

Using Iranian Traditional Music as an Input Mode in L2 Vocabulary Learning

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Abstract

The present study investigates the role of Iranian traditional music as an input mode in learning and retention of difficult English vocabularies on Iranian upper intermediate language learners. Although the previous studies have reported the impact of music on the process of vocabulary learning, there is still limited evidence about the role of cultural familiarity with music in second language learning. In this study, 80 language learners were put in four groups. Two groups received the target vocabulary items by the utilization of western classical music, while the other two groups received the same vocabularies by using Iranian traditional music. After the pretest, posttest and delayed posttest, the results of Repeated Measures ANOVA indicated that the time had significant impact on the participants' lexical performance. In addition, the descriptive statistics showed that the learners, who were exposed to the Iranian traditional music, had better performance in both the instant and delayed posttest compared to the western classical music groups. However, there was no significant interaction between the music type and time. The findings illustrate that the utilization of familiar music in terms of culture can facilitate the process of learning and retention of vocabularies in second language acquisition contexts.

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Introduction

Many studies have been conducted on the interaction of music, students' language learning, test performance, and memory performance. Given the effectualness of music, a significant number of conducted studies showed the effectiveness of music due to its capability of reducing the negative anxiety and pressure of the classrooms on the learners (Aheadi et al., 2009; Alley & Greene, 2008; Cassidy & Macdonald, 2007; de Groot, 2006; Rauscher et al., 1993; Sun et al., 2025).

Emerging of music and songs into the world of education has been accompanied by many twists and turns. Many studies have been done in this field to examine the effect of music on learning more closely. Most of the conducted studies and researches have proved the effectiveness of music on the learning process. Specifically, in the EFL context, music and songs are used in different methods, such as desuggestopedia, and ways to catalyze the process of second language learning (Griffie, 1992; Murphey, 1992). The results of these studies, in general, help teachers in implementing the music and songs in teaching process as well as having interesting activities and fun class atmosphere.

Referring to conducted research and analyses, it is believed that music can affect the four language skills, language components such as vocabulary learning, and also the classroom atmosphere. For instance, students are interested in reading songs' lyrics which, consequently, improve students' reading skill (Lems, 2005; Shen, 2009). Studies, also, illustrated that by listening to the song's lyrics, accompanying the song, the vocabulary learning and retention improve compared to those students who study the same lyrics without listening to the songs. Some of the studies' results indicated that songs facilitate vocabulary learning (Medina, 1993; Pavia et al., 2019), while de Groot and Smedinga (2014) illustrated that background songs with familiar lyrics have negative effect, in short-term, on foreign language vocabulary learning. However this impact was not observed in long-term assessments. Therefore, the results show that the effect of songs is not always positive, and songs' attributes play important roles in this matter. However, preferred songs' genres by learners, such as pop music, work better in the language classes (Akbari et al., 2016). In addition, some scholars even claimed that singing could affect the learning process positively and help second language learners to upgrade themselves (Ludke et al., 2014; Ward, 1976; Zhang et al., 2023).

Some of the conducted research also showed that music and songs not only strengthen the vocabulary learning, memory and attention, but also improve motivation, affective involvement and retention, and create a more positive perspective towards language learning (Urbaite, 2025).

The purpose of the present study is to investigate whether the countries' traditional musical input is more effective than classical musical input on upper intermediate

learners' learning, and retention of difficult vocabulary items. Another purpose of conducting the present study is to find out about the learners' attitudes towards the use of multimodal traditional musical input in teaching difficult vocabulary items.

Theoretical Framework

Music as a Cognitive Stimulant

In the current study, music is considered as a multi-dimensional stimulant that can affect the attention processes, encoding and memory retrieval by the structural attributes such as rhythm, pitch, intervals, harmony, dynamics and modes. These attributes are considered as attention organizer elements that can impact the amount of attention, motivation and the quality of lexical encoding as the result, by creating the predictable or emotional patterns. In the composition of the musical themes used in this study, the doctrine of Chase (2006) about the roles and emotional effects of intervals, chords, rhythms, modes, dynamics, tonalities and pitch were utilized to shape the aural experience. In the framework of this research, music is not a background factor, but is an organized cognitive input that can change the quality of linguistic information processing. The study of Hashemi and Yousefi (2021) proved that the framework and doctrine of Chase work really well in conveying different emotions by the use of elements of music purposefully.

Cognitive Load Theory

Cognitive load theory expresses that the human working memory has a limited capacity, and learning can be optimized only when the extra cognitive load is decreased or managed purposefully (Sweller, 1988). According to this theory, any stimulant that leads the attention or is structured can affect cognitive resources allocation. In the present study, the musical attributes such as organized rhythm or harmonic patterns might decrease the extraneous load and increase the process of effective lexical information by creating a predictable temporal structure. There are some studies consistent with this theory. For example, Sun et al. (2025) showed that the effectiveness of music is depended on the composition and attributes of the musical stimulant. Pavia et al. (2019) also indicated that vocabulary learning through the utilization of music was influenced by the amount of attention and the conditions of exposure. In addition, de Groot & Smedinga (2014) showed that familiar lyrics caused conflict of attention in short-term, and probably increased cognitive load.

Dual Coding Theory

Dual coding theory says that the information and inputs are learned and retrieved best when they are encoded in a dual independent processing way, verbal system and visual/sensory system (Paivio, 1991). In the present study, music can act as a non-verbal encoding system that beside the presentation of vocabularies, create an extra layer of auditory/sensory system. This synergy can cause the creation of multiple retrieval paths in the long-term memory. Some of the studies are in the same line with

this theory. For instance, Ludke et al. (2014) indicated that singing caused better remembering of phrases in their study and showed that the mixture of music and language reinforce memory. In addition, Zhang et al. (2023) and Medina (1993) illustrated that the combination of music and vocabularies strengthened vocabulary learning.

Memory Encoding Model/Levels of Processing

According to the models of information processes, especially the Levels of Processing theory, the depth of information process determines the retention of information in the long-term memory (Craik & Lockhart, 1972). The more the processing is deeper and more meaningful, the more it is likely for the retention to be deeper. In this framework, music can cause the target vocabularies to process deeper by increasing the attentional engagement and creating organized time structure. Also musical elements such as rhythm and harmonic patterns can help to organize information better in working memory and facilitate transferring them to the long-term memory. Some of the studies are aligned with this theory. For instance, Pavia et al. (2019) indicated that the target vocabularies being lied in the texture of songs, and repetition of them caused deeper processing of the vocabularies.

Affective Filter Theory

According to Krashen (1982), affective factors such as anxiety, motivation and learners' perspectives are able to impact the reception and processing of language input. When the affective filter is low, learners are more capable of receiving, processing and linguistic information saving. While high anxiety and negative perspective, on the other hand, can make obstacles for effective learning. There are also some studies consistent with this theory. For instance, Urbaite (2025) illustrated that music and songs increase the motivation and affective involvement. In addition, Sun et al. (2025) showed that music can decrease anxiety and create a more desirable learning context.

Literature Review

Previous studies have shown that background music can reduce the stress and anxiety level of the learners in educational settings, boost their motivation, make the class atmosphere more fun and enjoyable, facilitate memory and affect their academic performances positively even in participants with disabilities. These also indicated that the acoustic features of music are the facilitators of language learning (Anyanwu, 2015; Ázmi et al., 2023; Bellier et al., 2020; Felszeghy et al., 2023; Hallam & Godwin, 2015; Lehmann & Seufert, 2017; ManJia, 2023; Stramkale, 2020).

One of the studies done by Ock and Choi (2025) even showed that the element of background's music tempo, the rhythmic attributes of music, could affect the amount of attention, cognitive processing and the learning process positively. The finding of this study showed that the change of the music speed can create different surfaces of

cognitive involvement, and affect the decoding quality and retrieval of vocabularies positively as the result. All these findings indicate that music is not only a sidelong element in the teaching context, but its' structural features and attributes can be considered as impactful variables in the process of language learning. All of these benefits are the evidence that pedagogical potential of music is beyond the arts and its utilization in educational setting is actually helpful and profitable.

Music, either lyrical or instrumental, in language education, has also been applied to the teaching of four skills and components and it has indicated that it can improve listening, speaking, reading and writing task performance, exercise transferring, pronunciation, grammar and vocabulary learning (Chen, 2020; Lehmann et al., 2018). The rhythm of music can affect pronunciation accuracy positively, while the melody and the lyrics can improve listening and speaking gradually.

Vocabulary acquisition, in particular, in combination with music is an area where many studies have been conducted in. All these studies have indicated that the elements of music assist learning new vocabulary items (Li & Zhang, 2025; Mannarelli & Serrano, 2022; Nirmala et al., 2021; Tavşanlı et al., 2021; Teodoradze, 2021). It is also shown that music can make the retention of the words more feasible and facilitated. It is illustrated in the delayed posttests by the researchers. These studies indicate that the musical memory takes advantage of the patterns of learning such as putting space in information review and is able to make a permanent retrieval of memory. They also show that the learning of vocabularies is one of the most important predictors of success in the next steps of language learning, and the factors that strengthen the memory of vocabulary, can affect the other aspects of language learning positively. Many studies also investigated the relationship between music instruction and SLA, and indicated that the developed aural skills in music activities can improve the vocabulary processing, aural memory and the capability of distinguishing between the sonic patterns (Buonviri, 2025; Katz & Wiseheart, 2025; Pitychoutis et al., 2026). Overall, the research indicate that the music is not only used as motivational tools, but also utilized as a cognitive tool for information processing, encoding the memory and increasing the retention of the vocabulary items.

Music and emotion in language learning context is another area of interest of some researchers. It is believed that different elements of music such as intervals, chords, tone color, loudness, pitch, modes, tonality tempo and rhythm all can convey different emotions (Chase, 2006; Glowinski & Camurri, 2013). In some studies the different types of emotions induced by music have been shown to affect learning and retention of difficult vocabulary items, different skills, new knowledge and performance positively (Hashemi & Yousefi, 2021; Schafer et al., 2013; Vuilleumier & Trost, 2015).

In recent years, multimodal approaches have found a special place in language teaching research. Wang and Xu (2025) by tracking the eyes movement indicated that with blending the linguistic information and the visual signs and multimodality we can increase the attention of the language learners and facilitate the semantic processing of words. The findings of this study showed that the synchronic presentation of information from different perceptual modalities can cause decrement of cognitive load and improvement of memory encoding. Also, Xie et al. (2025) found similar discoveries and illustrated that incidental vocabulary learning and lexical retention were strengthened by utilizing different input modes. Jin and Luo (2026) with AI-assisted vocabulary learning, and Kuppens (2010), similarly, with different modes, such as English computer games and watching subtitled television and movies, found that integrated multimodal teaching, can increase language acquisition. These finding are in line with the viewpoints of multimodal learning and show that utilization of multimodal stimulants, such as music, image and text, can improve learning and retention of vocabularies. From this standpoint, we can consider music as a part of multimodal learning context that by involving the auditory, cognitive and emotional processes simultaneously helps the gradation of language learning performance.

Recent research have shown that we can't explain the impact of music on language learning only by acoustic and sonic attributes and elements, and we also have to pay attention to the factors of culture and nostalgia. The studies have indicated that the familiar music which is related to the culture background is able to develop the nostalgic feeling, reminiscence, and the memory retrieval. Then we have to consider music as something that is not only an auditory stimulant, but is also a stimulant of emotion and identity, which is able to activate the long-term memory networks. These studies emphasize on the cultural differences in music perception and indicate that the learners' reactions to the musical stimuli are affected by the cultural and social experiences and therefore music can't be considered as a universal phenomenon that is totally independent from the culture. The studies also show that the representation and processing of the musical attributes in different cultures have different patterns and the cultural background can affect and change the way people perceive and interpret musical stimuli. They have also reported that the utilization of familiar cultural elements in language instruction activities can increase and develop the learners' vocabulary learning and retention (García-Benito, 2025; Ge & Qi, 2026; Katz & Wiseheart, 2025; Sakakibara et al., 2025; Zhang et al., 2025). Overall, all these findings support this viewpoint that cultural familiarity with music and activation of the feeling of nostalgia can deepen and strengthen the processing of information, effective encoding and finally better retention of vocabularies in SLA contexts.

The Study

Numerous studies have been conducted in the field of multimodal education that use different methods in education, while some of them deal with the multimodal education

and vocabulary learning. Also numerous researchers confirmed the effectiveness of multimodal education such as using visual and auditory modes on vocabulary learning and retention (Avgerinou & Ericson, 1997; Chapuis & Berthele, 2024; Chen & Chung, 2008). In particular, Hashemi and Yousefi (2021) have proved the positive effect of music composed as an input mode on high intermediate L2 learners' knowledge and retention of the meaning of difficult English words. Power point presentations, total physical response storytelling, multiple types of printed dictionary, and online dictionaries are the instances of multimodal modes of education. However, most of the studies that have been done relied on the western music and left how culturally familiar or countries' traditional music might affect pupils' learning and retention of vocabulary less explored in non-western contexts. Although research shows that using music in language learning can boost motivation, memory, and appreciation for culture, there hasn't been much study on how Iranian traditional music specifically affects Iranian learners' English vocabulary learning (culturally familiar musical input). Also, learning difficult English words can be tough, so we need new methods to help learners grasp and remember them better. On the other hand, in modern language learning, incorporating various "cultural" aspects has become a promising method to make learners more interested and help them understand better. While many recognize the importance of cultural immersion in learning languages, there's still much to learn about how traditional music, like Iranian traditional music, can help Iranian upper intermediate learners of English remember and understand difficult words.

Research Questions

There are four questions posed in this study:

RQ1: Is Iranian traditional musical input more effective than classical musical input on upper intermediate Iranian learners' learning of difficult vocabulary items?

RQ2: Is Iranian traditional musical input more effective than classical musical input on upper intermediate Iranian learners' retention of difficult vocabulary items?

RQ3: What are the Iranian learners' attitudes towards the use of Iranian traditional musical input in teaching difficult vocabulary items?

RQ4: What are the potential challenges faced by upper intermediate L2 learners when learning difficult English words through music as an input?

Method

Participants

In this study, four upper Intermediate English language classes, each containing 20 students, were studied. All participants were enrolled in English courses as EFL learners and their goals of learning varied and included personal, professional and academic purposes. Thirty three of the learners were females while 47 of them were males. They were all adults and their age range was between 18-30 years. All of the participants' native language was Persian. They were selected by the utilization of convenience sampling from intact classes in two private language institutes in Nowshahr, Iran.

Almost none of them had formal background in music education. In the qualitative phase, purposive sampling was used to select 10 participants with high scores and 10 participants with low scores for semi-structured interviews. While students with strong music intelligence or auditory learning style may be particularly interested or adept in the subject matter, recruiting participants with varying levels of musical ability and learning styles can help capture a more comprehensive understanding of the phenomenon being studied and ensure generalizability of findings.

Design

In order to find the appropriate methods to investigate and answer the questions, mixed methods research framework was used in this study (Creswell & Plano Clark, 2018). Because mixed methods research involves both quantitative and qualitative methods. Quantitative method is used to apply experimental research and to examine the effects of the treatment on vocabulary learning and retention. While qualitative method is used to explore the underlying reasons, opinions and motivations of conducting certain research (Creswell, 2014). The study was conducted based on a quasi-experimental design, pre-test and post-test, in order to assess the knowledge of the participants before and after the treatment (Shadish et al., 2002). with providing a word list, in which 40 difficult abstract English words were written with appropriate space in front of them, for eliciting the proper meaning from both groups in order to find out if the traditional music had any effect on the students' memorization and retention of words' meaning or not.

Instruments

There were some materials and instruments used in this study, in order to carry out the research in a practical way. The first instrument was FCE Cambridge test which was used to check the homogeneity of participants in terms of their language proficiency, to make sure that all of them were at the upper intermediate level. In order to do that the Cambridge FCE test, the "Reading and Use of English" section was used, in which there are 7 parts with 52 questions. The reason of using this test was that it is targeted at B2 level of CEFR. Research indicated that FCE test has high reliability and validity (Granpayeh, 2004). The second instrument was the list of 100 abstract, that can't easily be explained verbally or visually, difficult vocabulary items that was extracted from two dictionaries of difficult words, "The Oxford Dictionary of Difficult Words" and "Wordsworth Dictionary of Difficult Words". The frequency of use of the words, and their potentiality, that whether they can lend themselves to musical representation or not, were checked. In addition, the best 40 words of the list, in terms of their relevance and difficulty for the upper intermediate level, were chosen by two PhD holders in applied linguistics. The 40 vocabulary items included nouns, adjectives and verbs. For each word, two musical themes were composed by the researcher as the third instrument, a traditional Persian theme, and a western classical one. The themes were composed based on meaning and function, particularly the literal meaning, main

function, and the emotional state of the word. When it comes to the form of the themes, during the composition, attention was given to the pronunciation of each word, such as long and short vowels, stress and number of syllables. The fourth instrument was the vocabulary test which was the list of the 40 target words administered as the pretest, in which the participants had to write the Persian meaning of each one. Then for the posttest the same list, consisting of the 40 target words, was given to the students with the same format as the pretest. And finally, two weeks later the same test as the pretest and posttest was administered as the delayed posttest.

To perform the qualitative strand, the research used a purposive sampling method to draw the sample from the students participated in the experimental groups of Iranian traditional music. Purposive sampling was used to select 10 participants with high scores and 10 participants with low scores. While students with strong music intelligence or auditory learning style may be particularly interested or adept in the subject matter, recruiting participants with varying levels of musical ability and learning styles can help capture a more comprehensive understanding of the phenomenon being studied and ensure generalizability of findings. Therefore, the researcher made semi-structured interview protocol consisting of two open-ended questions ("Did you like learning vocabularies with Iranian traditional music? Why?", and "What challenges did you face while learning difficult English words through music?"), and classroom observation notes, in order to elicit the participants' opinions regarding using music in classroom, and also had the students share their thoughts and experiences related to participating in music based classes to elucidate the challenges encountered by learners in assimilating intricate English vocabulary through musical stimuli.

Procedure

After being allowed to collect the data and classify them using the research file, the researcher categorized the findings and then used each one at the appropriate time. The data collection took place at two English Language Institutes for eight sessions with each class. In each institute there were two experimental groups. In each session 5 words were taught to each group. For each word, two instrumental musical themes were composed, one classical and one Iranian traditional music, by the first author who has a BA in music and is a PhD candidate in ELT. In two experimental classes, for teaching the vocabularies, each piece of Iranian traditional music was played for its particular word before the word is introduced. Then, the students were asked to tell the teacher what they felt about the music. Then the theme was played one more time. Then the word was introduced and its meaning was interpreted in English. Then the participants were asked to say how they connected the music to the word. However, in the other two experimental groups, the words were taught with the classical music. Before teaching the words a pretest was given to each group. After teaching all the words, the posttest, which was the same as the pretest, took place in order to see how

much they learned. Two weeks after the posttest, a delayed posttest took place in order to find out about the retention of the words. In this course, we looked at how Persian traditional music can help Iranian upper intermediate learners of English improve their vocabulary.

Data Analysis

In the quantitative part the pretest, posttest, and delayed posttest scores were entered into SPSS 26. A Repeated Measures ANOVA was run in order to investigate the within-subjects effect of time (pretest, posttest, delayed) and the between-subjects effect of music type (Iranian VS western). Mauchly's test of sphericity was checked first, and Greenhouse-Geisser corrections applied when necessary. Descriptive statistics (means, standard deviations) were reported along with significance values, effect sizes, and pairwise comparisons.

In the qualitative part, semi-structured interviews and classroom observations were analyzed utilizing a blend of thematic analysis (Braun & Clarke, 2006), and content analysis. First the transcription of interview responses was done, and then the conduction of open coding. Codes were then put into broader themes such as distraction, enjoyment, difficulty level and familiarity. Interview findings were triangulated with observation notes that were also coded to enhance the validity. Manual coding was utilized to help organizing codes and themes.

Finally, both phases' findings were integrated. While the qualitative results showed learners' perceptions and challenges during learning difficult English vocabulary through music, the quantitative findings illuminated differences in vocabulary learning and retention across groups.

Results

Quantitative Findings

The present study investigated the effect of Persian traditional music and classical music as input modes on the learning and retention of difficult English vocabulary among Iranian upper intermediate L2 learners. A total of 80 pupils participated in four groups (A, B, C, D), with A & C receiving the same musical input (Iranian traditional music) and B & D the same musical input (Classical).

Descriptive statistics indicate that both Persian traditional music groups showed greater vocabulary gains compared to classical music groups. Specifically, as shown in Table 1, in institution 1 Iranian group got ($M = .95$, $SD = 1.05$) ($M = 16.8$, $SD = 2.85$) ($M = 15.8$, $SD = 2.58$) compared to the western group in the same institution ($M = .85$, $SD = 1.03$) ($M = 14.2$, $SD = 2.37$) ($M = 15.8$, $SD = 2.87$) for pretest, posttest and delayed respectively. In institution 2, as shown in Table 2, Iranian group got ($M = .9$, $SD = 1.07$) ($M = 20.3$, $SD = 2.88$) ($M = 18.8$, $SD = 3.12$) while the western group got ($M = .85$, $SD =$

.93) ($M = 17.7$, $SD = 2.34$) ($M = 19.3$, $SD = 2.88$) for pretest, posttest, and delayed respectively. The same pattern is shown in Figure 1.

Table 1

Mean Vocabulary Scores of Iranian and Western Music Groups across Time (Institution 1)

Group	Test	M	SD
Iranian	Pretest	.95	1.05006
Iranian	Posttest	16.8	2.85804
Iranian	Delayed	15.8	2.58742
Western	Pretest	.85	1.03999
Western	Posttest	14.2	2.37531
Western	Delayed	15.8	2.87640

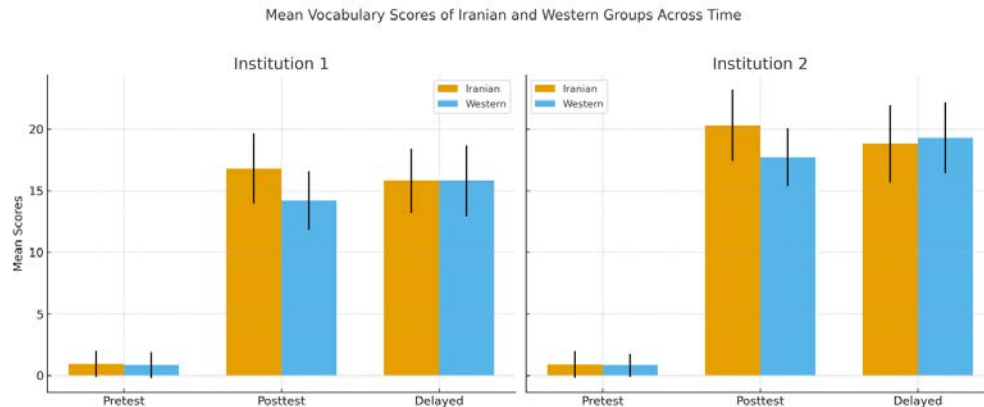
Table 2

Mean Vocabulary Scores of Iranian and Western music Groups across Time (Institution 2)

Group	Test	M	SD
Iranian	Pretest	.9	1.07115
Iranian	Posttest	20.3	2.88554
Iranian	Delayed	18.8	3.12208
Western	Pretest	.85	.93330
Western	Posttest	17.7	2.34184
Western	Delayed	19.3	2.88554

Figure 1

Mean Vocabulary Scores of Iranian and Western Music Groups across Time



A repeated-measures ANOVA showed a significant main effect of time $F(2,38) = 997.28$, $p < .001$, $\eta^2 p = .963$. For group institution 1, as shown in Table 3, and $F(2,38) = 1065.49$, $p < .001$, $\eta^2 p = .966$ for institution 2, as shown in Table 4, showing that both groups improved significantly from pretest to posttest.

Table 3

Repeated-Measures ANOVA Results for the Effect of Time (Institution 1)

Effect	F	Df	P	Partial η^2
Time	997.28	2.38	< .001	.963

Table 4*Repeated-Measures ANOVA Results for the Effect of Time (Institution 2)*

Effect	F	Df	P	Partial η^2
Time	1065.49	2.38	< .001	.966

Pairwise comparisons with Bonferroni adjustment showed that scores increased significantly from the pretest to the posttest ($MD = 14.60$, $P < .001$). However it was not significant from posttest to delayed ($MD = -0.30$, $P = 1.000$) for institution 1, as shown in Table 5. Then, from pretest to the posttest ($MD = -18.125$, $P < .001$) and from posttest to delayed ($MD = -0.050$, $P = 1.000$) for institution 2, as shown in Table 6.

Table 5*Pairwise Comparisons (Institution 1)*

Comparison	Mean Difference (MD)	p-value
Pretest – Posttest	-14.600	< .001
Posttest – Delayed	-0.300	1.000

Table 6*Pairwise Comparisons (Institution 2)*

Comparison	Mean Difference (MD)	p-value
Pretest – Posttest	-18.125	< .001
Posttest – Delayed	-0.05	1.000

The main effect of music type was not significant, $F(1.38) = 2.52$, $P = .121$, $\eta^2 p = .062$ for institution 1, as shown in Table 7, and $F(1.38) = 1.77$, $P = .191$, $\eta^2 p = .044$ for institution 2, as shown in Table 8. It shows that there is no overall performance difference between learners with exposure to Iranian versus Western music.

Table 7*Tests of Between Subject Effects for Music Type (Institution 1)*

Effect	F	Df	P	Partial η^2
Music Type	2.52	1.38	.121	.062

Table 8*Tests of Between Subject Effects for Music Type (Institution 2)*

Effect	F	Df	P	Partial η^2
Music Type	1.77	1.38	.191	.044

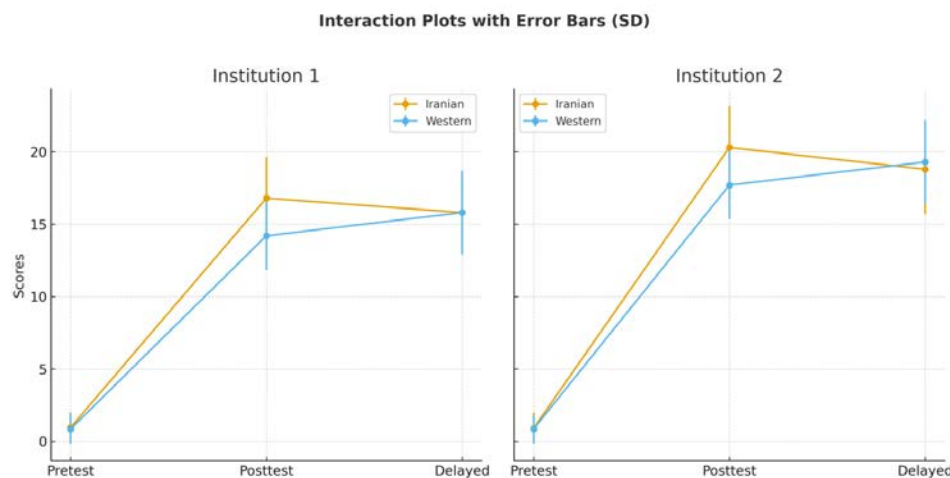
A significant interaction was found between time and music type $F(2.78) = 7.46$, $P = .001$, $\eta^2 p = .164$ for institution 1, as shown in Table 9, and $F(2.78) = 6.64$, $P = .002$, $\eta^2 p = .149$ for institution 2, as shown in Table 10, indicating that participants in the Iranian music group improved better from pretest to posttest and retained more words in the delayed posttest compared to those in western music groups, as shown in Figure 2.

Table 9*Tests of Within-Subjects Effects for Time × Music Type (Institution 1)*

Effect	F	Df	P	Partial η^2
Time × Music Type	7.46	2.78	.001	.146

Table 10*Tests of Within-Subjects Effects for Time × Music Type (Institution 2)*

Effect	F	Df	P	Partial η^2
Time × Music Type	6.64	2.78	.002	.149

Figure 2*Interaction Plots with Error Bars (SD)*

Qualitative Findings

Thematic and content analysis of interview data in the Iranian music groups, as shown in Table 11, made six major themes. The most frequently reported one was motivation and enjoyment, with half of the partakers (5 out of 10) reported Iranian music as enjoyable and better than traditional vocabulary teaching. Two participants (P4, P8) highlighted cultural familiarity and a feeling of belonging, mentioning that Iranian music was “familiar” to them and they “felt at home”. Emotional benefits such as stress reduction were also emphasized (P5). On the other hand, some participants (P2, P6, P7, P9) showed concerns and limitations: some questioned the logic behind the utilization of instrumental music for difficult words (P2), while some expressed that it was difficult to recall the music during the tests and liked to listen to the themes again (P6, P7). Interestingly one of the participants emphasized on the rhythmic support of Iranian music, saying that the rhythm matched the word syllables and eased the recall.

Table 11*Learners Attitudes Towards Learning Vocabulary with Iranian Traditional Music*

Theme	Example Quote (Participant)	Frequency (n)
Enjoyment and Fun	"I liked it; it was enjoyable." (P1) "It was more fun than traditional teaching." (P3)	2
Familiarity with the music	"The music was familiar to me." (P4)	1
Stress reduction	"I really liked it; it took away my stress." (P5)	1
Preference/expectation mismatch	"Why would you combine instrumental music with teaching difficult vocabulary?" (P2)	1
Request for music during testing	"When I was taking the test, I liked you to play the music again." (P6)	1
Difficulty in recall	"It was fun but I couldn't remember the music during the test." (P7)	1
Sense of belonging/home	"I did; I felt at home." (P8)	1
Not helpful but enjoyable	"It wasn't helpful but fun." (P9)	1
Rhythmic support for memory	"The rhythm of music matched the words' syllables so it was easier to remember better." (P10)	1

Finally, about challenges faced by learners while learning difficult English vocabulary through music, both interview and observation data highlighted some points, as shown in Table 12. The most mentioned issue was distraction, observed in the classes and mentioned by three participants (P2, P7, P10). Motivation and engagement problems also occurred. Some learners couldn't connect with the music (observation), and some found Iranian traditional music boring and preferred traditional methods (P3, P6). As third theme concerned personal preferences and genre mismatch, with three participants preferring pop or western music (P4, P5, P6), task-related challenges were also seen: observation illustrated that some needed more time, while partakers reported that the words were too difficult (P1) or that they needed more time during taking the test (P9). Finally technical issues like low volume (P8), and affective factors such as stress and anxiety (P10) were mentioned.

Table 12*Challenges Faced by the Learners while Learning Vocabulary with Iranian Traditional Music*

Theme	Example Quote (Participant)	Frequency (n)
Words too difficult	"Some words were too difficult that even music couldn't help." (P1)	1
Distraction caused by music	"I actually got distracted by the music." (P2) "I got distracted even though it was really fun." (P7)	2
Preference for traditional methods	"Even though it was fun it wasn't useful; I prefer traditional methods." (P3)	1
Preference for other music types	"In my opinion western music would be more related..." (P4) "I prefer listening to pop music..." (P5) "Iranian traditional music feels boring to me." (P6)	3
Technical/music-related issues	"The volume of music was kinda low." (P8)	1
Need for more time	"It was very nice but I needed more time during the test." (P9)	1
Anxiety from connecting music & words	"I felt anxious... because I wanted to connect it to the music." (P10)	1

Discussion

The findings of this study support the hypothesis that Persian traditional music can serve as an effective input for vocabulary acquisition and retention among Iranian L2 learners. The groups that were exposed to classical music in both learning and retention phases were outperformed by their counterparts who were exposed to Persian music significantly. The cultural familiarity and emotional resonance of the music, which likely increased student engagement and focus, might be the reason of the enhanced performance of Persian music groups. This is in line with Krashen's (1982) affective filter theory, and previous research suggesting that emotionally engaging input can ease deeper learning. A recent study has shown that L2 Motivational Self System acts as a mediator between learning enjoyment and learner engagement (Li et al., 2026). This is consistent with the present study, in which the learning was improved by the motivation caused by the Iranian traditional music, which possibly created enjoyment for Iranian L2 learners. In addition, according to Oroujlou and Vahedi (2011), positive attitudes and motivation are two really important predictors of successful language acquisition. In the current study, the privilege of traditional Persian music group compared with the western classical music group can be explained with this theoretical framework to some degree. Iranian traditional music, because of more familiarity, possibly created the feeling of comfort, sense of connection and emotional involvement on the language learners. This cultural familiarity decreased the level of anxiety and increased the motivation and attention of the participants possibly. As a result, less affective filter was created and more ideal conditions were provided for processing of the target vocabulary items. Additionally, recent research in the field of music, nostalgia and culture have illustrated that familiar musical stimulus are able to activate positive feelings, emotional involvement and autobiographical memories deeper. According to Affective Filter Theory, these types of conditions can lead to augmentation of input reception and reinforcement of learning process. Hence, not only the findings of this research is in line with the previous studies in the field of music and vocabulary learning, but also can be considered as a testifier for the role of affective and cultural factors in the success of second language learning.

Also in line with Cognitive Load Theory, the present study indicated that the familiar music can decrease the cognitive load, and the learner does not have to expend intellectual energy for music processing. As the result, cognitive resources remain mostly for the process of learning the new difficult vocabularies. Craik and Tulving (1975) indicated that deep semantic processing compared to shallow processing, leads to long-term retention of vocabularies. When, the learners find more time for creating semantic relationship with the target words, the possibility of vocabulary retention increases. This is consistent with the present study, because Iranian traditional music could provide the basis of deep semantic processing by memory-evoking and cultural associations. Jin and Luo's (2026) study also indicated that working memory capacity and lexical retention are the most important predictors of success in L2 comprehension.

The learners that had more active memory did better in target vocabularies encoding and retrieval. The findings of the study showed that the learning of lexical items are not dependent on the method of teaching, but also the attributes of learners' cognition play an important role. The results of the current study are in line with these findings, because Iranian traditional music could improve lexical retention by facilitating the processes of encoding and decreasing cognitive load.

Conforming to Levels of Processing/Memory Encoding, the present study showed that familiar music creates deeper processing. Nostalgia and cultural relationship caused elaborative encoding, and retention was increased as the result. Some studies also found that nostalgic songs increase the subjective memory vividness compared to non-nostalgic ones (Garcia-Benito, 2025; Sakakibara, 2025). The study of Garcia-Benito (2025) similarly illustrated that nostalgia and culture play a real important role in sound designing, in order to enrich the potentials of music to affect the auditory experiences more positively. This matter, then, can lead to deep processing and affect long-term memory positively. In addition, Janjić et al. (2025) showed that the performance of the learners in vocabulary learning is influenced by the teaching modes, testing mode and the levels of vocabularies. In other words, the effectiveness of a teaching method, depending on the assessing mode and the type of vocabulary, might be different. The current study also shows that the type of instructional input, familiar or unfamiliar music, can affect vocabulary retention by the cultural involvement, and reinforce retention as the result.

Also the current study is in line with Dual Coding Theory in which the vocabulary items were not only presented verbally but alongside with another mode, which was music in this case. Two processing channels were activated and the likelihood of encoding and retrieval of the words and their meaning was increased as the result. Teng (2022) illustrated that multimodal input such as captioned videos in their case, lead to better learning and retention of the vocabularies. Rizcallah and Parlak (2025) similarly found that vocabulary teaching by the utilization of multimodal representations, such as comics, leads to more improved vocabulary learning. This is in line with the assumptions of Dual Coding Theory that using different processing channels simultaneously can increase the capacity of learning. In the current study, music also worked as a non-verbal mode alongside with vocabulary. Zhang et al. (2025), in their meta-analysis illustrated that using pictures in multimedia conditions, usually has more positive impact than relying only on the L1. The results showed that the combination of verbal and non-verbal information could develop vocabulary learning.

This study, in particular, also showed that different emotions expressed through music could help vocabulary learning and retention, in line with the doctrine of Chase (2006) about the roles and emotional effects of the elements of music, which shows that music is not only used for entertainment or for background noise. Music with its potential of

conveying different emotions by its elements and attributes is a real helpful tool that can be utilized professionally in the language classroom context. For instance, when we are harmonizing a melody, if we want to convey the feeling of romance, we can use seventh chords. Alternatively, for showing the fear we can arrange the piece by using more diminished chords. When a word is about dreaminess, minor modes or keys can be chosen for writing the piece. For conveying peace the composer can write the music with clear tonality, such as minor or major key, but for conveying fear they can use highly dissonant notes which lead to an unclear tonality. We can also use the element of pitch to convey, for example, generally negative emotional valence, by writing the notes in low pitches. The loudness or dynamic is another element that can convey varied range of feelings such as peacefulness, tenderness, pleasantness, excitement, anger or fear. For instance by a loud note or chord we can convey different feelings, emotions or situations like excitement, triumph or joy. On the other hand, by applying softness in dynamic, negative emotional valence, or even peacefulness can be conveyed, depending on the other elements of music organized together in the exact piece or theme. Intervals also, is one of the most important elements in the musical piece that can convey many different emotions such as weakness by using small intervals in the melody, tragedy by utilizing minor third interval, and stability by perfect fifth. Hashemi and Yousefi, 2021 study was in line with the present study. It indicated that each element and attribute of music is able of conveying different emotions.

However, some of the previous studies were not consistent with the present study. While Iranian traditional music worked better on Iranian learners' vocabulary learning, in de Groot and Smedinga's (2014) study, the background music that had familiar lyrics damaged vocabulary learning in short term and did not create significant difference in long term. The possible reasons of the difference were that in de Groot and Smedinga study, they used "background music", and music was a bothersome stimulant. Also, they did not investigate cultural familiarity of music. And finally, in the present study, music was a part of words presentation and the element of "cultural familiarity" had an important role. In another study, Medina (1993), music caused increase in learning, but the differences were not always significant in terms of statistics. The reasons of its difference with the present study could be that the sample size of Medina's study was small, only children were investigated, vocabularies were simpler, and the current study was done on adults and difficult vocabulary items. Paiva et al. (2019) also indicated that music led to incidental learning, but the amount was limited. On the other hand, in the present study, noticeable learning and retention were observed. The reasons of the difference between two studies could be that in Paiva and colleagues study, the focus was on incidental learning, while the current study focused on a purposeful teaching and also the attention of the learners was guided toward the vocabularies directly.

Furthermore, the reliability of the findings is strengthened by the replication of findings across two separate Iranian music groups (A and C). The consistency also suggests that

the positive effect could be generalized across similar learning environments and is not limited to a specific class context. Students' attitudes strengthen the quantitative findings, with most learners perceiving Persian music as a helpful and useful tool in language learning. However, the need for careful implementation is emphasized because of challenges such as potential distraction and varying musical preferences. Overall, this study highlights the value of considering learners' emotional and cultural backgrounds in material selection and provides empirical support for combining culturally relevant musical input into vocabulary instruction.

The results of this research suggest that combining culturally familiar music with language instruction can expand vocabulary learning outcomes. To create a more effective and engaging learning environment teachers and curriculum designers should consider utilizing music that resonates emotionally and culturally with learners. Potentially by increasing retention of challenging material, the utilization of music as an input mode can also help reduce learners' affective filters.

Conclusion

This study's goal was to investigate the impact of Persian traditional music compared to classical music on the learning and retention of difficult English vocabulary among Iranian upper intermediate L2 learners. The results indicated that learners exposed to Persian traditional music showed significantly greater vocabulary acquisition and retention than those exposed to classical music. Additionally, citing increased engagement and emotional connection, students expressed positive attitudes towards the use of Persian traditional music in vocabulary instruction.

In conclusion, this study contributes to the growing body of research advocating for the utilization of music as an impactful instructional tool in language education. The integration of culturally relevant music enriches the educational experience by fostering emotional engagement and also promotes better learning and retention. This approach aligns with learner-centered and culturally responsive teaching practices, opening the way for more innovative and inclusive language teaching.

The findings of this study were constrained by two limitations. Firstly, only two institutions were studied due to the hardship of obtaining approval from the institutions in order to conduct the research in them, there might be low generalizability then. Secondly, the research was conducted in a short period of time due to the restrictions imposed by the institutions. Therefore the long-term effects of the treatment were not examined. The delimitations of the research were to study only the upper-intermediate learners in order to make sure that they can handle learning and retention of the difficult vocabulary items. Also in the interviews the standard fixed-response questionnaires were not used in order to elicit more freely expressed

perceptions of the participants by the use of semi-structured interviews with open-ended questions.

Future studies can extend this line of research by investigating the effect of specific musical characteristics, such as timbre and other acoustic features on language learning, specifically on vocabulary learning and retention. In addition, investigating the role of different genres of culturally relevant music on the other language skills such as grammar, listening, and reading comprehension can be worked on. Researchers may also explore how it interacts with individual learner differences, including musical aptitude, learning style, and personality traits, and the long-term effects of musical input.

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Nima Yousefi: Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Writing-Review & Editing

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Generative AI Use Disclosure Statement

During the preparation of this manuscript, ChatGPT (OpenAI) was used to assist with limited language organization and drafting support. In addition, ChatGPT was used to generate the graphical layout of Figures 1 and 2 based exclusively on the authors' original data. All study design, data collection, statistical analysis, interpretation of

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Ethics Declarations

World Medical Association (WMA) Declaration of Helsinki–Ethical Principles for Medical Research Involving Human Participants

The study was carried out in accordance with ethical principles. Before collecting the data, the participants were informed about the purpose of the study and all of them participated voluntarily. They were all assured that their personal information is kept confidential and the findings will only be used for the research purposes. Their consent was gained before collecting the data.

Competing Interests

There are no competing interests.

Data Availability

The data are available upon reasonable request.

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