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RECEIVED 18 January 2024

ACCEPTED 28 August 2024

PUBLISHED 17 September 2024

## CITATION

Kim H-J, Chong HJ and Lee M (2024) Music listening in foreign language learning: perceptions, attitudes, and its impact on language anxiety. *Front. Educ.* 9:1372786. doi: 10.3389/educ.2024.1372786

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# Music listening in foreign language learning: perceptions, attitudes, and its impact on language anxiety

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The present study explored university students' perceptions and attitudes toward music listening in foreign language learning, examining its perceived supportive role in their learning process. In this study, "music listening in foreign language learning" refers to the practice of incorporating music as a background accompaniment during language study. With 200 participants from various majors, findings indicated that a majority (94.5%) frequently listened to music in general, with a preference for slow ballad, fast dance, and classical music genres for language study. Of these, 142 stated that listening to music played a beneficial role in their foreign language learning, perceiving it not just as a stress-reliever but also a valuable tool enhancing language skills. A significant correlation emerged between music listening and decreased communication apprehension from the Foreign Language Classroom Anxiety Scales (FLCAS). Hierarchical regression highlighted the individual variables like gender, age, and English proficiency as influential factors in foreign language anxiety, while frequent music listening displayed a protective, inverse relationship with such anxiety. The findings suggest foreign language proficiency demands both knowledge and emotional stability, with managing anxiety through informal practices like music listening playing a critical role. This highlights the potential for further pedagogical insights and more detailed subsequent research.

## KEYWORDS

foreign language learning, music listening, anxiety, individual variables, university students

## 1 Introduction

There is a significant body of research highlighting the manifold benefits of music across various life domains. In clinical settings, studies such as those by [Albornoz et al. \(2022\)](#), [Han et al. \(2021\)](#), and [Tomlinson and Lepak \(2021\)](#) have demonstrated music's positive influence on patient care. These studies indicate that music can significantly mitigate anxiety and stress, offering therapeutic benefits in hospitals. In educational environments, research has focused on music's impact on learning and student wellbeing. [Hallam \(2018\)](#) and [Yeh et al. \(2019\)](#) have outlined how music enhances cognitive functions and overall student wellbeing. Notably, these educational studies underline how students perceive music as a potent enhancer of both their overall wellbeing ([Fiore, 2018](#)) and cognitive ability in language processing ([Jäncke, 2012](#)). Furthermore, empirical evidence suggests that specific elements of music, especially those with calming tempos, can significantly mitigate anxiety and stress ([de Witte et al., 2020](#)).

While the effects of various musical facets, such as melody and rhythm, can be subjective and influenced by cultural or personal experiences, studies such as those by [Ludke et al. \(2014\)](#) and [Salcedo \(2010\)](#) experimentally show the effect of melody and rhythm on vocabulary learning and pronunciation improvement. Additionally, some studies, like the work of [Gooding and Swezey \(2002\)](#), suggest a consistent relaxing impact of rhythmic elements on listeners. Beyond medical and educational realms, the positive influence of music extends to scenarios where individuals must demonstrate skill and competence, such as language performances, which encompass behaviors like speaking, presentations, and other interactive tasks requiring linguistic skills in real or simulated contexts ([Ludke et al., 2014](#); [McCormack et al., 2020](#)). Moreover, music extends its role to fostering congenial social atmospheres in classrooms, thereby enhancing interpersonal interactions among learners ([Welch et al., 2014](#)). Specifically, music's ability to reduce stress and anxiety offers unique advantages in educational settings, where it facilitates language learning and enhances student engagement and motivation ([Fiore, 2018](#); [Jäncke, 2012](#); [de Witte et al., 2020](#)). The detailed exploration of how music supports language learning through mechanisms such as mnemonic aids and anxiety reduction ([Krashen, 1981](#); [Lozanov, 1978](#)) sets the stage for investigating the specific roles music plays in enhancing foreign language learning. This involves looking at how students utilize music in their language learning processes and how such practices correlate with their linguistic competence and anxiety levels.

## 1.1 The role of music listening in enhancing foreign language learning

The interrelation between musical processes and their potential in enhancing foreign language acquisition constitutes a notable area of academic exploration. Music, encompassing both instrumental and vocal forms, intertwines with memory, cognition, and emotion. From ancient oral traditions where rhythmic chants were used to pass down stories and histories to contemporary classrooms where catchy songs are employed to teach language structures, the alliance between music and learning is unmistakable. [Fiore \(2018\)](#) posits that the rhythmic and melodic structures of instrumental music act as formidable mnemonic devices. When learners engage with these structures, their cognitive ability to retain and recall linguistic elements gets accentuated ([Tajariana et al., 2022](#)). This is not limited to mere vocabulary retention. As [Alipour et al. \(2012\)](#) and [Huertas and Para \(2013\)](#) observed, entire linguistic patterns—those recurring structures and systematic arrangements of language elements like syntax and morphology—can be internalized more naturally through music. This approach enables learners to grasp intricate grammar structures and subtle cultural aspects as music mirrors the rhythmic and intonational aspects of speech. This is further complemented by findings from [Di Carlo \(2007\)](#) and [McCormack et al. \(2020\)](#), where learners demonstrated enhanced pronunciation, accent modulation, and intonation when their learning was scaffolded with musical elements. Given these cognitive and linguistic advantages, it is important to understand how listening to music can have such significant educational implications.

Recent studies have further elaborated on the role of background music in optimizing cognitive performance and learning outcomes. Background music, defined as music that plays while an individual engages in another activity, has been shown to influence various cognitive and emotional processes. [Goltz and Sadakata \(2021\)](#) found that individuals use background music to optimize their cognitive performance, tailoring their music choices to match the cognitive demands of the task at hand. [Jäncke and Sandmann \(2010\)](#) explored the specific effects of background music on verbal learning and found that while background music did not significantly enhance verbal learning, it did not detract from it either, suggesting that individual differences and music preferences play a crucial role. Further studies by [Lehmann and Seufert \(2017\)](#) examined the influence of background music on learning from different theoretical perspectives and found that there were no main effects of background music on recall performance. However, for comprehension, they found that the higher the learner's working memory capacity, the better they understood the material with background music.

[Su et al. \(2023\)](#) conducted an eye movement study to investigate the effects of background music on English reading comprehension for foreign language learners. Their findings indicated that background music could facilitate reading comprehension by reducing cognitive load and improving mood. Specifically, the results of their study showed that participants read texts more quickly with fast-tempo music and that the effect of music tempo was greater for easy texts. Their study concluded that fast-tempo background music benefits those who prefer background music, while slow-tempo music hinders those who do not prefer it, especially with difficult texts. Moreover, [Sun et al. \(2024\)](#) examined the impact of background music on reading comprehension, focusing on the influence of lyrics language and study habits. They found that background music with lyrics in a non-native language could enhance reading comprehension by providing a stimulating yet non-distracting environment. [Vigl et al. \(2023\)](#) explored the broader impacts of background music in educational settings, noting that it can enhance mood, motivation, concentration, and overall learning outcomes. Overall, these studies suggest that music listening, when appropriately chosen to match individual preferences and task requirements, can have positive effects on various aspects of foreign language learning.

## 1.2 Perceptions and attitudes toward music in foreign language learning

Music's integration into language education has paved the way for a plethora of studies that aim to understand learners' and educators' perceptions of this fusion. [Fiore \(2018\)](#) emphasizes that in general, students understand this potential, viewing music not just as entertainment but as a valuable learning tool. Songs, especially popular and preferred ones along with instrumental music, have been championed by learners as reservoirs of linguistic insights. [Ludke et al. \(2014\)](#) delved into learners' perceptions of singing songs in language acquisition, discovering that participants predominantly viewed songs as vital tools for education rather than just for fun. This is particularly prevalent among young

adult learners. Salcedo (2010) found that students appreciate the use of songs in class because they present language in an enjoyable and understandable way, enhancing memorability. On the educators' side, Lems (2005) investigated what teachers think about integration of music in language teaching. While many acknowledged its potential benefits for enhancing language skills, as evidenced by songs improving learners' listening comprehension and pronunciation, there was a palpable hesitation stemming from challenges in curriculum alignment and potential gaps in their own musical knowledge. Additionally, Mora (2000) underscored the perspectives of educators who considered music as an essential pedagogical tool, especially emphasizing the role of melody singing in enhancing pronunciation skills and overall language acquisition process.

Beyond the straightforward perceptions and attitudes, there is a prevailing sentiment among learners that music, with its emotive power, creates a nurturing learning environment. Anchoring on Krashen's (1981) affective filter hypothesis, Hazel-Obarow (2004) noted that learners overwhelmingly reported heightened motivation and engagement due to music's integration. Despite the overarching positive sentiment, there exists a realm of critique and reservation. Huertas and Para (2013) captured some educators' concerns about the potential pitfalls of integrating music, such as the risk of oversimplifying linguistic concepts or diverging from core curriculum goals. An analytical perusal of relevant studies suggests that the efficacy of music in language pedagogy is not just contingent upon its intrinsic merits but is also deeply intertwined with its nuanced implementation and the varying predilections and perspectives of both foreign language learners and educators.

### 1.3 Influence of music on foreign language anxiety

Foreign language anxiety has consistently emerged as a prominent concern among language educators and learners. It is a multifaceted challenge that, if unchecked, can considerably impede the acquisition process (Lightbown and Spada, 2013). Given music's well-documented therapeutic properties, it is no wonder that researchers are exploring its efficacy in alleviating this anxiety. Incorporating music into the learning experience does more than just engage the mind; it soothes the soul (Millington, 2011; Ndhlovu, 2017). In line with Krashen's (1981) affective filter hypothesis, music provides an emotional buffer, creating a safe space for learners to experiment, make mistakes, and evolve without the paralyzing fear of judgment. This emotional safeguard, as studies suggest, can be transformative. Building upon this principle, innovative pedagogies have been introduced over the years. Lozanov (1978) "Suggestopedia" is a prime example. While the empirical robustness of such methodologies remains debated, the core idea of utilizing music to counterbalance foreign language anxiety has gained traction in pedagogical circles, as illustrated by research from Astutik et al. (2019) and Brown (2014). To encapsulate, the intricate interplay between music and foreign language learning reveals a panorama of cognitive, affective, and pedagogical implications.

### 1.4 Relationships between foreign language learning anxiety and individual characteristics

The process of foreign language acquisition is influenced by a myriad of factors, each of which can either facilitate or impede a student's progress. One such significant factor, often overlooked, is the anxiety associated with learning a foreign language. Understanding how this anxiety interacts with the four fundamental skills of language learning—speaking, listening, reading, and writing—is crucial for developing more effective teaching methodologies. Historically, gender has been a focal point in understanding variations in learning outcomes and experiences. In the realm of foreign language learning anxiety, gender disparities have been consistently reported. Some studies (Campbell and Shaw, 1994; Park and French, 2013; Stephenson, 2007) have indicated that female students tend to experience higher levels of language learning anxiety compared to their male counterparts. However, the reasons behind this are multifaceted, with societal expectations, peer comparisons, and classroom dynamics playing potential roles. Conversely, some researchers (Ismail et al., 2023; Razak et al., 2017) found minimal gender differences, suggesting that other external factors might overshadow gender as a significant predictor of language anxiety.

The relationship between age and language learning anxiety remains complex. While it is commonly posited that younger learners are more adaptable and less susceptible to foreign language anxiety, empirical evidence offers mixed results. Singleton and Ryan (2004) suggest that younger learners are more flexible in their linguistic acquisition, leading to reduced anxiety. On the other hand, older learners might bring more learning experience and cognitive strategies, which could potentially mitigate anxiety. However, Ortega (2010) notes that older learners might experience anxiety stemming from a perceived decrease in cognitive flexibility or from prior negative learning experiences.

The relationship between a student's language proficiency and their experience of foreign language learning anxiety is intuitive. Multiple studies (Arabai, 2014; Horwitz, 2001; MacIntyre and Gardner, 1989) have illustrated that students with lower English proficiency often report higher levels of anxiety, likely due to perceived inadequacies and fears of negative evaluation. As learners become more proficient, their confidence tends to grow, and the anxiety levels decrease. However, this is not a linear relationship. Advanced students might experience anxiety due to the high expectations placed upon them or the complexities of advanced linguistic structures (Marnani and Cuocci, 2022).

Music, with its therapeutic and mnemonic properties, has garnered interest as a potential tool in modulating language learning experiences. There is a burgeoning field of research exploring how often students turn to music in their language learning journey and its implications for their anxiety levels. Dolean (2015) observed that students who frequently incorporated music into their learning regimen reported lower levels of anxiety, attributed to music's characteristics to create a relaxed, engaging, and emotionally resonant learning environment. However, it is essential to consider the nature and type of music. Not all musical engagements might yield reduced anxiety (Koelsch, 2014). The

content, tempo, and lyrical complexity play roles in determining the efficacy of music as an anxiety-reducing tool in language learning (Husain et al., 2002; Thoma et al., 2013). While each of the factors discussed—gender, age, English proficiency, and frequency of music listening—offers valuable insights into predicting foreign language learning anxiety, it is crucial to consider the interplay between these factors.

Given the importance and necessity of studying the effect of music on learning foreign languages, we designed a research study to investigate several aspects of using music in foreign language learning. Specifically, in this study, “music listening in foreign language learning” refers to the practice of incorporating music as a background accompaniment to aid language learning. This study addresses the following research questions:

- RQ1: What are the perceptions and attitudes of university students toward music listening for foreign language learning?  
 RQ2: What are the perceived benefits among university students of music listening in foreign language learning?  
 RQ3: How does the frequency of listening to music relate to the levels of foreign language anxiety in language learners?  
 RQ4: What are the predictive relationships between students’ foreign language learning anxiety and individual characteristics such as gender, age, English proficiency, and the frequency of music listening?

## 2 Method

The present study utilized a survey-based research methodology as the primary data collection tool, complemented by targeted interviews to deepen the understanding of the survey results. This approach was chosen for its cost-effectiveness, convenience, and rapid data collection. The flexibility of the survey allowed for various response formats, including multiple-choice questions, yes/no questions, and 5-point Likert scale questions, ensuring comprehensive coverage of the topic. Given this context, the target population was university students studying a foreign language, and data collection was conducted during the fall semester in 2022 in S. Korea. In-depth interviews were carried out with selected participants to gain qualitative insights into their experiences and perceptions regarding music listening in foreign language learning.

### 2.1 Participants

Participants in the study consisted of 200 university students from South Korea. All of them were engaged in foreign language study at the time of the survey. Originally, 242 students had participated in the survey, but due to incomplete responses, discrepancies, or other data integrity issues, 42 participants were excluded during the data cleaning process. The final sample of 200 participants comprised students from a variety of disciplines and all of the them were studying English as a foreign language. Additionally, in-depth interviews were conducted with 21 of these participants to gain more detailed insights into their experiences and perceptions.

TABLE 1 Participants’ backgrounds ( $n = 200$ ).

	N	%
<b>Sex</b>		
Male	72	36.0
Female	128	64.0
<b>Age</b>		
Under 22	98	49.0
23–25	78	39.0
Over 26	24	12.0
<b>Major</b>		
Humanities	82	41.0
Social science	37	18.5
Natural science	7	3.5
Engineering	28	14.0
Medical science	9	4.5
Arts	29	14.5
Others	8	4.0
<b>Proficiency level</b>		
Beginning	16	8.0
Intermediate low	51	25.5
Intermediate mid	90	45.0
Intermediate high	37	18.5
Advanced	6	3.0
Total	200	100.0

Table 1 shows an overview of the participants’ demographic backgrounds. Participants’ demographics encompass diverse gender distributions, age groups, academic disciplines, and perceived proficiency levels of English as a foreign language. The majority of participants come from the humanities, with a notable presence in the arts and engineering disciplines. Their English proficiency largely centers around the intermediate levels.

### 2.2 Instrument

For the purpose of this study, “music listening” specifically refers to the experience of listening to music as background accompaniment during study. This includes both instrumental music and songs, aiming to understand how background music influences foreign language learning and anxiety. The questionnaire used in this study consisted of three parts: (1) demographics, (2) perception and attitudes including frequency of music listening, preferred music genre, and role of music, and (3) foreign language anxiety. There were eight items in the first part related to personal information and demographics. The second part consisted of 13 items concerned with perceptions and attitudes toward using music for foreign language learning (see Tables 3–5 in the Section 3 for detailed content). These items asking about the

duration and type (e.g., genre, tempo) of music during language study sessions allowed us to quantify the extent of music exposure and align it with the perceived effects on language learning and anxiety. For these items, a Likert scale ranging from “strongly disagree” to “strongly agree” was employed, while certain items used a binary scale with simply “yes” or “no” response options. The last part of the questionnaire consisted of 22 items investigating students’ foreign language anxiety levels, which was adapted from Horwitz et al. (1986)’s Foreign Language Classroom Anxiety Scales (FLCAS) and translated into Korean language (see Table 6 in the Section 3 for detailed content). The original FLCAS questionnaire consists of 33 statements, but in order to improve the clarity and reduce the potential for response errors among the participants, we made a modified version of FLCAS, excluding the reverse-scored items. Since the reverse-scored items have often been reported to potentially lead to confusion and increase the probability of response errors, particularly in student populations (Schriesheim and Hill, 1981; Weijters et al., 2013), our modified version of the FLCAS consisted only of the 22 positively-ordered items. This modification ensured that agreement always indicated a higher level of the construct being measured, namely, foreign language learning anxiety.

## 2.3 Data collection and analysis

Data for this study were collected during the fall semester of 2022 from multiple universities located in Seoul, South Korea. The survey, which incorporated items from the Foreign Language Classroom Anxiety Scale (FLCAS) and additional items to evaluate the frequency and purpose of music listening, was distributed online to students enrolled in foreign language courses, primarily those studying English as a foreign language. A total of 242 responses were initially gathered; however, after executing data cleaning procedures to ensure the validity of the data, the final dataset was narrowed down to 200 responses. This number resulted from the removal of incomplete surveys and outlier responses, which could potentially skew the findings.

In parallel with the survey, in-depth interviews were conducted with a subset of survey participants who expressed a positive inclination toward participating in further research. Out of the 200 participants, 21 agreed to and were interviewed individually, providing a richer and more detailed understanding of the personal impacts of music on their language learning experiences and anxiety levels. Each interview lasted ~50 min and was semi-structured, allowing for detailed discussions on how music influenced their language learning and anxiety levels. All interviews were audio-recorded, transcribed verbatim, and anonymized to ensure confidentiality.

Quantitative data from the surveys were analyzed using SPSS version 26 for descriptive and inferential statistics. This analysis explored the relationships between the variables under investigation, such as music listening in general, music listening in foreign language learning, and various components of foreign language anxiety. Furthermore, inferential statistics such as *t*-test and ANOVA were used to examine whether there were significant differences in students’ foreign language learning anxiety based

on their gender and perceptions of using music. In addition, a factor analysis was performed to identify the underlying dimensions of foreign language anxiety, followed by correlation analyses to examine the relationships between music listening and these dimensions. Lastly, a hierarchical regression analysis was conducted to examine the influence of music listening and individual characteristics on foreign language learning anxiety. Qualitative data from the interviews underwent thematic analysis to identify recurring themes and patterns. The coding process involved categorizing responses into themes that elaborate on the psychological and educational impacts of music. This method allowed for a deeper understanding of the personal and emotional contexts in which music acts as a mitigating factor against anxiety.

The combined analysis of quantitative and qualitative data provided a comprehensive view of the role of music in foreign language learning, emphasizing how it affects both foreign language anxiety and general anxiety. The integration of both sets of data enabled a robust interpretation of the effects of music on educational outcomes and psychological wellbeing. In the interpretation of the results, special emphasis was placed on the understanding of the relationships between music listening in foreign language learning and the students’ levels of foreign language anxiety. The findings from the data analysis were then compared and discussed in the context of existing literature, with the aim of contributing to the body of knowledge on effective strategies for reducing foreign language anxiety.

## 3 Results

This section presents the results of a study that investigated the perceptions, attitudes, and perceived benefits of using music in foreign language learning, as well as the relationships with foreign language anxiety for language learners with different proficiency levels. Table 2 shows the participants’ perceptions and attitudes toward music listening in general. Regarding the frequency of listening to music, the vast majority of participants reported that they frequently tune into music, while only a minority reported rarely or very rarely doing so. Participants were also asked about their preferred music genres. “Fast Dance” music—normally upbeat and energetic music similar to pop music—emerged as the most favored, closely followed by the genre like “Slow Ballad.” Other genres like “Rap,” “Rock,” “Jazz,” “Classical Music,” and “Folk Music” gathered lesser percentages, and a few participants also had preferences for genres not listed in the survey.

### 3.1 What are the perceptions and attitudes toward music listening in foreign language learning?

Table 3 presents the participants’ perceptions and attitudes toward music listening in foreign language learning. For the frequency of music listening for language learning, most participants indicated occasional use, with the majority choosing “Sometimes,” followed by “Rarely” and “Never.” When asked about the role of music listening, participants were given predefined

TABLE 2 Perceptions and attitudes toward music listening in general.

	N	%
<b>Frequency of listening to music</b>		
Very rarely	1	0.5
Rarely	2	1.0
Occasionally	8	4.0
Often	41	20.5
Very often	148	74.0
<b>Preferred music genres</b>		
Slow ballad	44	22.0
Fast dance	55	27.5
Rap	29	14.5
Rock	11	5.5
Jazz	13	6.5
Folk music	3	1.5
Classical music	11	5.5
Not specified	34	17
Total	200	100.0

options to select from. These options included using music as background music during study, memorizing words using language-focused music, and learning expressions from song lyrics. The majority pointed to “learn expressions from song lyrics” or as a “background during language learning.” Fewer participants focused on “memorizing words through language-focused songs,” with a small percentage indicating other unspecified reasons. In terms of preferred music genre during language studies, “Slow Ballad” genre emerged as the most preferred music genre followed by “Fast Dance” music. A segment of participants indicated preferences for genres not specifically listed in the survey. Lastly, regarding the effect of music on foreign language learning, a significant majority believed in the positive impact of music, while a quarter remained skeptical. The detailed distributions of the frequency of music listening, the meaning behind such usage, preferred genres, and beliefs about the effect of music on language learning are described in Table 3.

T-tests were conducted to examine if there is a significant difference in participants’ attitudes based on preferred music genre. The results revealed no significant differences in the frequency of music listening for language learning between those who preferred “Slow Ballad” and “Fast Dance,” ( $t = -1.568, p = 0.776$ ) or between those who preferred “Fast Dance” and “Classical Music” ( $t = 1.169, p = 0.512$ ). These findings suggest that the type of music preferred does not influence how often participants listen to music while studying a foreign language. In addition to survey responses, in-depth interviews with 21 participants who expressed interest in further research participation provided richer insights into the personal impacts of music on language learning and anxiety management. One participant mentioned, “Using music while studying new vocabulary helps me remember better and keeps

TABLE 3 Perceptions and attitudes toward music listening for foreign language learning.

	N	%
<b>Frequency of using music for language learning</b>		
Never	32	16.0
Rarely	59	29.5
Sometimes	69	34.5
Often	29	14.5
Always	11	5.5
<b>Role of music listening</b>		
Background music during language learning	85	42.5
Memorizing words by using language-focused music like ABC songs	19	9.5
Learning expressions from song lyrics	89	44.5
Others	7	3.5
<b>Preferred music genre</b>		
Slow ballad	67	33.5
Fast dance	37	18.5
Rap	13	6.5
Rock	9	4.5
Jazz	17	8.5
Folk music	3	1.5
Classical music	22	11.0
Not specified	32	16
<b>Effect of music on foreign language learning</b>		
Yes	148	74.0
No	52	26.0
Total	200	100.0

me calm, especially before tests.” Another participant expressed, “Background music during my study sessions reduces the usual stress I feel and helps me focus.” These qualitative insights highlight how music is not only a tool for enhancing the learning environment but also a significant element in reducing foreign language anxiety.

### 3.2 What are the perceived benefits of using music in foreign language learning?

Table 4 shows the mean scores and standard deviations for participants’ responses to a series of statements related to their perceptions and attitudes toward foreign language learning when music is involved. The responses were measured on a 5-point Likert scale, with 1 indicating “strongly disagree” and 5 indicating “strongly agree.” Notably, participants largely agreed or somewhat agreed that music reduces stress in learning foreign languages,

TABLE 4 Perceived benefit in general.

Item	<i>M</i>	<i>SD</i>
I like studying foreign languages more	3.31	0.998
I can remember more of what I have learned in foreign language studies	3.11	1.109
I feel relaxed while studying foreign languages	3.44	1.016
I can concentrate more when studying foreign languages	3.17	1.093
I become motivated to study foreign languages	3.43	1.029
I gain confidence in learning foreign languages	3.08	1.063
I become motivated to learn foreign languages	3.37	1.034
I feel less stressed about learning foreign languages	3.63	1.000
Total	3.31	0.806

TABLE 5 Perceived benefits of linguistic skills.

Helpful foreign language skills	<i>M</i>	<i>SD</i>
Pronunciation	3.49	1.165
Listening	3.51	1.303
Vocabulary	3.45	1.046
Grammar	2.60	1.046
Reading	2.80	1.081
Speaking	3.46	1.147
Writing	2.76	1.145
All skills	3.49	0.789

as evidenced by a high mean score for the item “I feel less stressed about learning foreign languages” ( $M = 3.63$ ,  $SD = 1.000$ ). Similarly, items indicating relaxation and motivation from music during foreign language study also scored highly, such as “I feel relaxed while studying foreign languages” ( $M = 3.44$ ,  $SD = 1.016$ ). On the other hand, items related to confidence and memory retention received more moderate responses. For instance, the statement “I gain confidence in learning foreign languages” yielded a score of 3.08 ( $SD = 1.063$ ), while “I can remember more of what I have learned in foreign language studies” gained a mean score of 3.11 ( $SD = 1.109$ ), suggesting that participants held a more neutral stance concerning these specific aspects. The overall mean score across all items was 3.31 ( $SD = 0.806$ ), reflecting that participants generally view the integration of music in foreign language learning positively.

Table 5 presents participants’ perceptions of the benefits of using music for various foreign language skills. These perceptions were also rated on a 5-point Likert scale, with 1 representing “not at all helpful” and 5 being “very helpful.” Among the different language skills, skills such as “Listening” and “Pronunciation” emerged as areas where music was perceived especially beneficial. Skills like “Speaking” and “Vocabulary” also received favorable ratings. However, participants appeared less convinced about the efficacy of music in enhancing areas like “Grammar,” “Reading,” and “Writing.” *T*-test were also conducted to identify significant

differences in the perceived benefits of music listening based on participants’ preferred music genre during study. Those who preferred “Slow Ballad” perceived significantly higher benefits in terms of pronunciation ( $t = 2.222$ ,  $p = 0.029$ ), listening ( $t = 3.203$ ,  $p = 0.002$ ), reading ( $t = 2.074$ ,  $p = 0.041$ ), and speaking ( $t = 2.381$ ,  $p = 0.010$ ) compared to those who preferred “Classical Music.” However, there were no significant differences in the perceived benefits between those who preferred “Slow Ballad” and those who preferred “Fast Dance.” These comparisons were made because “Slow Ballad” was the most preferred genre, followed by “Fast Dance” as the second most preferred, and the “Classical Music” as the third most preferred genre. Additionally, interview findings further corroborate these results, with several participants noting specific improvements in pronunciation and listening comprehension when engaging with music during their study sessions. For instance, one interviewee stated, “Listening to songs in English not only improved my pronunciation but also made it easier to understand different accents.”

### 3.3 How does the frequency of listening to music relate to the levels of foreign language anxiety in language learners?

Table 6 presents factor loadings of participants’ responses to the modified Foreign Language Classroom Anxiety Scale (FLCAS) items. Participants responded on a 5-point Likert scale, where 1 represents “strongly disagree” and 5 “strongly agree.” Factor analysis was conducted to identify underlying components of foreign language anxiety and three components emerged. In Component 1, the items that had the highest loadings were related to speaking anxiety in class and the fear of making mistakes. Examples of such items include “I start to panic when I have to speak without preparation in language class” and “I get nervous and confused when I am speaking in my language class.” Component 2 encompasses items primarily related to the worry of failing like the items, “I worry about the consequences of failing my foreign language class” and “The more I study for a language test, the more confused I get.” Finally, Component 3 focuses on items regarding comparisons with other students’ language abilities, such as “I always feel that the other students speak the foreign language better than I do” and “I keep thinking that the other students are better at language than I am.” These three components identified in this study align well with those reported in previous research on foreign language anxiety (Aida, 1994; Liu and Jackson, 2008; Park, 2014) and provide support for Horwitz et al. (1986)’s anxiety categories: communication apprehension, test/failure anxiety, and fear of negative evaluation.

Table 7 presents the correlation between different variables related to music listening and foreign language learning anxiety. “Music listening in general” refers to the general music listening across various contexts. “Music listening in language learning” refers to listening to music specifically for foreign language learning. “Anxiety\_T” represents anxiety in total and “Anxiety\_C,” “Anxiety\_F,” and “Anxiety\_NE” represent the three different facets of foreign language anxiety: anxiety for communication,

TABLE 6 Foreign Language Classroom Anxiety Scale (FLCAS).

Item	Component			M	SD
	1	2	3		
I never feel quite sure of myself when I am speaking in my foreign language class	0.650	0.148	0.394	2.78	1.100
I tremble when I know that I'm going to be called on in language class	0.761	0.102	0.352	3.23	1.255
It frightens me when I do not understand what the teacher is saying in foreign language	0.515	0.334	0.322	2.93	1.186
I start to panic when I have to speak without preparation in language class	0.795	0.214	0.065	3.14	1.244
It embarrasses me to volunteer answers in my language class	0.721	0.309	0.219	3.00	1.209
I often feel like not going to my language class	0.554	0.495	-0.032	2.46	1.235
I can feel my heart pounding when I'm going to be called on in language class	0.773	0.372	0.169	3.03	1.240
I get nervous and confused when I am speaking in my language class	0.661	0.388	0.378	2.81	1.250
I get nervous when I don't understand every word the language teacher says	0.534	0.479	0.171	2.89	1.220
I feel overwhelmed by the number of rules you have to learn to speak a foreign language	0.518	0.406	0.321	2.79	1.201
I am afraid that the other students will laugh at me when I speak the foreign language	0.491	0.458	0.155	2.50	1.207
I get nervous when the language teacher asks questions which I haven't prepared in advance	0.737	0.258	0.265	3.39	1.215
I worry about the consequences of failing my foreign language class	0.282	0.696	0.290	2.51	1.215
In language class, I can get so nervous I forget things I know	0.284	0.646	0.345	2.65	1.182
I get upset when I don't understand what the teacher is correcting	0.142	0.692	0.082	2.29	1.077
Even if I am well prepared for language class, I feel anxious about it	0.369	0.504	0.180	2.73	1.189
I am afraid that my language teacher is ready to correct every mistake I make	0.430	0.558	-0.220	2.06	1.052
The more I study for a language test, the more confused I get	0.168	0.722	0.179	2.23	1.091
Language class moves so quickly I worry about getting left behind	0.210	0.666	0.484	2.51	1.203
I feel more tense and nervous in my language class than in my other classes	0.462	0.571	0.387	2.61	1.219
I keep thinking that the other students are better at language than I am	0.272	0.134	0.775	3.33	1.191
I always feel that the other students speak the foreign language better than I do	0.231	0.260	0.766	2.96	1.243

failure, and negative evaluation. The results indicate that there is a statistically significant positive correlation between “Music listening in general” and “Music listening in foreign language learning” ( $r = 0.141, p < 0.05$ ). This suggests that participants who reported higher levels of music listening in general also reported to more frequently listening to music in their foreign language learning. Conversely, “Music listening in language learning” was negatively correlated with three anxiety components: total anxiety ( $r = -0.176, p < 0.05$ ), Anxiety\_C ( $r = -0.185, p < 0.01$ ), and Anxiety\_NE ( $r = -0.148, p < 0.05$ ). This implies that participants who reported more frequent music listening in their foreign language learning reported lower levels of anxiety, particularly in communication and negative evaluation. Qualitative data from the interviews provided additional context to these findings, with participants describing how frequent music listening during language learning significantly reduced their anxiety, particularly in communication and test-taking situations. A participant shared, “When I listen to music while preparing for a speaking test, I feel less nervous and more confident.” This narrative supports the statistical evidence that music significantly reduces anxiety associated with speaking and test performance. Moreover, several participants mentioned aspects of their anxiety that extended beyond just the foreign language context. For instance, one participant stated, “I

generally feel less anxious in most situations, not just during language learning. Listening to music seems to calm me down overall, which might be why I find it so helpful during my language classes too.” This statement suggests that the individual's lower anxiety in language learning could be a reflection of a lower general anxiety level. Another participant shared, “I've always been the kind who doesn't get easily rattled, even in high-pressure situations outside of language classrooms. When listen to music in my language learning, it just enhances that calmness I already have.” This comment further supports the notion that for some learners, the beneficial effects of music on reducing FLA might be part of a broader personality trait of lower anxiety.

Additionally, it was found that the anxiety components were all highly correlated with each other, indicating that they tend to co-occur in individuals. For example, total anxiety was strongly correlated with Anxiety\_C ( $r = 0.964, p < 0.001$ ), Anxiety\_F ( $r = 0.912, p < 0.001$ ), and Anxiety\_NE ( $r = 0.669, p < 0.001$ ). These findings suggest that these may represent different manifestations of a broader foreign language anxiety construct and this is consistent with earlier findings in the literature that have pointed to the multi-dimensional nature of foreign language anxiety (Aida, 1994; Liu and Jackson, 2008; Park, 2014).



TABLE 7 Correlation between anxiety levels and music listening.

	Music use in G	Music use in FLL	Anxiety_T	Anxiety_C	Anxiety_F	Anxiety_NE
<b>Music listening in G</b>						
r.	1					
sig.						
<b>Music listening in FLL</b>						
r.	0.141*	1				
sig.	0.046					
<b>Anxiety_T</b>						
r.	0.051	-0.176*	1			
sig.	0.470	0.013				
<b>Anxiety_C</b>						
r.	0.050	-0.185**	0.964**	1		
sig.	0.484	0.009	0.000			
<b>Anxiety_F</b>						
r.	0.040	-0.126	0.912**	0.788**	1	
sig.	0.573	0.075	0.000	0.000		
<b>Anxiety_NE</b>						
r.	0.054	-0.148*	0.669**	0.572**	0.550**	1
sig.	0.447	0.037	0.000	0.000	0.000	

"Music listening in G" refers to music listening in general; "Music listening in FLL" refers to music listening in foreign language learning; "Anxiety\_T" refers to foreign language learning anxiety on a total scale; "Anxiety\_C" refers to communication apprehension; "Anxiety\_F" refers to anxiety for failure; "Anxiety\_NE" refers to anxiety for negative evaluation. \* $p < 0.05$ , \*\* $p < 0.01$ .

Based on the results of the correlation analysis above, it can be suggested that students who listen to more music while studying a foreign language tend to feel less anxious about the foreign language learning process overall. Additionally, most significantly, the results show that there is a strong relationship between music listening in foreign language learning and the anxiety related to communication apprehension, which suggests that students who listen to more music while studying a foreign language may feel less anxious when communicating with others or when they have difficulty in understanding spoken language. The interviews data also supported these quantitative findings, with participants sharing personal anecdotes of how music has been a critical tool in managing their overall anxiety and enhancing their learning experience. For example, a participant explained, "I used to be very anxious during language classes, but ever since the instructor started integrating music into our class, I have felt like my anxiety has decreased noticeably." Further, in addressing the overlap between general anxiety traits and FLA, a participant stated, "I am generally a nervous person, but music has been a game-changer in how I approach language learning. It somehow compartmentalizes my anxieties and lets me focus on learning rather than worrying." This comment ties back to the broader discussion on how personal anxiety levels might interact with specific educational strategies like music integration to produce beneficial outcomes. This finding is important because it suggests that music listening in foreign language learning can have a positive impact on students' ability to communicate effectively in a foreign language. In order to reduce communication apprehension, music can help to create

a more relaxed and supportive learning environment, which in turn can facilitate language acquisition and improve overall language learning outcomes. Moreover, this finding underscores the importance of providing students with opportunities to practice their language skills in a low-stress environment. Language instructors may consider incorporating music into their language teaching methods as a way to help students feel more comfortable and confident when communicating in a foreign language. This may provide a more engaging and enjoyable learning experiences to students.

### 3.4 What are the predictive relationships between students' foreign language learning anxiety and individual characteristics such as gender, age, English proficiency, and the frequency of music listening?

This study conducted a regression analysis to investigate the potential predictors of students' foreign language learning anxiety, with a specific focus on the frequency of music listening as a variable of interest. To examine the predictive relations between students' foreign language learning anxiety and various factors, hierarchical multiple linear regression models were employed. Initially, in Step 1, individual characteristics such as gender, age,

TABLE 8 Factors influencing foreign language learning anxiety.

	Model 1				Model 2			
	<i>B</i>	$\beta$	<i>t</i>	<i>p</i>	<i>B</i>	$\beta$	<i>t</i>	<i>p</i>
(Constant)	2.810		4.666***	0.000	3.018		4.978	0.000
Gender	-0.318	-0.183	-3.055	0.003	-0.326	-0.187	-3.146	0.002
Age	0.068	0.150	2.494	0.013	0.067	0.148	2.479	0.014
Proficiency	-0.505	-0.558	-9.664	0.000	-0.493	-0.545	-9.434	0.000
Music listening					-0.127	-0.117	-2.022	0.045
<b>Model index</b>								
<i>F</i>	35.003***				27.689***			
<i>R</i> <sup>2</sup>	0.349				0.362			
<i>adj R</i> <sup>2</sup>	0.339				0.349			

Reference group: Gender (Male 1).

\**p* < 0.05.

\*\**p* < 0.01.

\*\*\**p* < 0.001.

and English proficiency were included as predictors. Subsequently, in Step 2, the frequency of music listening was added as an additional predictor to assess its potential impact on foreign language learning anxiety.

Table 8 presents the results of a hierarchical regression analysis examining the frequency of music listening specifically for foreign language learning on anxiety levels, while controlling for participants' gender, age, and English proficiency levels. In Model 1, the potential influence of controlled variables, including gender, age, and English proficiency levels on foreign language learning anxiety, was assessed. For the analysis, the gender variable, being categorical, was transformed into a dummy variable to be integrated into the regression analysis. In Model 2, the study further investigated the influence of music listening frequency on foreign language learning anxiety while considering the effects of the controlled variables. Among the three individual characteristics' variables (gender, age, and English proficiency level), all of the three predictors were statistically significant in the prediction of foreign language learning anxiety: gender ( $\beta = -0.183$ ,  $p < 0.01$ ), age ( $\beta = 0.150$ ,  $p < 0.05$ ), and English proficiency level ( $\beta = -0.558$ ,  $p < 0.001$ ). The negative beta coefficient for gender and English proficiency level suggests that being male and having higher English proficiency were associated with lower foreign language learning anxiety, while the positive beta coefficient for age indicates that older students tended to report higher levels of anxiety in foreign language learning. The ANOVA model fit was significant ( $F = 35.003$ ,  $p < 0.001$ ), showing the goodness of fit. An estimate of the variance reported that the predictors explained 34.9% ( $R^2 = 0.349$ ,  $adj R^2 = 0.339$ ) of the variance in foreign language learning anxiety.

In Model 2, the frequency of music listening when studying foreign languages were entered to examine how this variable was concerned with predicting the foreign language learning anxiety after controlling the individuals' characteristics. All of the three significant predictors from Model 1 remained significant at varying levels of critical value: gender ( $\beta = -0.187$ ,  $p < 0.01$ ), age ( $\beta = 0.148$ ,  $p < 0.05$ ), and English proficiency level ( $\beta = -0.545$ ,  $p < 0.001$ ). Upon examining the specific impact of music

listening ( $\beta = -0.117$ ,  $p < 0.05$ ), the results revealed that it was statistically significant in predicting foreign language learning anxiety. A negative beta coefficient suggests that higher frequency of music listening was associated with lower levels of foreign language learning anxiety. The results also showed that Model 2 significantly improved the predictive power of the regression model ( $R^2 = 0.362$ ,  $adj R^2 = 0.349$ ) compared to Model 1. The change in  $R^2$  indicates that the frequency of music listening accounts for an additional 1.3% of the variance in foreign language learning anxiety. The ANOVA model fit was also significant ( $F = 27.689$ ,  $p < 0.001$ ), showing the goodness of fit. Moreover, the Durbin-Watson statistic, with a value of 1.948, approximates close to 2, indicating no significant issue with the assumption of independence for the residuals. Additionally, all Variance Inflation Factors (VIFs) were found to be below 10, indicating no substantial multicollinearity problems.

In summary, the results of hierarchical regression analysis reveal that participants' gender, age, and English proficiency exert notable influences on foreign language learning anxiety. After accounting for these variables, a significant and inverse relationship emerges between the frequency of music listening and foreign language learning anxiety. In other words, the frequency of music listening significantly played a role in predicting foreign language learning anxiety, with higher music listening being associated with lower anxiety levels. In essence, these findings suggest that music listening may have a beneficial impact on students' overall anxiety levels, and it may serve as a potential means to alleviate anxiety during foreign language learning. These results suggest the potential value of incorporating music listening activities into foreign language classrooms. While further research is necessary, this approach may enhance students' foreign language abilities and foster a more conducive learning environment.

## 4 Discussion

This study delves into the perceptions, attitudes, and benefits associated with using music in foreign language learning while

also exploring its connection with foreign language anxiety among learners with diverse characteristics. The outcomes of this research yield valuable empirical insights into the role of music in facilitating foreign language acquisition and provide practical recommendations for language educators and practitioners seeking innovative teaching approaches.

As established in prior research (Al-efeshat and Baniabdelrahman, 2020; Nnamani and Anih, 2020), participants in this study exhibited predominantly positive attitudes toward the incorporation of music into their foreign language learning endeavors. They viewed music as a moderately beneficial tool across various language skills, with particular emphasis placed on listening and pronunciation as the most advantageous areas. While the perceived impact on aspects such as grammar, reading, and writing was relatively less pronounced, the overarching positivity toward music's benefits strongly suggests its potential to enhance multiple facets of language learning. Furthermore, the correlation analysis unveiled valuable insights into the relationship between music usage and foreign language learning anxiety. It became evident that individuals who frequently integrated music into their daily lives were more inclined to integrate it into their foreign language learning routines. More crucially, we identified a negative correlation between music listening in language learning and foreign language anxiety, particularly in areas related to communication apprehension and negative evaluation. These findings substantiate the notion that music can cultivate a supportive and low-stress learning environment, subsequently reducing anxiety levels and fortifying language learning outcomes, a concept in alignment with previous research by Aida (1994) and Horwitz et al. (1986).

In-depth interviews with 21 participants revealed a perceived correlation between lower levels of foreign language learning anxiety (FLA) and general anxiety, with many participants reporting generally lower anxiety alongside reduced FLA. However, it is crucial to note that our study did not directly measure the trait anxiety levels of participants. Consequently, while these interview insights are valuable, they do not establish the impact of general anxiety traits on FLA. This limitation points to a significant area for future research, underscoring the need for studies that directly assess trait anxiety to better understand its influence on language learning experiences and outcomes. The interviews also underscored the role of music as a broad-spectrum anxiety reduction tool, with students noting increased relaxation and reduced apprehension in foreign language learning process when music was integrated.

The hierarchical regression analysis underscored the impact of individual characteristics on foreign language learning anxiety. Factors such as gender, age, and English proficiency emerged as significant determinants of anxiety levels. This aligns with established trends in previous research (e.g., Alrabai, 2014; Campbell and Shaw, 1994; Horwitz, 2001; MacIntyre and Gardner, 1989; Park and French, 2013; Stephenson, 2007), where male students and those with higher English proficiency reported lower levels of anxiety, while female and older students tended to experience higher anxiety. These results emphasize the importance of recognizing and addressing individual differences among students when addressing anxiety-related issues in language

learning contexts, as advocated by research conducted by Luo (2012, 2013, 2018) and Onwuegbuzie et al. (1999). Moreover, even after accounting for individual characteristics, the frequency of music listening emerged as a significant predictor of foreign language learning anxiety. This corroborates the findings of Dolean (2015), indicating that heightened music listening correlates with reduced anxiety during foreign language learning. Qualitative insights from the interviews further reinforced this connection, with several participants sharing how music served as a calming agent that facilitated a more engaging and immersive learning experience. This result underscores the potential value of integrating music listening activities into language classrooms as a means to alleviate anxiety and create a more supportive learning environment.

However, this study did not account for the individual musical experience or aptitudes of the participants, which are factors that could influence their frequency of music listening and its effects on language learning. This can be a limitation as musical background could potentially interact with other variables influencing foreign language learning anxiety. Moreover, the English proficiency levels of participants were not directly measured, which could impact the interpretation of how language skills affect anxiety levels and the influence of music listening. Additionally, this study did not differentiate between the languages of the songs participants listened to, whether they were in English or Korean. This lack of specificity may affect the generalizability of the findings regarding the impact of music listening on foreign language learning anxiety. Another limitation of this study is the subjective interpretation of frequency terms such as "very often," as participants might have different perceptions of these terms. For instance, one participant may consider listening to music once per day as "very often," while another might interpret it differently. This variability can affect the consistency of responses and the overall analysis. Future studies should consider these aspects to provide a deeper understanding of the effects of music listening on foreign language acquisition. Additionally, examining how different genres of music might influence anxiety levels could help determine the efficacies of music listening in language learning. It is also important to acknowledge that the sample size of 200 participants, while adequate for initial findings, may limit the generalizability of the results. Future research could benefit from a larger sample size to confirm these findings across a broader demographic spectrum. This would help to strengthen the conclusions drawn from the current study and provide a more robust foundation for recommendations regarding music's role in language learning and anxiety reduction.

In practical terms, the implications of this study hold significant importance for language educators. By infusing music into language instruction, whether through the use of background music during language practice or the incorporation of language-focused music, educators can offer students a more relaxed and enjoyable learning experience. By harnessing the benefits of music, instructors can cultivate a positive atmosphere that not only promotes language acquisition but also diminishes anxiety in a range of language-related contexts, as suggested by Hallam (2018) and Huberty (2009). However, it is imperative to acknowledge certain limitations inherent to this study. The cross-sectional research design utilized constrains our capacity to definitively

establish causality. Future longitudinal studies have the potential to provide deeper insights into the causal effects of music listening on anxiety in the context of foreign language learning. Additionally, considering additional variables such as cultural background, learning styles, or prior experiences with music could contribute to a more comprehensive understanding of their collective influence on language learning anxiety.

In summary, this discussion underscores the significance of individual characteristics and music listening in shaping foreign language learning anxiety. The integration of music listening activities into foreign language classrooms represents a promising and practical strategy to reduce anxiety levels and enhance language learning outcomes. By recognizing the multifaceted nature of language learning anxiety and embracing innovative teaching strategies, educators can construct supportive and enriching environments that empower students to surmount foreign language learning challenges and reach their full potential.

## 5 Conclusion

This study sheds light on the significance of music in foreign language learning and its relationship with language learning anxiety. Participants generally held positive attitudes toward music listening in language learning, finding it moderately helpful across various language skills, with a notable emphasis on listening and pronunciation. Importantly, the study revealed a significant negative correlation between music listening in language learning and foreign language anxiety, particularly in areas related to communication apprehension and negative evaluation, indicating music's potential to create a supportive, low-stress learning environment that improves language learning outcomes.

Individual characteristics such as gender, age, and English proficiency were identified as important factors that affect anxiety levels in language learners, underscoring the need for tailored approaches to address anxiety-related issues. Even after accounting for these individual differences, the frequency of music listening remained a significant predictor of reduced foreign language learning anxiety. This suggests that language educators can harness the benefits of music to create a more relaxed and enjoyable learning experience, fostering a positive atmosphere that promotes language acquisition and alleviates anxiety in foreign language classrooms. In conclusion, this study highlights music as a valuable tool in foreign language learning, offering a promising and practical means to reduce anxiety levels and enhance language learning

outcomes. By recognizing individual characteristics and adopting innovative teaching strategies, educators can establish supportive and enriching environments that empower students to overcome language learning challenges and reach their full potential.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Author contributions

H-JK: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Validation, Writing – original draft, Writing – review & editing. HC: Writing – original draft, Writing – review & editing, Conceptualization, Validation. ML: Data curation, Resources, Software, Writing – review & editing.

## Funding

The author(s) declare that financial support was received for the research, authorship, and/or publication of this article. This research was supported by the research fund of Dankook University in 2023.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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## References

- Aida, Y. (1994). Examination of Horwitz, Horwitz, and Cope's construct of foreign language anxiety: the case of students of Japanese. *Mod. Lang. J.* 78, 155–168. doi: 10.1111/j.1540-4781.1994.tb02026.x
- Albornoz, Y. A., Jansen, C. E., and Escamilla, M. I. (2022). The effect of music therapy on anxiety, depression, and fatigue in patients with breast cancer: a systematic review and meta-analysis. *J. Music Ther.* 59, 42–73.
- Al-efshat, H., and Baniabdelrahman, A. (2020). The EFL teachers' and students' attitudes towards the use of songs in learning English. *Int. Online J. Educ. Teach.* 7, 844–858. Available online at: <https://iojet.org/index.php/IOJET/article/view/862>
- Alipour, M., Gorjian, B., and Zafari, I. (2012). The effects of songs on EFL learners' vocabulary recall and retention: the case of gender. *J. Mod. Res. Engl. Lang. Stud.* 3, 82–59.
- Alrabai, F. (2014). A model of foreign language anxiety in the Saudi EFL context. *Engl. Lang. Teach.* 7, 82–101. doi: 10.5539/elt.v7n7p82
- Astutik, Y., Megawati, F., and Aulina, C. N. (2019). Total physical response (TPR): how is it used to teach EFL young learners? *Int. J. Learn. Teach. Educ. Res.* 18, 92–103. doi: 10.26803/ijlter.18.1.7

- Brown, H. D. (2014). *Principles of Language Learning and Teaching*, 6th Edn. Boston, MA: Pearson Education.
- Campbell, C. M., and Shaw, V. M. (1994). "Language anxiety and gender differences in adult second language learners: exploring the relationship," in *Faces in a Crowd: The Individual Learner in Multisection Courses*, ed. C. A. Klee (Boston, MA: Cengage Learning), 215–240.
- de Witte, M., Spruit, A., van Hooren, S., Moonen, X., and Stams, G. J. (2020). Effects of music interventions on stress-related outcomes: a systematic review and two meta-analyses. *Health Psychol. Rev.* 14, 294–324. doi: 10.1080/17437199.2019.1627897
- Di Carlo, N. S. (2007). Language and diction: effect of multifactorial constraints on intelligibility of opera singing (II). *J. Sing.* 559–567.
- Dolean, D. (2015). The effects of teaching songs during foreign language classes on students' foreign language anxiety. *Lang. Teach. Res.* 20, 638–653. doi: 10.1177/1362168815606151
- Fiore, J. (2018). A pilot study exploring the use of an online pre-composed receptive music experience for students coping with stress and anxiety. *J. Music Ther.* 55, 383–407. doi: 10.1093/jmt/thy017
- Goltz, F., and Sadakata, M. (2021). Do you listen to music while studying? A portrait of how people use music to optimize their cognitive performance. *Acta Psychol.* 220:103417. doi: 10.1016/j.actpsy.2021.103417
- Gooding, L. F., and Swezey, S. (2002). Effect of music and deep breathing on heart rate and blood pressure variability. *J. Adv. Nurs.* 37, 34–41.
- Hallam, S. (2018). The power of music: its impact on the intellectual, social and personal development of children and young people. *Int. J. Music Educ.* 36, 131–132. doi: 10.1177/0255761410370658
- Han, J. W., Cho, H. J., Lee, H. J., Kim, Y. J., and Kim, L. (2021). Effects of music therapy on anxiety, depression, and quality of life in patients with cardiovascular disease: a meta-analysis. *Eur. J. Cardiovasc. Nurs.* 20, 292–304.
- Hazel-Obarow, S. (2004). The impact of music on the vocabulary acquisition of kindergarten and first-grade students. *Diss. Abstr. Int.* 65:452A.
- Horwitz, E. (2001). Language anxiety and achievement. *Annu. Rev. Appl. Linguist.* 21, 112–126. doi: 10.1017/S0267190501000071
- Horwitz, E. K., Horwitz, M. B., and Cope, J. (1986). Foreign language classroom anxiety. *Mod. Lang. J.* 70, 125–132. doi: 10.1111/j.1540-4781.1986.tb05256.x
- Huberty, T. J. (2009). Test and performance anxiety. *Principal Leadersh.* 10, 12–16.
- Huertas, I. A. C., and Para, L. J. N. (2013). The role of songs in first-graders' oral communication development in English. *Profile Issues Teach. Prof. Dev.* 16, 11–28. doi: 10.15446/profile.v16n1.37178
- Husain, G., Thompson, W. F., and Schellenberg, E. G. (2002). Effects of musical tempo and mode on arousal, mood, and spatial abilities. *Music Percept.* 20, 151–171. doi: 10.1525/mp.2002.20.2.151
- Ismail, S., Idris, N., and Rahmat, N. H. (2023). Foreign language anxiety: exploring across gender. *Int. J. Acad. Res. Bus. Soc. Sci.* 13, 987–1001. doi: 10.6007/IJARBS/v13-i4/16524
- Jäncke, L. (2012). The relationship between music and language. *Front. Psychol.* 3:123. doi: 10.3389/fpsyg.2012.00123
- Jäncke, L., and Sandmann, P. (2010). Music listening while you learn: no influence of background music on verbal learning. *Behav. Brain Funct.* 6, 1–14. doi: 10.1186/1744-9081-6-3
- Koelsch, S. (2014). Brain correlates of music-evoked emotions. *Nat. Rev. Neurosci.* 15, 170–180. doi: 10.1038/nrn3666
- Krashen, S. D. (1981). *Second Language Acquisition and Second Language Learning*. Oxford: Pergamon Press Inc.
- Lehmann, J. A. M., and Seufert, T. (2017). The influence of background music on learning in the light of different theoretical perspectives and the role of working memory capacity. *Front. Psychol.* 8:1902. doi: 10.3389/fpsyg.2017.01902
- Lems, K. (2005). "Music works: music for adult English language learners," in *Artistic Ways of Knowing: Expanded Opportunities for Teaching and Learning*, ed. R. Lawrence (New York, NY: Jossey-Bass), 13–22. doi: 10.1002/ace.185
- Lightbown, P. M., and Spada, N. (2013). *How Languages are Learned*, 4th Edn. Oxford: Oxford University Press.
- Liu, M., and Jackson, J. (2008). An exploration of Chinese EFL Learners' unwillingness to communicate and foreign language anxiety. *Mod. Lang. J.* 92, 71–86. doi: 10.1111/j.1540-4781.2008.00687.x
- Lozanov, G. (1978). *Suggestology and Outlines of Suggestopedia*. New York, NY: Hodder Headline Group.
- Ludke, K. M., Ferreira, F., and Overy, K. (2014). Singing can facilitate foreign language learning. *Mem. Cogn.* 42, 41–52. doi: 10.3758/s13421-013-0342-5
- Luo, H. (2012). Sources of foreign language anxiety: towards a four-dimension model. *Contemp. Foreign Lang. Stud.* 12, 49–61. Available online at: <https://www.researchgate.net/publication/270592457>
- Luo, H. (2013). Chinese language learning anxiety and its associated factors. *J. Chin. Lang. Teach. Assoc.* 48, 109–133. Available online at: <https://www.researchgate.net/publication/270645575>
- Luo, H. (2018). Predictors of foreign language anxiety: a study of college-level L2 learners of Chinese. *Chin. J. Appl. Linguist.* 41, 3–24. doi: 10.1515/cjal-2018-0001
- MacIntyre, P. D., and Gardner, R. C. (1989). Anxiety and second-language learning: toward a theoretical clarification. *Lang. Learn.* 39, 251–275. doi: 10.1111/j.1467-1770.1989.tb00423.x
- Marmani, P. F., and Cuocci, S. (2022). Foreign language anxiety: a review on theories, causes, consequences and implications for educators. *J. Engl. Learner Educ.* 14, 1–30. Available online at: <https://www.researchgate.net/publication/368423530>
- McCormack, B. A., Klopper, C., Kitson, L., and Westerveld, M. (2020). The potential for music to develop pronunciation in students with English as an Additional Language or Dialect (EAL/D). *Aust. J. Music Educ.* 52, 43–50.
- Millington, N. T. (2011). Using songs effectively to teach English to young learners. *Lang. Educ. Asia* 2, 134–141. doi: 10.5746/LEiA/11/V2/11/A11/Millington
- Mora, C. (2000). Foreign language acquisition and melody singing. *ELT J.* 54, 146–152. doi: 10.1093/elt/54.2.146
- Ndhlovu, A. (2017). Music is a gateway to the soul: exploring ways of utilizing music and song projects in promoting foreign language learning. *Transl. Today* 11, 93–118. doi: 10.46623/tt/2017.11.2.ar5
- Nnamani, S. N., and Anih, H. U. (2020). Students' attitude to music in foreign language classes in secondary schools in Enugu urban. *Int. J. Engl. Lit. Soc. Sci.* 5, 1252–1261. doi: 10.22161/ijels.54.62
- Onwuegbuzie, A. J., Bailey, P., and Daley, C. E. (1999). Factors associated with foreign language anxiety. *Appl. Psycholinguist.* 20, 217–239. doi: 10.1017/S0142716499002039
- Ortega, L. (2010). Understanding second language acquisition. *Mod. Lang. J.* 94, 677–678. doi: 10.1111/j.1540-4781.2010.01108.x
- Park, G.-P., and French, B. F. (2013). Gender differences in the foreign language classroom anxiety scale. *System* 41, 462–471. doi: 10.1016/j.system.2013.04.001
- Park, G. P. (2014). Factor analysis of the foreign language classroom anxiety scale in Korean learners of English as a foreign language. *Psychol. Rep.* 115, 261–75. doi: 10.2466/28.11.PR0.115c10z2
- Razak, N. A., Yassin, A. A., and Maasum, T. (2017). Effect of foreign language anxiety on gender and academic achievement among Yemeni university EFL students. *Engl. Lang. Teach.* 10, 73–85. doi: 10.5539/elt.v10n2p73
- Salcedo, C. S. (2010). The effects of songs in the foreign language classroom on text recall, delayed text recall and involuntary mental rehearsal. *J. Coll. Teach. Learn.* 7, 19–30. doi: 10.19030/tlc.v7i6.126
- Schriesheim, C. A., and Hill, K. D. (1981). Controlling acquiescence response bias by item reversals: the effect on questionnaire validity. *Educ. Psychol. Meas.* 41, 1101–1114. doi: 10.1177/001316448104100420
- Singleton, D., and Ryan, L. (2004). *Language Acquisition: The Age Factor*. Bristol: Multilingual Matters. doi: 10.21832/9781853597596
- Stephenson, J. (2007). Gender as a predictor of anxiety in foreign language learning. *Int. J. Interdiscip. Soc. Sci. Ann. Rev.* 2, 495–501. doi: 10.18848/1833-1882/CGP/v02i04/52384
- Su, Y., He, M., and Li, R. (2023). The effects of background music on English reading comprehension for English foreign language learners: evidence from an eye movement study. *Front. Psychol.* 14:1140959. doi: 10.3389/fpsyg.2023.1140959
- Sun, Y., Sun, C., Li, C., Shao, X., Liu, Q., Liu, H., et al. (2024). Impact of background music on reading comprehension: Influence of lyrics language and study habits. *Front. Psychol.* 15:1363562. doi: 10.3389/fpsyg.2024.1363562
- Tajariana, T., Zuhri Dj, M., and Musfirah, M. (2022). The effect of suggestopedia in vocabulary learning towards Indonesian madrasah students. *Int. J. Res. Engl. Teach. Appl. Linguist.* 3, 74–81. doi: 10.30863/ijretal.v3i1.3154
- Thoma, M. V., La Marca, R., Brönnimann, R., Finkel, L., Ehlert, U., Nater, U. M., et al. (2013). The effect of music on the human stress response. *PLoS ONE* 8:e70156. doi: 10.1371/journal.pone.0070156
- Tomlinson, E. R., and Lepak, K. D. (2021). The effectiveness of music therapy on anxiety and pain in adult hospitalized patients: a systematic review and meta-analysis. *J. Music Ther.* 58, 328–359. doi: 10.1016/j.jporm.2023.100360
- Vigl, J., Ojell-Järventausta, M., Sipilä, H., and Saarikallio, S. (2023). Melody for the mind: enhancing mood, motivation, concentration, and learning through music listening in the classroom. *Music Sci.* 6, 1–13. doi: 10.1177/20592043231214085
- Weijters, B., Baumgartner, H., and Schillewaert, N. (2013). Reversed item bias: an integrative model. *Psychol. Methods.* 18, 320–334. doi: 10.1037/a0032121
- Welch, G. F., Himonides, E., Saunders, J., Papageorgi, I., and Sarazin, M. (2014). Singing and social inclusion. *Front. Psychol.* 5, 1–12. doi: 10.3389/fpsyg.2014.00803
- Yeh, C. Y., Chen, C. H., and Chen, Y. T. (2019). Effects of background music on reading comprehension and cognitive learning in a computer-based instructional environment. *J. Educ. Technol. Dev. Exch.* 12, 1–16.