

Chapter 32

Singing to Support Foreign Language Learning: Examples from Two Cultural and Developmental Contexts

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Chapter 32

Singing to Support Foreign Language Learning: Examples from Two Cultural and Developmental Contexts

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Many acknowledge that knowing at least one modern foreign language (FL) is an important skill in an increasingly globalized world, but there is continuing debate about both when and how best to teach FL skills to learners with different backgrounds, needs, and abilities (McColl, 2005). The evolutionary theory of music (Brown, 1999) argues that a musical precursor may have existed before human beings developed speech and language, making music a potential vehicle through which to learn language. Evidence about potential learning benefits and pedagogical recommendations from teachers to use songs and music in the foreign language classroom have been put forward (Spicher & Sweeney, 2007), but it is important to evaluate the utility of a pedagogical approach to foreign language learning that includes song.

It has been argued that songs can provide a particularly beneficial tool to help achieve modern foreign language teachers' pedagogical aims, since these materials can provide positive affective, motivational, and cognitive benefits for students at different ages and

stages of learning (Spicher & Sweeney, 2007). Singing captures attention in the classroom and presents target material in a way that is pleasurable and engaging for students (Paquette & Rieg, 2008; Sandberg, 2009). When levels of auditory distraction are high (e.g., a noisy classroom environment), using singing as an activity can be an effective way to maintain engagement (Wolfe & Noguchi, 2009). Listening to songs and singing in the new language may even result in the enjoyable repetition of language sounds and structures after class (Krashen, 1983; Murphey, 1990; Salcedo, 2010).

Links between Music and Language

Research findings from neuroscience can provide a picture of how music and verbal information, when combined into song, might be connected in the brain. Rhythm processing and activation can be extracted to show lateralisation to the left side of the brain for most people, whereas there is a right hemispheric lateralisation in a similar location for melody and pitch processing (Sloboda, 2005). However, when tone language speakers listen to lexical pitch contours that are meaningful in their language, processing shifts to the left side (Wong, Skoe, Russo, Dees, & Kraus, 2007). This suggests that there is some brain lateralisation for pitch and for temporal processing in both music and language, but whether this can be further subdivided into clearly distinguished “linguistic” and “musical” components is less clear.

Research has also shown overlaps between the processing of musical and linguistic syntax (Sammler et al., 2009; Slevc, Rosenberg, & Patel, 2009), suggesting that

processing grammatical information in both domains may involve the same neural resources. The amygdala has also been implicated in emotion, learning and memory (Kleber, Birbaumer, Veit, Trevorrow, & Lotze, 2007), and there is speculation that the role of the amygdala is most powerful for learning new material when humans experience a strong (preferably positive) emotion, which can be evoked (along with many other things) by music and pictures (Baumgartner, Esslen, & Jancke, 2006). Relating to expertise and transfer effects, there is experimental evidence that highly trained musicians (compared to individuals with less musical training) are better able to learn a new language (novel, auditory words presented in Morse code) through statistical learning (Shook, Viorica, Bartolotti, & Schroeder, 2013) and that the positive transfer of musical skills to language might be strongest for phonological and reading skills (cf. Zeromskaite, 2014 for a review). Other evidence has shown that children who received 2 years of music training (including singing children's songs and nursery rhymes) had a greater improvement in speech segmentation skills compared to a group that was assigned to training in painting (François, Chobert, Besson, & Schön, 2013).

Learning Information through Songs

By contrast with foreign language research, in the native language, songs have been shown to support pre-literacy (Herrera, Lorenzo, Defior, Fernandez-Smith, & Costa-Giomi, 2011), reading and auditory working memory (Strait, Hornickel, & Kraus, 2011) and verbatim verbal memory (Rainey & Larsen, 2002; Thaut, Peterson, Sena, & McIntosh, 2008).

Individuals tend to use the structural characteristics of songs, particularly the rhythm, to assist in recall. For example, evidence shows that individuals use the number of syllables, rhythmic chunking, and line breaks as a mnemonic support for recalling information (McElhinney & Annett, 1996; Wallace, 1994). A study also showed that a sung presentation increased verbal memory in adults with multiple sclerosis when they sang a list of unrelated words in the presentation order during a free-recall test (Thaut *et al.*, 2008). Although a song advantage has been repeatedly shown in participants' native language, this chapter summarizes research related to songs and foreign languages and highlights two recent studies exploring how singing can support learning in the foreign language classroom.

One of the strongest justifications for why material presented through songs might be better remembered is the dual coding hypothesis originally advanced for the mnemonic advantage of pairing visual and auditory (verbal) material (Paivio, 1971) and more recently extended to the integration of music and words in song (Ginsborg & Sloboda, 2007). According to this hypothesis, learning information that integrates two domains can later be retrieved by recalling either of the two components that were originally encoded together in long-term memory.

Learning a Foreign Language Supported by Singing

In contrast to studies generally showing a benefit of song presentation methods in the native language, investigations of foreign language (FL) learning with songs have shown limited empirical support for claims of improvements in specific areas. Fomina conducted research with adults learning English as a foreign language (EFL) in the Ukraine and showed benefits for the use of songs in learning pronunciation, prosody, and culture (Fomina, 2000, 2006). Murphey (1989) found that adolescent children in rural Switzerland were very interested in learning English songs and wanted to talk about music. Murphey also reported that incorporating music into the foreign language curriculum was an effective way to increase pupils' motivation to learn a new language.

Salcedo (2010) investigated whether the introduction of Spanish songs into the classroom would improve learners' vocabulary during one 10-week semester. Learning was measured using a Cloze (fill-in-the-blank) pre-test and post-test for each song because some researchers believe that Cloze tests can assess learners' overall competence in the foreign language (Fischer, 1981), although it is unclear to what extent Cloze tests accurately reflect learners' FL speaking and pronunciation skills. Salcedo found that the two groups which had listened to Spanish songs performed at a higher level at post-test than the speaking and control groups did, although the difference only reached statistical significance for 2 of the 3 songs which were used. She also found that listening to the music (without the words) during the final test resulted in no significant additional memory benefit. Further, the study showed that significantly more learners reported the

incidence of 'din' (repetition of foreign-language material that is heard, read, or spoken; Krashen, 1983) among adults who were learning Spanish through songs in class than if they heard a spoken version of the text. The results showed $p < .05$ using a chi-squared test, with a mean percentage of 66.7% in the music class and 78% in the melody class (which also heard the song melody during testing) compared to 33.3% for the class with the spoken text. These findings for greater incidence of 'din' in the song conditions fits with observations from Murphey (1990).

More recent research has shown that including songs as part of foreign language instruction can improve written fluency in a new language among adult learners (Alisaari & Heikkola, 2016). Also, an arts intervention study with two pre-existing groups of Scottish 13-year-olds found that the adolescents' overall foreign language French skills in the music condition improved at a significantly higher rate than the children in the visual art and drama group, $p < .05$ (Ludke, 2018). In addition, Christiner and Reiterer (2015) found that in adults, singers have higher performance than non-musicians/non-singers and even than instrumentalists in their ability to imitate speech in a familiar (English) and unfamiliar (Hindi) foreign language. Thus, practicing the sounds of a new language through singing might simultaneously support the development of vocal-motor links (singing) and foreign language learning.

In sum, although there is research about the benefits of incorporating songs and singing into foreign language instruction, there is relatively little that focuses on learners of

school age (compared to preschoolers and adults) and which investigates FL skills beyond vocabulary learning. We now outline two additional studies that provide evidence of facilitation for learning material in a foreign language through song to support different linguistic skills.

Learning French through Songs and Dramatic Dialogues in Scotland

A quasi-experimental research study was conducted with English-speaking adolescents aged 13-14 years old in Scotland who were learning French as a foreign language. Mini-lessons incorporating songs and dramatic dialogues through a listen-and-repeat learning procedure were developed to supplement the FL French curriculum, using a variation of the Contemporary Music Approach (Anton, 1990) and including recommendations for teaching choral music in a foreign language (Welch, 2007). The study explored whether the benefits for singing compared to speech that were observed in experimental research study (Ludke, Ferreira & Overy, 2014) might occur in a longer-term, more ecologically valid educational setting.

The quasi-experimental study involved two groups of adolescents in pre-existing classroom groups who were learning French as a foreign language in Scotland, using a within-subjects design that included two conditions for two weeks each: song and dramatic dialogue. The primary research question was: What is the effect on adolescent pupils' vocabulary and grammar learning when new French material is presented in the foreign language classroom through songs compared to (spoken) dramatic dialogues for a

total of 75 minutes over a two-week, distributed learning period? The study also explored the pupils' opinions about the new activities using feedback gathered from two questionnaires, in an attempt to establish (1) whether there was a higher reported incidence of 'din' for the songs than for the dramatic dialogues and (2) whether the children's preferences for listening to the song or to the dramatic dialogue had influenced their FL French vocabulary and grammar learning through these different instructional materials.

Full data (pre-test, mid-point and post-test) was collected for 19 (out of 29) students in the S1 group and 24 (out of 30) students in the S2 group. One important difference between the two classroom groups is that six children in the S1 class had special learning needs, of whom three (all boys, two of whom were bilingual) were included in the final data analysis. In addition, the S2 class had significantly higher overall language learning experience scores (based on questionnaire responses) compared to the younger, S1 group, at the $p < .01$ level. Unfortunately, the S1 class spent less time learning the song compared to the dramatic dialogue, in part due to technical issues and also because the pupils were taking French tests during several of the lessons when the song was taught.

Before the arts intervention began, all pupils and the French teacher were given basic information about the aims of the study, including a description of the activities that were planned for each class session, but without specific details about the research hypothesis or predictions. Six 15-minute mini-lessons were created for the beginning of each class

session during each two-week period, which were taught during regular class time by the researcher. The activities related to the songs and dramatic dialogues were designed to be both fun and challenging, to reinforce the French foreign language material that the children were learning in class, and to fit in with the school's wider curricular goals. The researcher was present for all of the lessons during the arts intervention period, providing help to the pupils and the French teacher, and ensuring that the song and dramatic dialogue were only practiced in class during the specified times.

The majority of the grammatical structures and vocabulary contained in the songs and dramatic dialogues were familiar to the children or were being covered in the current unit of the textbook, but the texts also included some material in French that was new and more complex than the children had previously seen. Unfamiliar vocabulary items were included because most studies exploring the benefits of including songs in the FL classroom have assessed vocabulary learning (Sposet, 2008). New, challenging grammatical structures were also included to follow up the results of a study which showed that using songs (compared to visual art and drama activities) over a six-week period in the FL classroom had the largest benefit on a test which assessed the pupils' grammatical skills (Ludke, 2018). Activities requiring individual work in addition to pair-work, larger group and full-class activities allowed the pupils to learn in different ways.

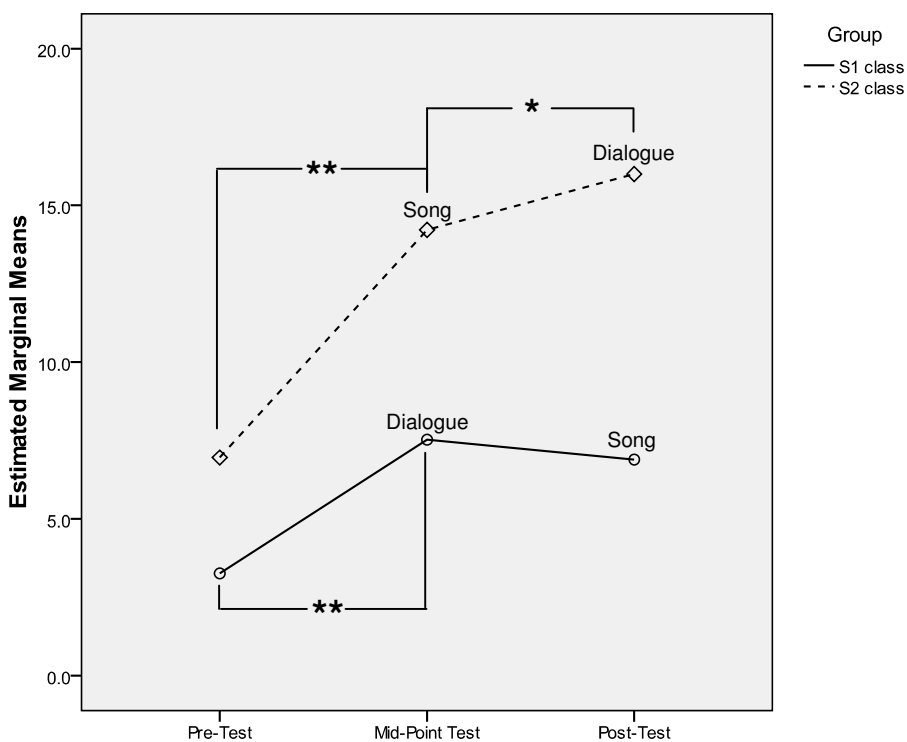
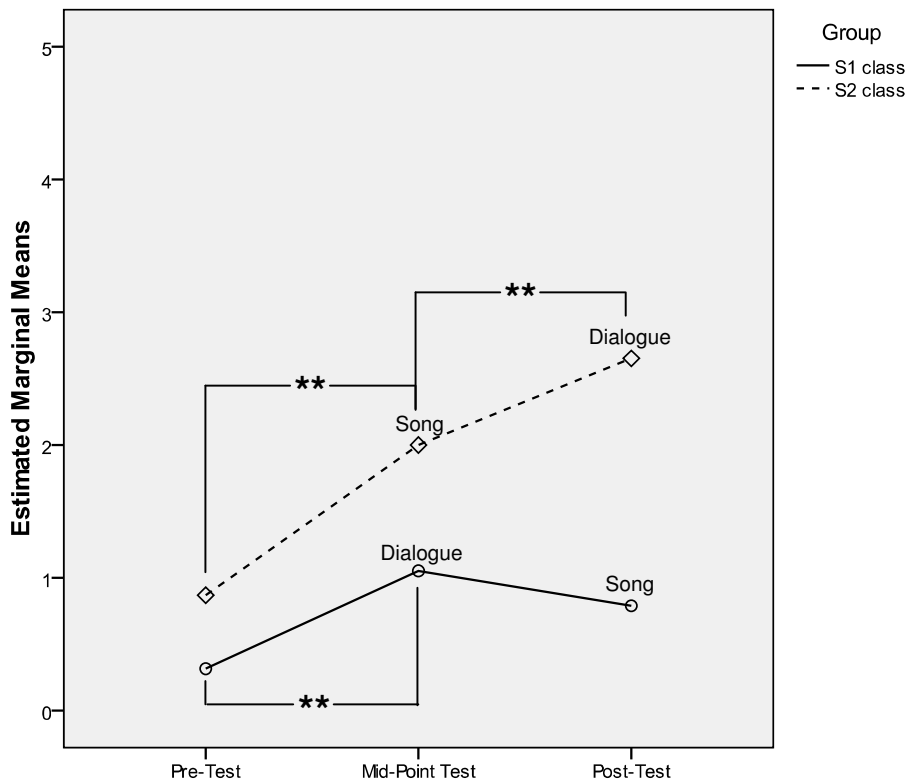
A vocabulary and grammar translation test was developed to measure changes in the pupils' translation of phrases found within the songs and dramatic dialogues from French

(the target language) into English (the native language) and was administered at three time points: pre-intervention, mid-point and post-test. A vocabulary score and a grammar score were calculated for this test at all three time points. In addition, two Cloze post-tests (with every 7th word missing) provided another assessment of the children's learning of vocabulary found in the French texts (the song and the dramatic dialogue) taught during the arts intervention study.

Results of grammar and vocabulary translation

Results using repeated-measures ANOVA showed that overall French grammar and vocabulary translation scores improved significantly from the Pre-test to the Mid-Point test, both at the $p < .01$ level in the two classroom groups. No difference was found between the two groups for change in performance at the mid-point of the arts intervention study. This trend of improvement on the French translation test continued for the S2 class from the Mid-Point test to the Post-test with another significant increase in mean grammar and vocabulary scores, $p < .01$ (see Figure 33.1). By contrast in the S1 class, no improvement for the French translation grammar or vocabulary scores was observed from the Mid-Point test to the Post-test; instead, overall performance decreased slightly for the Post-test. The decrease in scores in the S1 class may have resulted from having had less time to learn the words of the song because of French testing during regular class time, and/or due to the song's greater level of difficulty compared to that of the dramatic dialogue.

Fig. 32.1 French translation grammar and vocabulary test scores in the two groups (10 and 20 points possible, respectively) [signif. codes: * .05; ** .01]



Cloze vocabulary post-tests

For the Cloze post-tests, overall performance showed a much lower score in the S2 class for the dramatic dialogue compared to the first Cloze test (for the song), which reached statistical significance ($p < .01$). For the S1 class, the average scores on both of the Cloze post-tests were very similar ($M = 7.95$ for the dramatic dialogue vs. $M = 7.58$ for the song), despite the students having had less time to learn the song and the song containing more challenging French words and grammatical structures.

Qualitative results

The questionnaire responses showed that most children (92.4%) enjoyed trying the artistic activities in class. Many of the pupils reported that they felt that the new activities had helped improve their French skills, specifically mentioning vocabulary, speaking, pronunciation, and listening skills. Several pupils offered suggestions for how to improve the activities for future projects, including the idea of using videos to accompany the songs and dialogues, sometimes watching with English subtitles, and incorporating more variety into the activities by dividing the class into even smaller groups for practice. More than half of the students (52%) reported that the lines from the song had repeated in their heads after French class had ended; the incidence of 'din' was much less common for the dramatic dialogue (9.4%). In addition, over 50% of students preferred listening to the song compared to listening to the dramatic dialogue (56.5% in the S1 class and 68% in the S2 class); 13% in the S1 class liked both equally, whereas 8.7% in the S1 class preferred the dramatic dialogue and 24% preferred the dramatic dialogue in the S2 class.

A few of the children's comments about their opinion of the artistic activities used in class were:

"I enjoyed trying to guess the words in the empty gaps. I enjoyed this because it was quite hard to hear all the words, this was challenging!"

"My favourite activity was in a day reading the dialogue we have been learning. It was fun because we got to learn a lot of new words in French."

"My favourite activity was when we said the part of Rachelle in the story [dramatic dialogue] because it made me more confident in reading in French out loud."

"Singing all together. It was a really fun song and even more fun to sing it."

"Singing because I felt confident to sing loud and I liked the feeling of confidence."

"When we were recorded because it's minted listening to it."

In sum, the songs and dramatic dialogues used to teach French to adolescent students in Scotland showed that, overall, the songs were preferred to the dramatic dialogues and songs were more likely to repeat in learners' heads after class. Although this did not necessarily translate into higher scores on French vocabulary or grammar test scores compared to learning dramatic dialogues, the results suggest that when songs are successfully integrated into the foreign language classroom, they can have a positive influence on different aspects of language learning, including through students' enjoyment of learning through these activities.

Learning English through Songs and Poems in Ecuador

The second study was conducted with Spanish-speaking children in Ecuador who were learning English as a foreign language. The developing elementary school in rural Ecuador yielded an environment that was quite high in auditory distraction, creating an especially challenging environment for learning foreign words and sounds. The study explored whether the mnemonic benefits of singing a passage that are observed in native language learning (e.g., Wallace, 1994) might extend to foreign language learning in a naturalistic context.

In a quasi-experimental design, two pre-existing classes of Spanish-speaking children, grade five and grade six (aged 9-13 years), participated in the study. The children were taught a novel English passage that included a total of 29 English words. One class learned the passage as a song and the other class learned the passage as a spoken poem. The teacher used a repeat-after-me teaching method and took care to ensure the two classes were exposed to the same number of repetitions. A handout of the English lyrics and the Spanish translation of the passage was provided to the students. The passage was learned and practiced during four learning sessions over a period of two weeks.

Following the learning sessions, the experimenter tested children on various elements of foreign language learning, including verbatim passage recall, consonant and vowel pronunciation, and English-to-Spanish translation.

Passage recall results

For passage recall, children were asked to recite as much of the passage verbatim as possible without the support of the lyric handout. Participants were awarded points for words and phrases recalled in the correct order of the original lyrics. As expected, the children who had learned the passage through song recalled more of the sequenced words than those who learned through spoken poem.

Interestingly, although both the spoken poem and the song contained a clear rhythmic pattern, only the children in the song condition maintained and utilized the rhythmic structure as retrieval strategy during recall. They maintained the structure of the song by singing through the melody, preserving the correct number of syllables in each line, and using nonsense words to fill in unremembered gaps. In comparison, the children who learned through spoken poem tended to remember words in the passage in a seemingly unsystematic order, perhaps due to the fact that there are fewer structural cues available in poem relative to song.

Pronunciation results

For pronunciation, children were given the lyric handout and were allowed to read along with the written passage to ensure that no words were missed during this test. From the passage, 15 target vowel sounds and 15 target consonant sounds were selected to test

participants on pronunciation. Participants were awarded one point for each successfully pronounced target sound.

The children who learned the passage through song showed a higher success rate in pronunciation than those who learned through spoken poem. Importantly, the difference between the groups in successful pronunciation was only found for the foreign vowel sounds; there was no difference between the groups in pronunciation of consonant sounds. This finding is not surprising given that singing relies on more exaggerated and elongated vowel sounds than does spoken word. Vowel sounds tend to be particularly challenging when learning a foreign language, but singing seems to be an effective way to support foreign vowel pronunciation (see Figure 33.2).

Fig. 32.2(a) The correct number of vowel and consonant pronunciations compared between two conditions

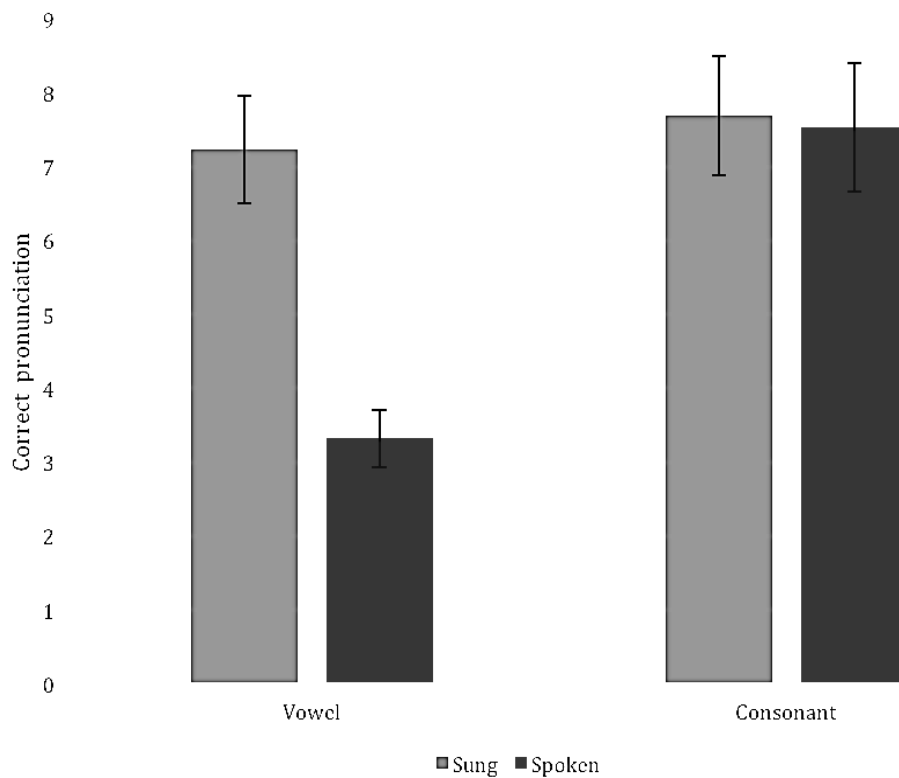
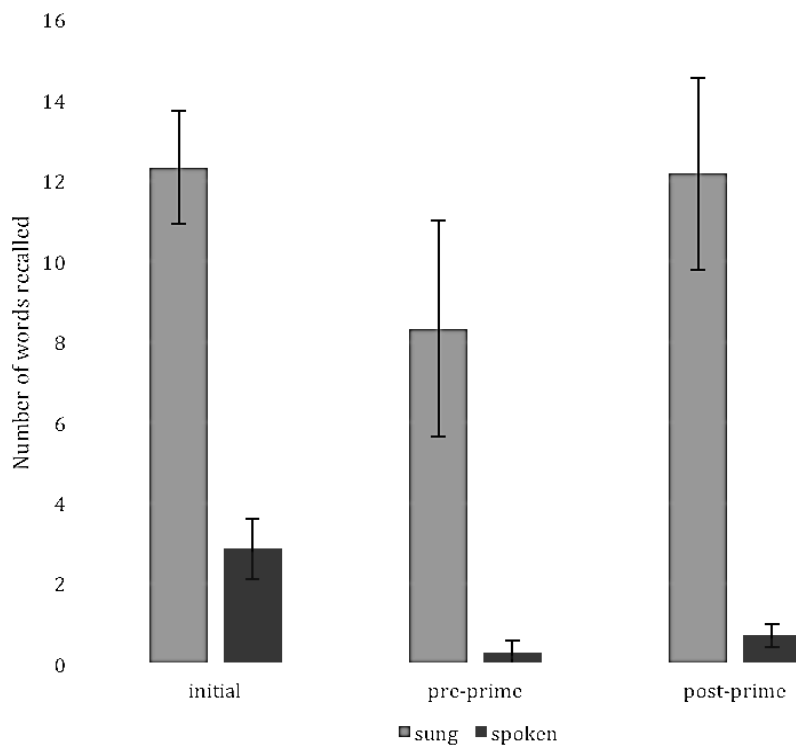


Fig. 32.2(b) Average number of words successfully recalled for both conditions at three stages of testing: Initial testing, before support of prompt, after and/or no support of prompt



Translation Results

For translation, 10 target words were selected from the passage. Children were given the word in English and were asked to translate it into Spanish. Results demonstrated that children who had learned through song outperformed children who had learned through spoken poem on the translation task.

Long Term Benefits

After a six-month delay, students were retested on passage recall and target word translation. The children were permitted two attempts at recalling the passage. The first attempt involved no support from the experimenter. If the child was unable to recall the passage upon first attempt, they were invited to make a second attempt, whereby experimenter provided the first few words of each line in the mode of the original teaching (i.e. song or spoken poem). Overall, the children who learned through song were better able to recall the passage compared to children who learned the poem. Notably, after prompt from the experimenter, many of the children in the song condition were able to sing through the melody of the song in its entirety (see Figure 33.2). In comparison, the prompt did not appear to improve passage recall for children in the spoken condition. The song advantage for prompted recall provides evidence for the dual encoding hypothesis.

There were no differences in target word translation; both groups had difficulty remembering the meaning of the target words. Since translation of foreign vocabulary

requires a deeper level of encoding, the decline in ability to translate foreign vocabulary suggests that any lasting effects of the song advantage were predominantly superficial.

In sum, this study demonstrated that song can be used to support verbatim recall, vowel pronunciation, and target word translation of a foreign language passage. The study took place in the highly distracting environment of a developing schoolhouse. Using song appears to have been an effective way to prevail over the noisy environment and provided a learning opportunity that was fun and engaging for the students.

While the song advantage on verbatim recall of the passage persisted over a long term delay, the song advantage on translation effectively disappeared, suggesting a superficial level of encoding of the material into long term memory. Future researchers should explore ways to exploit the mnemonic value of singing for deeper long-term encoding.

Discussion

These two distinct, small-scale studies with younger students have both explored whether singing can support different aspects of foreign language learning. Although the cultural contexts (working-class Scotland vs. rural Ecuador) and languages (French vs. English) were different, these intervention studies show that foreign language skills, including vocabulary and grammar, improved significantly from pre-test to post-test. There was also evidence in the Scottish study that the songs were more likely to repeat in their heads after class; and they showed a preference for listening to the French songs (vs. dramatic

dialogues). In the second study, not only did the children who learned the song outperform those who learned the spoken poem on all three vocabulary and translation tasks, it also revealed a long-term song advantage on passage recall (after a six-month delay).

It is important to remember that both of these studies were small-scale and in this type of research, it is not possible to control for every variable that could affect the results.

However, the fact that the studies were conducted in very different educational contexts and showed similar benefits of the singing condition suggests – adding to previous research with adults (Salcedo, 2010) – that songs can be helpful in supporting a variety of foreign language skills, for younger learners in early school age through adolescence.

General gaps in knowledge for future researchers to discover

Although the research discussed in this chapter has shed some light on the advantage of including song in the foreign language classroom, there is plenty of opportunity for future researchers to further unpack this effect. First, it is still relatively unknown *why* song contributes to foreign language learning. What are the mechanisms at play that support this effect? For example, future researchers could explore the relationship between the cognitive factors (e.g., dual encoding of melody and lyrics; word chunking through rhythmic structure) and hedonic factors (e.g., attention grabbing and entertaining) as they contribute to the song advantage.

Second, researchers can delve into *how* song can be optimized to best support aspects of foreign language learning. What characteristics of songs contribute the most to foreign language learning? At what stage of language learning are songs most beneficial? What specific language skills, (e.g. comprehension, pronunciation, grammar) can benefit from the song? Do the positive effects of song on foreign language learning transfer to new contexts? For example, although singing may support successful pronunciation of foreign vowel sounds in the context of the song, it is currently unknown to what extent this ability transfers from singing to speech. It is also unclear whether foreign-language learners might listen to song lyrics in a different manner than they listen to speech, perhaps leading to less negative transfer (or interference) from the sound system of their native language and better phonological skills in the new language.

Implications for society

An important implication of research in this area is that although many foreign language teachers already use songs as complementary materials (Alisaari & Heikkola, 2016), they might want to consider using them more often and for more varied foreign language activities and skills. Teachers might also consider the great variety of possibilities for which songs can be used to reinforce different language skills, going far beyond the use of songs as background music that sets a positive classroom tone or provides a bit of fun in a lesson. Songs can be used in many different ways to support foreign language learning -- for example, reading and translating the lyrics, discussing the meaning of new idiomatic expressions, 'correcting' the grammatical mistakes or slang in the original,

considering the song's socio-cultural-political themes, and so on. This also adds to growing evidence that songs are more likely to lead to 'din' outside of the language class, which may lead to both improved memory and retention for the specific material that was repeating, but may also motivate students to engage in further foreign-language learning (e.g., by inspiring them to look up the song and translate the meaning, learn to sing the lyrics, find other songs by that performer or in that genre, etc.).

It is not a new idea that songs can support foreign language learning. However, new technologies have made songs in different languages much more accessible to both teachers and individual language learners. Websites such as www.emportfolio.eu and www.popullar.eu contain a wide range of song and music-related resources to help teachers support their students' language learning in a variety of languages. For individuals, websites like <https://lyricstraining.com/> and apps such as [Lyriko](#) can facilitate foreign language-learning goals through songs and singing.

Taken together, current research suggests that singing is a valuable supplementary activity that can support foreign language learning. In addition to its hedonic value in the classroom, singing appears to support various elements of foreign language learning including recall, pronunciation, translation, and vocabulary and grammar.

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