on the genre, highlighting the role of musical characteristics in shaping cognitive engagement and lexical gains.

Students in Section 3B, who were exposed to jazz music, demonstrated a significant increase in vocabulary scores from a pre-test mean of 35.0 (SD = 2.80) to a post-test mean of 36.6 (SD = 2.44), $t(36) = -3.83$, $p < .001$, with a medium effect size ($d = 0.57$). The rhythmic complexity and alternating vocal elements characteristic of jazz may have supported sustained attention and engagement during vocabulary tasks. While learners continued to struggle with abstract and low-

frequency words such as mirth, whence, premature, and alight, the overall improvement underscores the potential of rhythmically structured music to facilitate lexical processing, segmentation, and retention (Deogratias, 2022; Karabulatova et al., 2021). These findings are consistent with Afriyuninda and Oktaviani (2021), who reported enhanced recall when learners engaged with rhythmically stimulating auditory input. Inferential comprehension questions (e.g., Questions 22 and 23) remained challenging, reflecting the established link between vocabulary depth and reading comprehension (Perfetti & Stafura, 2014).

Similarly, Section 3C, which listened to rock music, showed a statistically significant increase from 34.4 (SD = 3.35) to 35.9 (SD = 3.70), $t(36) = -3.25$, $p = .003$, $d = 0.47$. Despite rock's more prominent vocal lines, its clear rhythmic base may have supported cognitive pacing and sustained motivation, facilitating vocabulary access and retention. Persistent difficulties with low-frequency words (mirth, alight, premature) and inferential comprehension items (Questions 22, 23, 39) indicate that lexical depth continued to influence reading comprehension. These results align with prior research suggesting that moderately energetic and rhythmically structured genres help regulate learner arousal and focus, improving task engagement and memory encoding (Namaziandost et al., 2021; Seneviratne et al., 2019).

The classical music group (Section 3E) achieved the highest gains, with scores rising from 34.5 (SD = 4.76) to 36.1 (SD = 3.97), $t(31) = -3.97$, $p < .001$, $d = 0.59$. Fully instrumental tracks likely minimized cognitive interference by eliminating lyrical competition, allowing learners to sustain attention and encode vocabulary more effectively (Souza & Barbosa, 2023; Yildirim & Taşpınar, 2023). Neuroscientific studies suggest that structured instrumental music engages memory and attentional networks without overloading language-processing areas (Gao et al., 2020), which may explain the superior performance of this group. Low-frequency words (mirth, stammered, alight) and inferential comprehension questions continued to pose challenges, highlighting the persistent influence of lexical limitations on reading comprehension (Cromley & Azevedo, 2016). These results are consistent with international research indicating that harmonic auditory environments enhance memory consolidation and cognitive performance (Dos Santos et al., 2023; Trzesniak et al., 2023).

In contrast, Section 3D, exposed to pop music, showed minimal improvement from 34.1 (SD = 4.99) to 34.5 (SD = 3.66), $t(28) = -0.60$, $p = .555$, $d = 0.08$. Pop's highly salient vocals, emotional intensity, and familiarity may have increased cognitive load and competing attentional demands, reducing focus on vocabulary tasks (Prabhu et al., 2022; Sun et al., 2024). Students' tendency to mentally sing along further disrupted lexical processing, consistent with evidence that lyrical music can interfere with reading and comprehension when it introduces linguistic competition (Du et al., 2020; Pavia, Webb, & Faez, 2020). Persistent difficulty with abstract words (mirth, premature, downcast) and inferential questions (22 and 23) indicates that high lyrical salience can constrain vocabulary acquisition, even when baseline proficiency is comparable.

Taken together, the results highlight that music can facilitate vocabulary learning, but its effectiveness is contingent on genre characteristics, lyrical presence, and cognitive load. Instrumental or rhythmically structured music, as in classical and jazz, provides a supportive learning environment by minimizing interference and maintaining attentional stability, while genres with dense lyrics or strong emotional cues, such as pop, may hinder lexical retention. These findings align with Mayer's (2005) multimedia learning theory and Krashen's (1982) affective filter hypothesis, demonstrating that auditory input must complement rather than compete with cognitive processing. Pedagogically, the study underscores the importance of combining music-assisted interventions with explicit vocabulary instruction and guided comprehension strategies,

particularly for low-frequency and abstract words that challenge learners' inferential reasoning abilities.

The findings of this study demonstrate that background music can enhance vocabulary acquisition and reading comprehension among Junior BAEL students; however, its effectiveness is largely dependent on the genre's structure and lyrical content. Instrumental and rhythmically balanced music, such as classical and jazz, was found to support attention, reduce cognitive interference, and facilitate the processing and retention of new vocabulary. In contrast, highly lyrical and emotionally salient music, such as pop, appeared to hinder performance by introducing competing linguistic input and increasing cognitive load. These results underscore the importance of carefully selecting auditory environments in language classrooms and strategically integrating music to complement, rather than disrupt, learning processes.

CONCLUSION

The study concludes that while background music can enhance vocabulary and reading performance, its effectiveness depends largely on genre structure and lyrical content. Instrumental and rhythmically balanced music supports attention and information processing, whereas highly lyrical music may hinder performance. These findings affirm the importance of carefully selecting auditory environments in language classrooms and highlight the value of integrating music strategically to support vocabulary development and reading comprehension.

Despite these meaningful findings, the study acknowledges several limitations. First, the use of identical vocabulary items in both the pre-test and post-test may have introduced practice effects or test-wiseness, potentially inflating post-test scores beyond the effect of the musical intervention. Second, external factors such as learners' mood, motivation, prior exposure to the lesson content, and classroom environment may have influenced performance. Third, the repeated use of the same assessment instrument could have resulted in recall effects, wherein some students remembered pre-test items and thus performed differently in the post-test independently of the intervention. Future research should address these limitations by employing parallel forms of assessments and implementing stricter controls over extraneous variables to isolate the specific impact of musical genre on vocabulary and comprehension outcomes.

Based on the study's results, several practical and research-based recommendations are proposed. First, educators are encouraged to administer diagnostic pre-tests prior to instructional interventions to establish baseline equivalence, identify learners' lexical gaps, and ensure that subsequent improvements can be attributed to instructional strategies. Second, the selection of background music should be guided by instructional goals. Instrumental music, particularly classical, is recommended during vocabulary learning and reading tasks because it minimizes verbal interference and supports sustained cognitive focus. Jazz and rock may be employed selectively, especially when instrumental segments predominate, as their rhythmic patterns can enhance engagement without overwhelming learners cognitively. Conversely, highly lyrical genres, such as pop, should be used sparingly during cognitively demanding language tasks.

Additionally, music-assisted instruction should be integrated as a supportive, rather than uniform, classroom strategy, with alignment to task difficulty, learner needs, and cognitive load. Given the persistent difficulties observed in abstract vocabulary and higher-order comprehension, interventions should combine music exposure with explicit vocabulary teaching, repeated contextualized word encounters, and guided instruction in inferential and thematic analysis.

For future research, it is recommended to explore the long-term effects of music-assisted learning, learner preferences, and the interactions between different musical genres and various

language skills. Using parallel assessment forms and controlling extraneous variables will strengthen the validity of findings and provide clearer insights into how music can optimally support language acquisition. Overall, this study highlights the strategic, evidence-based use of background music as a valuable pedagogical tool that, when carefully applied, can enhance vocabulary development and reading comprehension in language classrooms.

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REFERENCES

- Afriyuninda, E., & Oktaviani, L. (2021). The use of English songs to improve English students' listening skills. *Journal of English Language Teaching and Learning*, 2(2), 80–85. <https://doi.org/10.33365/jeltl.v2i2.1442>
- Alosaimi, T. (2021). The affective filter hypothesis in music-assisted language learning. *Journal of Psycholinguistic Research*, 50(3), 621–635. <https://doi.org/10.1007/s10936-020-09748-x>
- Assaneo, M. F., Lizcano-Cortés, F., & Ripollés, P. (2024). Keeping time: How musical training may boost cognition. *PLOS Biology*, 22(9), e3002810. <https://doi.org/10.1371/journal.pbio.3002810>
- Baills, F., Zhang, Y., Cheng, Y., Bu, Y., & Prieto, P. (2021). Listening to songs and singing improved initial stages of second-language learning. *Studies in Second Language Acquisition*, 43(1), 145–168. <https://doi.org/10.1017/S027226312000039>
- Bian, Y. (2021). A meta-analysis of the effects of songs on L2 vocabulary learning. *Language Learning Journal*, 49(4), 456–471. <https://doi.org/10.1080/09571736.2021.1895282>
- Bokiev, D., Bokiev, U., & Ismail, L. (2018). Utilizing music and songs to promote student engagement in ESL classrooms. *International Journal of Academic Research in Business and Social Sciences*, 8(12), 314–332. <https://doi.org/10.6007/IJARBS/v8-i12/5015>
- Butt, M. N., Zafar, M., & Mahmood, M. A. (2021). The impact of English songs on listening comprehension and vocabulary retention. *Journal of Language and Linguistic Studies*, 17(1), 523–536. <https://doi.org/10.17263/jlls.903510>
- Cain, K., & Oakhill, J. (2014). Reading comprehension and vocabulary: Is vocabulary more important for some aspects of comprehension? *L'Année Psychologique*, 114(4), 647–662. <https://doi.org/10.4074/S0003503314004035>

- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W. (2018). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (6th ed.). Boston, MA: Pearson.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Thousand Oaks, CA: Sage.
- Cromley, J. G., & Azevedo, R. (2007). Testing and refining the direct and inferential mediation model of reading comprehension. *Journal of Educational Psychology*, 99(2), 311–325. <https://doi.org/10.1037/0022-0663.99.2.311>
- de Groot, A. M. B. (2006). Effects of stimulus characteristics and background music on foreign language vocabulary learning and forgetting. *Language Learning*, 56(3), 463–506. <https://doi.org/10.1111/j.1467-9922.2006.00374.x>
- De la Mora Velasco, E., & Hirumi, A. (2020). The effects of background music on learning: A systematic review of literature to guide future research and practice. *Educational Technology Research and Development*, 68(6), 2817–2837. <https://doi.org/10.1007/s11423-020-09783-4>
- Deogratias, E. (2022). The role of songs in enhancing EFL learners' vocabulary. *Journal of Language Teaching and Research*, 13(1), 1–9. <https://doi.org/10.17507/jltr.1301.01>
- Dolean, D. (2020). The impact of songs on young learners' cognitive and affective development. *Early Childhood Education Journal*, 48(5), 585–594. <https://doi.org/10.1007/s10643-020-01093-x>
- dos Santos, A. C., de Abreu, M. S., de Mello, G. P., & Giacomini, A. C. V. V. (2023). Solfeggio-frequency music exposure reverses cognitive and endocrine deficits evoked by light exposure in adult zebrafish. *Behavioural Brain Research*. <https://doi.org/10.1016/j.bbr.2023.114461>
- Du, M., Jiang, J., Li, Z., Man, D., Jiang, C., et al. (2020). The effects of background music on neural responses during reading comprehension. *Scientific Reports*, 10(1), 17402. <https://doi.org/10.1038/s41598-020-75623-3>
- Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Thousand Oaks, CA: Sage.
- Ghanbari, F., & Hashemian, M. (2014). The effects of English songs on young learners' listening comprehension and pronunciation. *International Journal of Language Learning and Applied Linguistics World*, 6(3), 337–345.
- Goltz, M. E., & Sadakata, M. (2021). Individual differences in the effect of background music on cognitive performance. *Psychomusicology: Music, Mind, and Brain*, 31(4). <https://doi.org/10.1037/pmu0000293>
- Hamid, M. O., Nguyen, H. T. M., & Baldauf, R. B. (2020). Songs as input for incidental vocabulary learning: A study of Bangladeshi EFL learners. *TESOL Quarterly*, 54(3), 778–804. <https://doi.org/10.1002/tesq.580>
- Hofbauer, L. M., Lachmann, T., & Rodriguez, F. S. (2024). Background music varying in tempo and emotional valence differentially affects cognitive task performance. *Journal of Cultural Cognitive Science*, 8, 139–150. <https://doi.org/10.1007/s41809-024-00144-8>

- Jang, H. Y., & Kim, H. J. (2020). A meta-analysis of the cognitive, affective, and interpersonal outcomes of flipped classrooms in higher education. *Education Sciences*, 10(4), 115. <https://doi.org/10.3390/educsci10040115>
- Karabulatova, I., Yermolenko, A., & Khanipova, R. (2021). The role of music in teaching English vocabulary to university students. *Journal of Language and Education*, 7(2), 89–102. <https://doi.org/10.17323/jle.2021.10789>
- Kim, H. J., Chong, H. J., & Lee, M. (2024). Music listening in foreign language learning: Perceptions, attitudes, and its impact on language anxiety. *Frontiers in Education*, 9. <https://doi.org/10.3389/educ.2024.1372786>
- Kiss, B., Oo, T. Z., Biró, F., & Józsa, K. (2025). Students' motivation for classroom music: A systematic literature review. *Education Sciences*, 15(7), 862. <https://doi.org/10.3390/educsci15070862>
- Lehmann, J. A. M., & Seufert, T. (2017). The influence of background music on learning in multimedia environments. *Computers in Human Behavior*, 75, 649–658.
- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, 22(140), 1–55.
- Ludke, K. M., Ferreira, F., & Overy, K. (2014). Singing can facilitate foreign language learning. *Memory & Cognition*, 42(1), 41–52. <https://doi.org/10.3758/s13421-013-0342-5>
- Marsh, J. E., Vachon, F., & Sörqvist, P. (2018). Background sound and cognitive performance. *Current Directions in Psychological Science*, 27(6), 388–393. <https://doi.org/10.1177/0963721418794494>
- Moreno, R., & Mayer, R. (2007). Interactive multimodal learning environments. *Educational Psychology Review*, 19(3), 309–326. <https://doi.org/10.1007/s10648-007-9047-2>
- Murphy Odo, D. (2021). A systematic review of music-enhanced language learning. *RELC Journal*, 52(2), 337–354. <https://doi.org/10.1177/00336882211005841>
- Namaziandost, E., Neisi, L., & Nasri, M. (2021). The impact of English songs on vocabulary learning. *Cogent Education*, 8(1), 1936375. <https://doi.org/10.1080/2331186X.2021.1936375>
- Nation, I. S. P. (2013). *Learning vocabulary in another language* (2nd ed.). Cambridge: Cambridge University Press.
- Nation, I. S. P. (2015). *Making and using word lists for language learning and testing*. Amsterdam: John Benjamins.
- Oakhill, J., Cain, K., & Elbro, C. (2019). *Understanding and teaching reading comprehension*. London: Routledge.
- Pavia, N., Webb, S., & Faez, F. (2020). Incidental vocabulary learning through listening to songs. *Studies in Second Language Acquisition*, 42(2), 279–302. <https://doi.org/10.1017/S0272263119000457>
- Perham, N., & Currie, H. (2014). Does listening to preferred music improve reading comprehension performance? *Applied Cognitive Psychology*, 28(2), 279–284. <https://doi.org/10.1002/acp.2994>
- Perfetti, C. A., & Stafura, J. Z. (2014). Word knowledge in a theory of reading comprehension. *Scientific Studies of Reading*, 18(1), 22–37. <https://doi.org/10.1080/10888438.2013.827687>

- Que, Y., Zheng, Y., Hsiao, J. H., & Hu, X. (2023). Studying the effect of self-selected background music on reading tasks. *Scientific Reports*, 13, 1704. <https://doi.org/10.1038/s41598-023-28426-1>
- Ramezanali, N., Faez, F., & Uchihara, T. (2021). The role of songs in vocabulary acquisition. *Language Teaching Research*, 25(4), 553–574. <https://doi.org/10.1177/1362168819861449>
- Schmitt, N. (2019). *Understanding vocabulary acquisition, instruction, and assessment*. London: Palgrave. <https://doi.org/10.1057/978-1-137-48619-7>
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs*. Boston: Houghton Mifflin.
- Souza, A. S., & Barbosa, L. C. L. (2023). Music with lyrics interferes with cognitive tasks. *Journal of Cognition*, 6(1), 5. <https://doi.org/10.5334/joc.273>
- Sun, Y., Sun, C., Li, C., Shao, X., & Liu, H. (2024). Impact of background music on reading comprehension. *Frontiers in Psychology*, 15. <https://doi.org/10.3389/fpsyg.2024.1363562>
- Sweller, J., Ayres, P., & Kalyuga, S. (2011). *Cognitive load theory*. New York: Springer. <https://doi.org/10.1007/978-1-4419-8126-4>
- Toader, C., Tataru, C. P., Florian, I.-A., et al. (2023). Cognitive crescendo: How music shapes the brain. *Brain Sciences*, 13(10), 1390. <https://doi.org/10.3390/brainsci13101390>
- Trzesniak, C., et al. (2023). The influence of classical music on learning and memory in rats. *Cognitive Processing*. <https://doi.org/10.1007/s10339-023-01167-9>
- Uchihara, T., Webb, S., & Yanagisawa, A. (2019). The effects of repetition on incidental vocabulary learning. *Studies in Second Language Acquisition*, 41(3), 559–586. <https://doi.org/10.1017/S0272263118000181>
- Villalobos, J. (2020). The role of music in language learning: A cognitive perspective. *Journal of Cognitive Psychology*, 32(3), 245–260. <https://doi.org/10.1080/20445911.2020.1755812>
- Webb, S. (2020). *The Routledge handbook of vocabulary studies*. New York: Routledge. <https://doi.org/10.4324/9780429291586>
- Webb, S., & Nation, I. S. P. (2017). *How vocabulary is learned*. Oxford: Oxford University Press.