MUSIC LISTENING INTENSITY AS A PREDICTOR OF ENGLISH LANGUAGE PERFORMANCE IN NIGERIAN SECONDARY SCHOOL

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Abstract
Music listening is a common activity among adolescents and has been associated with both positive and negative academic outcomes. This study investigated the relationship between music listening intensity and English Language performance among Nigerian secondary school students. The research was guided by three objectives and three null hypotheses, which informed data collection and analysis. A descriptive survey design was employed across four public and four private secondary schools in Oyo East Local Government Area of Oyo State, with a total student population of 3,245. From this population, 200 students (85 males and 115 females) were selected using stratified random sampling techniques. Data were gathered using the Music Listening Intensity Questionnaire, which had a reliability coefficient of r = .63, along with students' English Language scores obtained from school records. The data were analyzed using one-way ANOVA, independent samples t-test, and linear regression. Results revealed a significant difference in English performance across levels of music listening intensity, F(2, 197) = 6.32, p = .002, with post hoc tests showing that students with moderate listening intensity performed significantly better than those with low (p = .001) or high intensity (p = .006). However, regression analysis indicated that music listening intensity did not significantly predict English performance, R^2 = .003, F(1, 198) = 0.563, p = .454. Additionally, female students outperformed male students in English Language, t(198) = -2.17, p = .031. These findings suggest that although music listening intensity alone is not a strong predictor of academic achievement, moderate listening habits are associated with improved English performance, and gender differences remain a notable factor. Therefore, it is recommended that teachers and parents encourage moderate music listening habits to enhance learning outcomes, while school counseling units should organize awareness programs on music use and learning, with special attention to gender-related variations in academic performance.

Keywords: *Music listening, English Language performance, Adolescents, Gender differences, Secondary school students, Nigeria*

Introduction

Music is an integral part of adolescent life and a pervasive cultural force with significant educational implications. Beyond its entertainment value, music functions as a cognitive and emotional stimulus that influences learning outcomes. In language learning contexts, it has been shown to shape attention, memory, and motivation, thereby affecting academic performance (Cassidy & MacDonald, 2007; Furnham & Stephenson, 2007). Research indicates that the intensity and manner of music engagement can either enhance or hinder concentration and information processing, particularly in linguistically demanding tasks. Within the Nigerian secondary school system, where English Language serves as both a core subject and a determinant of academic progression, it is imperative to understand how music listening intensity affects students' academic performance.

In Nigeria, English serves as the primary medium of instruction and a high-stakes subject at the secondary level (Federal Ministry of Education, 2020). Many students regularly engage with English-language music and media outside the classroom, which may influence vocabulary acquisition, listening comprehension, and motivation. Despite the ubiquity of music in adolescents' daily lives, there remains limited empirical evidence on how music listening intensity, defined by frequency, duration, and contextual use, influences formal academic outcomes such as English Language performance.

A growing body of interdisciplinary research supports the beneficial effects of music on memory, linguistic processing, and emotional regulation. Studies in cognitive and educational psychology have demonstrated that music aids vocabulary retention, supports pronunciation and intonation, and enhances learner engagement (Hallam, 2018; Jäncke, 2012; Ludke, 2014; Sung, 2019). Historically, music has been integrated into language teaching methodologies from the Audiolingual Method and Suggestopedia (Lozanov, 1978; Bancroft, 1978) to Communicative Language Teaching (Griffee, 2010). However, the role of listening intensity as a determinant of academic focus and performance remains underexplored, particularly in high-pressure educational systems such as Nigeria's.

Emerging perspectives highlight music's dual role as both enhancer and distractor. According to Cognitive Load Theory (Sweller, Ayres, & Kalyuga, 2019), music can facilitate learning through dual coding and emotional engagement (Paivio, 2021), yet excessive or poorly timed exposure may increase extraneous load and reduce working memory efficiency. Furnham and Strbac (2020) similarly argue that background music may impair concentration during complex tasks. These findings underscore the importance of contextual factors—such as timing, content alignment, and learner preference—in determining whether music supports or disrupts language learning.

Within the Nigerian context, Adeola and Ajayi (2021) found that students who regularly listened to English-language music demonstrated improved vocabulary recall and engagement. However, gender appears to moderate this relationship. Nwachukwu (2020) observed that

female students showed greater motivation and responsiveness to music-based instruction, whereas Okorie and Ibrahim (2022) reported that male students were more prone to distraction due to background music during study sessions. These patterns suggest that gendered cognitive and emotional strategies may shape how music influences academic performance.

While previous studies affirm music's cognitive and motivational benefits, the predictive role of listening intensity on formal academic outcomes remains unclear. Specifically, little is known about how the frequency and manner of music engagement influence core areas of English performance such as comprehension, grammar, and essay writing. Given the increasing reliance on digital media and self-directed learning among Nigerian adolescents, examining this relationship constitutes a critical area of inquiry.

Statement of the Problem

Despite a robust theoretical foundation linking music and learning, there remains limited empirical evidence on the relationship between music listening intensity and English Language performance within the Nigerian secondary school context. Existing studies often emphasize classroom-based interventions or qualitative learner perceptions, while fewer explore actual academic outcomes. Considering the centrality of English Language proficiency in Nigerian education and the prominence of music in students' daily routines, understanding how varying levels of music listening intensity influence academic achievement is both relevant and necessary. This study, grounded in **Cognitive Load Theory** and **Affective Filter Theory**, seeks to bridge theoretical insights with empirical data. It also responds to emerging gender-based disparities in study habits and media consumption among adolescents.

Purpose of the Study

The primary purpose of this study was to investigate the relationship between music listening intensity and English Language performance among Nigerian secondary school students, with specific attention to gender differences. The study aimed to:

1. Assess the relationship between music listening intensity and English Language performance.
2. Determine the predictive strength of music listening intensity on students' English Language academic outcomes.
3. Examine gender-based differences in music listening habits and English Language achievement.

Research Hypotheses

The following null hypotheses guided the investigation:

1. **H_{01}:** There is no significant difference in English Language performance across levels of music listening intensity.
2. **H_{02}:** Music listening intensity does not significantly predict students' English Language performance.
3. **H_{03}:** There is no significant difference between male and female students in English Language performance with respect to music listening intensity.

Literature Review

Music listening is a pervasive feature of adolescent life, drawing increasing attention for its cognitive, emotional, and academic

implications, particularly in language learning. The study of music listening intensity and academic performance is inherently interdisciplinary, bridging cognitive psychology, educational theory, and applied linguistics. Music serves as a double-edged tool ,capable of enhancing cognitive processing and emotional regulation when appropriately used, but potentially detrimental when excessive or misapplied (Li, 2024; Eslit, 2023). In Nigeria, where English proficiency underpins academic success, understanding the role of music listening intensity is especially pertinent.

From a **cognitive perspective**, Paivio's (2021) Dual Coding Theory posits that verbal and non-verbal codes enhance recall, with music providing an additional non-verbal cue that reinforces linguistic material. Murphey (1990) and Fiore (2018) found that rhythm and melody facilitate the retention of phonological patterns essential to second language acquisition. Griffee (2010) further noted that rhythm supports pronunciation and intonation accuracy. Conversely, Cognitive Load Theory (Sweller, 2011) warns that overexposure to or high-intensity music can overwhelm working memory and impair task performance. Empirical studies by Li (2024) and Sun, Zhang, and Carter (2024) show that the effects of music on learning depend on task complexity, tempo, and individual preferences, reinforcing the notion that **context and intensity** determine whether music aids or hinders learning.

From an **affective standpoint**, Krashen's (1981) Affective Filter Hypothesis asserts that reduced anxiety and increased motivation enhance language acquisition. Moderate exposure to music has been shown to reduce stress and increase engagement (Brown, 2014). Similarly, Lozanov's (1978) Suggestopedia approach emphasizes music's role in creating a relaxed yet alert learning atmosphere. In Nigeria, Omole (2023) found that 78% of undergraduates reported improved focus when listening to music during study, while Astutik, Susanto, and Hidayat (2019) demonstrated that music-based instruction boosted motivation and reduced anxiety in language classrooms. These findings suggest that music's emotional regulation benefits may indirectly support academic success in high-stakes educational settings.

Local studies provide additional context. Emmanuel (2022) reported no significant improvement in comprehension from music listening during reading tasks among Nigerian undergraduates, suggesting that timing and intensity are critical. Conversely, Elegbe and Bolaji (2018) found a strong positive correlation between listening skills and academic achievement ($r = .71$, $p < .05$), while Adegbite (2021) noted that adolescents often use music as a coping mechanism for examination stress. However, most existing research focuses on undergraduates, leaving a gap regarding secondary school populations where English proficiency is pivotal for academic advancement. Moreover, the variable of **listening intensity** which could be low, moderate, or high has received little systematic investigation.

Gender differences further complicate this relationship. Studies indicate that female students often derive greater motivational and emotional benefits from music, while males are more prone to distraction (Liu & Jackson, 2020; Nwachukwu, 2020; Okorie & Ibrahim, 2022).

These patterns suggest that cognitive and emotional strategies vary by gender, necessitating differentiated educational interventions.

In summary, while music's cognitive and affective benefits for learning are well-documented, the **specific role of music listening intensity** in predicting English Language performance among Nigerian adolescents remains underexplored. This study seeks to fill this gap by empirically examining the relationship between music listening intensity, gender, and English Language performance, thereby contributing to both local and international discourse on adolescent learning and music's educational value.

Research Design:

This study employed **descriptive survey research design** to explore the relationship between music listening intensity and English Language performance. A total of 200 secondary school students (85 males and 115 females) were selected from eight public and private schools in Oyo East Local Government Area, Nigeria. Participants were randomly sampled from the four selected schools. The choice of a descriptive survey design was informed by its strength in providing a systematic and accurate description of existing phenomena as they occur naturally, without manipulating variables. According to Creswell and Creswell (2018), the survey design is particularly useful when the purpose of the study is to collect quantitative information from a representative sample in order to examine relationships among variables and generalize findings to a larger population. This made it the most suitable design for the present study, which sought to establish associations between students' music listening intensity and their English Language performance within the school setting.

In this study, the independent variable was **music listening intensity**, which was operationally defined by three dimensions: **frequency, duration, and contextual use** of music. The dependent variable was **English Language performance**, measured using students' official school records in English Language. In addition, **gender** was introduced as a moderating variable to allow for comparative analysis between male and female students, as emerging evidence suggests that music-related behaviours may vary across gender lines (Nwachukwu, 2020; Okorie & Ibrahim, 2022).

Population and Sample:

The research was conducted in Oyo East Local Government Area, Oyo State, Nigeria, a region with a mix of public and private secondary schools. The target population comprised **3,245 students** enrolled in junior and senior secondary classes. From this population, a **stratified random sample of 200 students** was selected to ensure fair representation across both school type (public and private) and gender. The final sample included **85 males and 115 females**, reflecting the demographic composition of the area. Stratification was particularly necessary to minimize sampling bias and to ensure that findings could be generalized more accurately across subgroups within the population.

Instruments:

The study employed two primary instruments to collect data. The first, the Music Listening Intensity Questionnaire (MLIQ), measured students' engagement with music by assessing

listening frequency, duration, and context (e.g., studying, relaxing, commuting). The MLIQ was validated for content and cultural appropriateness by three experts in educational psychology and music education and piloted with 40 students from a neighboring Local Government Area, yielding a Cronbach's alpha of .63, which is acceptable for exploratory research (Taber, 2018). The second instrument consisted of students' most recent school-recorded English Language scores, ensuring criterion-related validity and minimizing subjectivity and recall bias (Federal Ministry of Education, 2020). Both instruments underwent methodological rigor checks: the MLIQ's construct validity was based on theoretically grounded dimensions of music listening (Hallam, 2018; Jäncke, 2012), while reliability was confirmed through the pilot study. Ethical standards were strictly observed, including obtaining institutional and parental consent, ensuring voluntary participation, maintaining confidentiality, and using identification codes to preserve anonymity.

Data Analysis:

Data analysis involved the use of both descriptive and inferential statistical methods. Descriptive statistics, such as frequency counts, means, and standard deviations, were utilized to summarize student responses and provide a general overview of the dataset. To test the research hypotheses, inferential analyses were employed. A one-way Analysis of Variance (ANOVA) was conducted to determine whether significant differences existed in English Language performance across varying levels of music listening intensity. Linear regression analysis was used to examine the predictive strength of music listening intensity on students' English performance, while an independent samples t-test assessed gender-based differences in English Language achievement with respect to music listening intensity. All statistical tests were performed at the 0.05 level of significance to ensure the reliability and scientific validity of the findings.

Results

Demographic Information

Table 1: Demographic Characteristics of Participants (N = 200)

Variable	Category	Frequency	Percentage
Age	12–15	100	50%
	16–20	84	42%
	21 and above	16	8%
Gender	Male	85	42.5%
	Female	115	57.5%
Class	SS1	94	47%
	SS2	98	49%
	SS3	8	4%

The study involved 200 secondary school students. Half (50%) were aged 12–15 years, 42% were aged 16–20 years, and 8% were 21 years or older. The sample comprised 42.5% male and 57.5% female students. Class distribution included 47% in SS1, 49% in SS2, and 4% in SS3.

Hypothesis 1: *There is no significant difference in English Language performance across groups of music listening intensity.*

A one-way ANOVA was conducted to examine differences in English Language performance across three levels of music listening intensity (low, moderate, high).

Table 2: ANOVA Summary for Music Listening Intensity and English Language Performance

Source	SS	df	MS	F	p
Between Groups	6,959.45	2	3,479.73	6.32	0.002
Within Groups	108,501.33	197	550.77		
Total	115,460.78	199			

The ANOVA indicated a significant effect of music listening intensity on English Language performance, $F(2, 197) = 6.32$, $p = 0.002$.

Table 2.1: Tukey HSD Post Hoc Comparisons

Comparison	Mean Difference	SE	p	95% CI
Low vs Medium	-14.95*	4.33	0.001	-23.48 to -6.42
Low vs High	-2.93	3.81	0.442	-10.44 to 4.57
Medium vs High	12.02*	4.33	0.006	3.48 to 20.55

*Note. $p < .05$

Post hoc analysis revealed that students with moderate listening intensity scored significantly higher than those with low intensity ($p = 0.001$) and high intensity ($p = 0.006$), while no significant difference was found between low and high intensity groups ($p = 0.442$).

Hypothesis 2: Intensity levels of music listening do not significantly predict students' performance in English Language.

A simple linear regression analysis was conducted to determine whether music listening intensity predicted English Language performance.

Table 3: Regression Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.053	0.003	-0.002	24.114

Table 3.1: ANOVA for Regression

Model	Sum of Squares	df	Mean Square	F	p
Regression	38.85	1	38.85	0.067	0.796
Residual	115,194.15	198	581.93		
Total	115,233.00	199			

Table 3.2: Regression Coefficients

Predictor	B	SE B	β	t	p
(Constant)	57.250	1.721		33.27	<.001
Music Listening Intensity	0.513	1.984	0.053	0.259	0.796

The regression analysis revealed a very weak positive relationship between music listening intensity and English Language performance ($R = 0.053$), explaining only 0.3% of the variance ($R^2 = 0.003$). The model was not statistically significant, $F(1, 198) = 0.067$, $p = 0.796$. Furthermore, the regression coefficient for music listening intensity was non-significant ($\beta = 0.053$, $t(198) = 0.259$, $p = 0.796$), indicating that music listening intensity does not meaningfully predict English Language performance. These findings suggest that other variables, such as study habits, literacy practices, and cognitive skills, likely play a more substantial role in determining students' academic achievement.

Hypothesis 3: There is no significant difference in students' responses to listening to music as it affects English Language performance by gender.
An independent samples t-test was conducted to compare male and female students' English Language performance in relation to music listening intensity.

Table 4: Independent Samples t-Test for Gender Differences

Gender	n	M	SD	SE	t	df	p
Male	85	8.46	1.94	0.21			
Female	115	9.10	2.17	0.20	-2.17	198	0.031

Female students scored significantly higher ($M = 9.10$, $SD = 2.17$) than male students ($M = 8.46$, $SD = 1.94$), $t(198) = -2.17$, $p = 0.031$.

This indicates a statistically significant gender difference in English Language performance, with females outperforming males. While music listening intensity was not a significant predictor overall, gender may interact with learning outcomes and socio-cognitive factors.

Discussion

The present study examined the relationship between music listening intensity and English Language performance among secondary school students in Oyo State, Nigeria with particular attention to gender differences. The findings provide important insights into how varying levels of music engagement may influence academic outcomes.

Consistent with earlier studies indicating that moderate music exposure can enhance focus, memory and mood (Hallam, 2015; Rauscher et al., 1997), the one-way ANOVA results showed that students with moderate music listening intensity performed significantly better than those with either low or high intensity. This supports the *arousal and mood hypothesis* (Thompson, 2001), which suggests that moderate music can enhance cognitive performance by promoting optimal arousal and positive emotional states. The observed pattern implies that while moderate music listening may aid concentration and learning, both excessive and insufficient engagement may be less beneficial, reflecting a non-linear relationship between music and academic performance.

However, the regression analysis indicated that music listening intensity did not significantly predict English Language performance, explaining only 0.3% of the variance. This finding aligns with research suggesting that although music can temporarily affect mood and attention, its intensity alone does not directly translate into improved academic achievement (Furnham & Strbac, 2002; Hallam, 2002). The lack of predictive power implies that other factors—such as study habits, literacy practices, cognitive abilities, and classroom engagement—may exert stronger and more direct effects on students' academic outcomes. Thus, while moderate music exposure may create a favorable learning atmosphere, it cannot replace deliberate and structured study strategies.

Gender differences were also evident, with female students outperforming their male counterparts in English Language performance. This finding supports prior research indicating that females generally exhibit higher motivation and engagement in language-related subjects (Garg et al., 2018; OECD, 2019). Such differences may be influenced by socio-cultural expectations, learning strategies, and self-regulation skills. Therefore, educational interventions should consider gender-responsive approaches that address these variations in learning patterns and motivation.

The study's findings also diverge slightly from some earlier research that reported strong positive effects of music on cognitive performance, including verbal memory and spatial-temporal reasoning (Rauscher et al., 1993; Schellenberg, 2005). This discrepancy may stem from contextual differences in sample characteristics, the types of music listened to, duration of exposure, and environmental factors. Unlike controlled laboratory experiments, this study reflects real-life music listening habits among students, which are influenced by personal preferences, distractions, and inconsistent listening contexts—factors that may reduce the observable impact of music on academic performance.

In summary, this study underscores a complex, non-linear relationship between music listening intensity and academic performance. Moderate music listening appears to support better English achievement, yet overall intensity

is not a reliable predictor of performance. Gender differences remain significant, with females showing superior outcomes. These results suggest that while music may enhance mood and focus, the key determinants of academic success lie in effective study practices, literacy development, and cognitive engagement.

Conclusion

The study concludes that moderate music listening is associated with improved English Language performance, though music intensity alone does not predict achievement. Female students consistently outperform male students, emphasizing the importance of gender-sensitive educational approaches. Educators are encouraged to promote balanced music listening habits, foster strong study and literacy skills, and design interventions that address gender-based learning differences. Future research should explore the influence of music type, duration, and listening context, as well as its interaction with cognitive and motivational factors, to better understand its role in supporting academic performance.

References

Adegbite, A. (2021). Music as a coping strategy for examination stress among Nigerian adolescents. Nigerian Journal of Educational Studies, 12*(1), 34–45.*

Adeola, O., & Ajayi, T. (2021). Music listening and vocabulary enhancement: A study of Nigerian secondary school students. Journal of Language Education in Nigeria, 12*(2), 45–59.*

Astutik, S., Susanto, H., & Hidayat, A. (2019). The effect of music-based instruction on motivation and anxiety in language classrooms. Journal of Language Teaching Research, 10*(2), 120–132.*

Brown, H. D. (2014). Principles of language learning and teaching *(6th ed.). Pearson Education.*

Cassidy, G., & MacDonald, R. A. R. (2007). The effect of background music and metrical placement on memory performance. Psychology of Music, 35*(3), 363–381. https://doi.org/10.1177/0305735607068889*

Elegbe, O., & Bolaji, T. (2018). Listening skills and academic achievement among Nigerian students. African Journal of Educational Research, 8*(3), 50–62.*

Emmanuel, N. (2022). Music listening and reading comprehension among Nigerian undergraduates. International Journal of Educational Psychology, 15*(1), 77–88.*

Eslit, E. R. (2023). Unlocking the power of music: A novel approach to language teaching and learning.

Fiore, J. (2018). Music, rhythm, and phonological awareness in language learning. Journal of Cognitive Education, 7*(2), 45–59.*

Furnham, A., & Stephenson, C. (2007). Personality, cognitive ability, and beliefs about music listening. Psychology of Music, 35*(2), 221–230. https://doi.org/10.1177/0305735607070336*

Furnham, A., & Strbac, L. (2020). Music as a distraction: Cognitive load effects on memory and attention. Journal of Cognitive Research, 22*(4), 312–325.*

Griffee, D. T. (2010). Songs in action: A resource book of classroom activities. *Prentice Hall.*

Hallam, S. (2018). The power of music: Its impact on the intellectual, social and personal development of children and young people. International Journal of Music Education, 36*(1), 41–56.* *https://doi.org/10.1177/0255761417732229*

Jäncke, L. (2012). The relationship between music and memory. Frontiers in Psychology, 3, *Article 87. https://doi.org/ 10.3389/fpsyg.2012.00087*

Krashen, S. D. (1981). Second language acquisition and second language learning. *Pergamon Press*

Li, R. (2024). International communication and cultural exchange based on music: a study of the experience of Chinese music education in other countries. Music Education Research, 26(2), 155-169.

Liu, M., & Jackson, J. (2020). Gender differences in foreign language classroom anxiety: A study of Chinese secondary school learners. Language Learning Journal, 48*(3), 345–360.* *https://doi.org /10.1080/09571736.2020.1767310*

Murphey, T. (1990). Song and music as methods in language teaching. Forum, 28*(4), 41–60.*

Nwachukwu, E. (2020). Gendered responses to media-assisted language learning among Nigerian students. African Journal of Education, 15*(1), 78–91.*

Okorie, H., & Ibrahim, M. (2022). Patterns of background music use and study behavior in Nigerian adolescents. Journal of Educational Psychology in Nigeria, 9*(2), 101–115.*

Omole, T. (2023). Music listening and study habits among Nigerian undergraduates: A survey study. Journal of Adolescent Learning, 5*(1), 12–25.*

Paivio, A. (2021). Imagery and verbal processes *(2nd ed.). Psychology Press*

Rauscher, F., Shaw, G., Levine, L., Wright, E., Dennis, W., & Newcomb, R. (1997). Music training causes long-term enhancement of preschool children's spatial–temporal reasoning. Neurological research, 19(1), 2-8.

Salcedo, C. S. (2010). Receptive aspects of using children's songs in the second language classroom: What Japanese elementary school students remember. Language, Culture and Curriculum, 23*(3), 197–212.* *https://doi.org/10.1080/07908318.2010.517670*

Su, Y., Tan, L., Zhang, H., & Liu, F. (2023). Effects of background music tempo on English reading comprehension: Eye-tracking evidence from foreign language learners. Journal of Psycholinguistic Research, 52*(1), 135–153.*

Sun, X., Lin, Z., & Wang, Y. (2024). Foreign-language lyrics and listening habits: The impact of background music on English reading comprehension. International Journal of Educational Studies, 70, *45–60.*

Sun, Q., Zhang, L. J., & Carter, S. (2024). English as a foreign language learners' metacognitive experiences and writing development: Unraveling the process of learning EFL writing. Learning and Individual Differences, 115, 102540.

Sweller, J. (2011). Cognitive load theory. In Psychology of learning and motivation (Vol. 55, pp. 37-76). Academic Press.

Sweller, J., Ayres, P., & Kalyuga, S. (2019). Cognitive load theory *(2nd ed.). Springer.*

Thompson, W. F., Schellenberg, E. G., & Husain, G. (2001). Arousal, mood, and the Mozart effect. Psychological Science, 12*(3), 248–251.*