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Effectiveness of Music on Vocabulary Acquisition, Language Usage, and Meaning for Mainland Chinese ESL Learners

Using an experimental approach, this study examined the relative effectiveness of varying the use of songs (lyrics and music) on vocabulary acquisition, language usage, and meaning for adult ESL students in the People's Republic of China. While the use of songs is generally enthusiastically endorsed by ESL teachers, few empirical studies have formally assessed music's actual effectiveness on language learning. Results of this study showed that varying the degree of use of songs produced differential English language achievement. Specifically, the subjects who were exposed to the most music obtained higher achievement and attitude posttest scores immediately following treatment, as well as on the delayed post-test three weeks following treatment. Given the equivocal results found in previous research, and the fact that previous studies did not examine music's effectiveness for Chinese ESL students, this study makes a contribution by systematically examining the efficacy of song use in the ESL classroom with Chinese students.

Music is used in many diverse ways in language teaching. Teachers of English as a second language (ESL) from around the globe enthusiastically report

about their successful use of music and associated song lyrics with ESL students. Huy Le (2007), a Vietnamese ESL teacher, observed that music is highly valued by both students of English and (ESL) teachers in the teaching of speaking, listening, reading, and writing. Other reports by teachers from the United States (Baez, 1993), Taiwan (Katchen, 1988), Canada (Magahay-Johnson, 1984), Japan (Moriya, 1988), Mexico (Domoney and Harris, 1993), and South Africa (Puhl, 1989) support the importance and usefulness of music and music activities in the teaching of ESL learners. Indeed, ESL teachers recognize that music animates their teaching and enlivens their classroom. Since most of the reported enthusiasm for using music in teaching ESL students comes from individual teacher's experiences, classroom anecdotes, and action research, it is also important to carefully examine the results of empirical research studies concerning music's effectiveness in ESL settings.

Brand (2007) concluded that there is theoretical and physiological support for the inclusion of music in the teaching of spoken English. Not only are language and musical processing located in the same area of the brain, but neurologists (Maess & Koelsh, 2001) have discovered that both musical and linguistic syntax are similarly processed. Music and language are, of course, two dramatically different forms of communication. However as Ayotte (2004) observed, both music and language share the "same auditory, perceptive, and cognitive mechanisms that impose a structure on auditory information received by the senses" (p. 10).

There are a plethora of educational literature and web-based materials discussing the use of songs in the ESL classroom (Kramer, 2001). Brand (2007) explained how song lyrics are used in sensitizing Chinese ESL learners to the importance of effective intercultural communication. He notes that the goal of English study is not just limited to being able to speak the language. Rather, English study should also assist the ESL learner in successfully interacting with people from other cultural backgrounds. Particularly in China, ESL students generally only use English in communicating with foreigners. Brand advocated using song lyrics in helping to create a natural speaking environment that more closely adheres to the intercultural communication skills necessary for ESL students to understand English and to be understood by others. Song lyrics are embedded within a culture, its values, symbols, and beliefs. Thus, exposure to song lyrics, according to Brand, not only teaches vocabulary, grammar, rhythmic speech, phrases, and meanings, but a song, as a sort of ambassador of a culture, offers ESL students lessons in grasping the nature and style of a particular culture.

There are several reasons that songs, particularly pop songs, might be helpful for second-language learners. First, according to Murphey's (1992) analysis,

popular songs use language commonly associated with the level of 11-year-old native English speakers. So the comparatively simple vocabulary is appropriate for students learning English. Also, song lyrics are presented within a repetitive structure and song vocabulary usually contains common, short words with numerous pronouns. The language of songs, like real speech, is conversational; lyrics are sung at a slower rate with more pauses between utterances. Finally, there is the very obvious beat in pop music. According to Weikart (1998), it is the beat which helps English learners develop "a sense of inner timing and allows children to speak or read in whole sentences instead of just one word at a time" (p. B-1). These factors enable learners to relate to and understand song lyrics (Lems, 2005). Ayotte (2004) noted, though, that there are only a small number of empirical studies assessing music's (e.g., song's) effectiveness on language learning. Studies that have examined the impact of music on language learning primarily focused on the use of songs with younger ESL learners.

One of the few music-related studies involving adult language learners was conducted by Ayotte (2004). In two separate experiments, the author investigated whether listening to songs played a role in the acquisition of second language verb forms when teaching French as a second language. One experiment involved third-semester college learners of French; the other experiment was conducted with fourth-semester college learners of French. All treatment groups were exposed to the same language teaching; however, one group's lesson was based on the use of songs and the other group listened to the same content with no music. The dependent variables included grammar acquisition with specific focus on the conjugation of the following verb forms: present, compound past, imperfect, future, and conditional. These two experiments yielded conflicting results. One of the experiments showed that subjects who listened to songs performed with more grammatical accuracy on the immediate posttests on three verb forms – present, future, and conditional. For the delayed posttest, statistical significance was only seen for the present and conditional forms. The other experiment, however, showed no statistical significance between language taught with music and language taught with no music.

Based on what Murphey (1990) referred to as the "song-stuck-in-my-head phenomenon" (p. 55), other empirical studies have focused on the relationship between music and memory (i.e., linguistic memory). Songs, with their repeated lyrics and rhythms, have been examined by researchers as possible tools for enhancing learning/memory of vocabulary development and other language competencies such as grammatical structures and pronunciation, especially for ESL students. In a study involving younger learners of English, Hazel-Obarow

(2004) examined both the short-term and long-term effects of music on vocabulary acquisition using a pretest-posttest-delayed-posttest experimental design. The treatment conditions involved the use of music versus no-music during instruction on vocabulary acquisition and retention of story vocabulary for kindergarten and first-grade subjects. Qualitative data, focusing on student motivation and engagement, were also collected. Using two-way analysis of variance (ANOVA), no statistically significant results were found regarding the effect of the music on vocabulary acquisition. The qualitative data, however, revealed that treatments that included music appeared to be more motivating for students and engaged them deeper in the learning of vocabulary.

Given the equivocal results of previous research into the effectiveness of music and song materials on language learning, Ayotte (2004) states that it is "most necessary . . . to determine if songs can indeed facilitate acquisition of a second language . . ." (p. 4). Moreover, previous music and ESL research has not, based on our review, studied Chinese ESL students, a group representing the world's largest number of ESL students. ESL classrooms in Asia are often associated with crowded classes, monotonous testing and assessment regimes, and an over-emphasis on the teaching of rigid grammatical rules—all at the expense of a more vibrant and naturalistic everyday English speaking communication approach (Brand, 2007). Examining the relative effectiveness of songs and lyrics may provide a greater understanding of the use of songs in the teaching of language, subsequently suggesting more appropriate, interesting, and authentic English teaching materials.

Purpose

The purpose of this study was to examine the effects of song (i.e., lyrics and music) on vocabulary acquisition, language usage, and meaning for adult, university-level, ESL students attending a major university located in the People's Republic of China. Given three groups of ESL students with each group receiving either total song-based ESL instruction, a mix of song and non-song based ESL instruction, or non-song based ESL instruction, the three research questions were:

1. To what extent does the use of songs influence vocabulary acquisition?
2. To what extent does the use of songs influence language usage and meaning?
3. To what extent does the use of songs affect ESL learners' motivation, enjoyment and confidence in their ESL instruction?

Method

Subjects (*N = 105*) were university graduate students, with an average age of 23, enrolled full-time in a prestigious university located in Shenzhen, People's Republic of China. All of the subjects were pursing their masters' degree in law. In order to gain admission to this university's graduate law school, all subjects had to pass a national entrance examination in English, which emphasized the memorization of a large body of vocabulary, specifically 5500 English words and phrases plus the technical terms and general vocabulary involving daily conversation. Most of the subjects were at the upper intermediate ESL level. In terms of practical conversation, encounters in English are difficult as these students generally lack opportunities to speak and listen in English. Their most obvious ESL challenges are finding equivalent meanings in English and difficulty in vocabulary and appropriate usage.

As previously noted, this study involved three groups with 35 subjects in each group (*N* = 105). Based on their time availability and class availability, each student registered on-line for placement in one of the three groups. These three groups were then randomly assigned to a treatment as follows: (a) Group 1 (all music) – music was used exclusively in teaching target English language skills; (b) Group 2 (half music) – music was used half the time in teaching target English language skills; and (c) Group 3 (no music) – no music was used in the teaching of target English language skills.

Each of the three groups was taught by the same instructor who has an MA in linguistics and in instructional technology, with ten years ESL teaching experience. In an attempt to insure that teaching differences would not account for any differences in post-test achievement scores, all teaching was observed by a panel of experienced university teachers to ensure that the teacher showed equal enthusiasm and competence in teaching all three groups. The duration of treatment consisted of six 90-minute classes for a total of nine hours of instruction. All classes were held in the classroom setting normally used to teach ESL classes. The pretest was administered followed by the start of instruction. The posttest was immediately administered following the instruction, with a delayed posttest administered three weeks after the experiment. During these three weeks, the time between the end of instruction and the administration of the delayed posttest, there were no ESL classes, and there was an agreement with the extra-curricular "English Club" that no meetings would be held during this three-week time span, as well as during the duration of the experiment.

Each of the three groups was taught the identical English language content. That is, in each of the three classes, the same new vocabulary and phrases were taught in the form of oral practice emphasizing pronunciation and associative or contrast

meanings. The nature of instruction for the music and half-music instructional groups consisted of American as well as some British pop songs that were used for developing listening comprehension, reading comprehension, pronunciation/speaking practice, and the learning of grammar and stress patterns. For instance, these pop songs were used to enable the ESL learner to hear the natural compacting and stretching of the stream of words of English speech, analyze model grammar patterns in song lyrics, and examine grammatical features for their relation to meaning (e.g., teacher might ask, "why is the singer using past tense here?").

The specific pop songs used in two of the three treatment groups were "classic" rock songs, including tunes by the Beatles, Led Zeppelin, Van Morrison, Cat Stevens, the Rolling Stones, Nick Drake, the Who, and Pink Floyd. Using these pop songs adhered to Brand's (2007) previous work using song materials with Chinese ESL students. When the songs were introduced, ESL students first worked on listening skills, including listening (a) comprehension, (b) for summarizing or writing, (c) to isolated vocabulary, and (d) to word order. The ESL teacher would ask students to identify (circle) unfamiliar words. These words were explained and examples of correct usage, in a variety of contexts, were provided for vocabulary development. Speaking English was practiced by singing songs as well. Subjects in the group with no music were taught the vocabulary and ESL skills from word lists and other non-music instructional materials identical to the content used in the other two (music and half-music) treatment groups.

Researcher-designed instruments were developed for assessing the dependent variables: (a) selected vocabulary acquisition, language usage, and meaning; and (b) subjects' motivation, enjoyment of, and confidence in their ESL instruction. Using multiple choice, sentence completion, and short answers, the first instrument, both pretest and posttest versions, used 30 test items in assessing the subjects' knowledge and understanding of vocabulary, language usage, and meaning of the target vocabulary taught during the treatment. Target language tested included, for example, defining "disenchantment," "passage," "dull," and "alibi." Subjects were also asked to explain the meaning of phrases and brief sentences. The second instrument contained five questions, asking subjects to respond on a Likert-type scale to rate their feelings and attitudes about the class (e.g., "This English class makes me feel more/less confident in my English abilities." "This English class was not/most enjoyable." "This English class was boring/fun.").

Results

Subjects' test scores on the pretest and posttests on target language (vocabulary, language usage, and meaning) and attitudes were marked independently. The scores

were input to SPSS (2005) and examined using ANOVA, *t*-tests, and descriptive statistics. The independent variables were the three groups (teaching of ESL with music, half music, and no music); the dependent variables were the scores on the vocabulary, language usage, and meaning pretest and posttests. Significant differences in language achievement in students before and after instruction were observed. In order to observe in more detail the significant differences, *t*-tests were used for the *post hoc* analysis.

Tables 1 and 2 summarize the means and standard deviations of test scores for each of the three groups. Tables 3 - 7 show the comparison of scores among the three groups. Analysis of pretest scores revealed no significant statistical differences ($F(2,103) = 0.45$, $p = .64$) on the vocabulary and language usage and meaning test among the three groups. Thus, prior to instruction, the three groups had similar levels of English language vocabulary, language usage, and meanings for the targeted language skills (see Tables 1 and 3).

Table 1

Mean Scores and Standard Deviations for Achievement Tests for All-Music Group, Half-Music Group, and No-Music Group (N = 105)

	All-Music Group		Half-Music Group		No-Music Group	
Tests	*M*	*SD*	*M*	*SD*	*M*	*SD*
Pretest	3.29	2.0	3.17	2.04	3.20	2.37
Posttest (language)	10.19	2.23	8.37	2.74	9.73	2.33
Delayed Posttest	8.3	2.31	6.66	2.48	7.77	2.27

Table 2

Mean Scores and Standard Deviations for Attitude Test for All-Music Group, Half-Music Group, and No-Music Group (N = 105)

All-Music Group		Half-Music Group		*No-Music Group*	
M	*SD*	*M*	*SD*	*M*	*SD*
4.94	.64	3.86	.65	4.25	.53

Table 3

Results of Analysis of Variance for the Comparison of the Pretest Achievement Scores among the Three Groups (N = 105)

Source	*SS*	*df*	*MS*	*F*	*p*
Groups	4.23	2	2.11	.45	.64
Error	456.33	103	4.66		
Total	460.55	105			

Immediately following instruction, the posttest was administered. In a comparison of pretest and posttest scores, there was a statistically significant ($t(105) = 14.237$, $p < .01$) improvement in the students' ability in English usage as a result of instruction for all three groups (see Table 4). While all three groups, regardless of the extent of use of music and song lyrics, gained from instruction (see Table 1), analysis revealed that among the three groups (see Table 4), there was a statistically significant difference ($F(2,103) = 5.25$, $p < .01$), with the all-music group achieving the highest posttest scores (see Tables 1, 2 and 5). Post-hoc *t*-tests revealed a statistically significant difference between the all music group and the half music group ($t(69) = 3.077$, $p < .05$), and between the no music group and the half music group ($t(63) = 2.135$, $p < .05$). There was no significant difference between the all music and no music group ($t(64) = 0.820$, $p > .05$). Interestingly, the no-music group achieved the second highest posttest score, with the half music group achieving the lowest score on the posttest.

Table 4

Differences in Scores between Pretest and Posttest 1 for Each Group (N = 105)

Source	*M*	*t*	*p*
Music group	3.75	7.33	.01
Half music group	2.81	8.48	.01
No music group	3.67	9.28	.01
Three groups combined	3.40	14.24	.01

Table 5

Results of Analysis of Variance for the Comparison of the Posttest Achievement Scores among the Three Groups (N = 105)

Source	*SS*	*df*	*MS*	*F*	*p*
Groups	63.02	2	31.51	5.25	.006
Error	587.68	103	5.99		
Total	650.69	105			

The attitude measure of the posttest (see Table 2) also assessed the subjects' motivation, enjoyment of, and confidence in their ESL instruction following the three types of treatment. Results show that there was a significant difference ($F(2,103) = 3.64$, $p < .05$) in attitude in learning English among the three groups, with the group having all music (songs) receiving significantly higher scores (see Tables 2 and 6). The no-music group achieved the second highest score with the

half-music/half no-music group receiving the lowest score on the attitude portion of the posttest. Post-hoc *t*-tests revealed a statistically significant difference between the all-music group and the half-music group ($t(69) = 2.052$, $p < .05$) and between the no-music group and the half-music group ($t(63) = 2.528$, $p < .05$). There was no significant difference between the all- music and no-music group ($t(64) = -0.429$, $p > .05$).

Table 6

Results of Analysis of Variance for the Comparison of the Attitude Scores among the Three Groups (N = 105)

Source	*SS*	*df*	*MS*	*F*	*p*
Groups	2.76	2	1.38	3.64	.02
Error	37.20	103	.38		
Total	39.96	105			

Comparison of the delayed (administered three weeks following instruction) posttest scores of the three groups, revealed statistically significant differences ($F(2,103) = 4.59$, $p < .05$) (see Table 7). Similar to the results of the first posttest, the group with all music scored the highest, the no music group scored second highest, and the half music group received the lowest scores (see Table 1). Post-hoc *t*-tests revealed statistically significant difference between the all music group and the half music group ($t(67) = 2.935$, $p < .05$). There was no significant difference between the no- music and half-music groups ($t(63) = 1.867$, $p > .05$), or between the all-music and the no-music groups ($t(62) = 1.022$, $p > .05$).

Table 7

Results of Analysis of Variance for the Comparison of the Delayed Posttest Achievement Scores among the Three Groups (N = 105)

Source	*SS*	*df*	*MS*	*F*	*p*
Groups	51.16	2	25.58	4.59	.01
Error	535.02	103	5.57		
Total	586.18	105			

Discussion and Conclusion

Using an experimental approach, this study examined the relative effectiveness of varied use of songs (lyrics and music) on vocabulary acquisition, language usage,

and meaning for adult university-level ESL students in the People's Republic of China. While ESL teachers generally enthusiastically endorse the use of songs, few empirical studies have formally assessed music's actual effectiveness on language learning. The extant research studies on the use of songs in the ESL classroom have either focused on younger learners or have offered conflicting results.

Results of this study showed that for these Chinese students, varying the degree of use of songs produces different English language achievement scores. Specifically, the subjects who were exposed to the most music obtained higher posttest scores immediately following treatment as well as on the delayed post-test three weeks following treatment. In terms of attitudes toward learning English, again the group with the most songs had a more positive attitude toward their learning of English and greater confidence in their ESL instruction. Thus, based on this study, an ESL classroom that is intensively music/song based appears to be highly effective in the teaching of English, both in terms of achievement and attitudes. Curiously though, the results for this study also showed that ESL instruction containing no music (songs) is apparently more effective (in terms of both attitude and mastery of target language) than instruction containing a mix of music (half music and half no- music). It may be that music is most effective with ESL students when it is used intensively and far less effective when used in an intermittent basis. Some ESL learners, for example, might find the inconsistent use of music (song lyrics) confusing. It could be that those ESL learners who prefer consistency in instructional materials find the periodic use of music to be distracting, or possibly even inhibiting, to the relevant cognitive processes in language acquisition.

Since this study utilized music with Chinese ESL learners, future research might examine its effectiveness with ESL learners representative of other cultures and ethnicities. Also, since the duration of the experiment was limited to nine hours of treatment, other researchers may wish to assess music's impact on ESL classes when used for a longer duration, for example one or two semesters. Finally, it would be worthwhile to investigate music's effectiveness on specific aspects of ESL instruction (e.g., speaking, listening, writing, or reading).

This study has examined the effects of song (i.e., lyrics and music) on vocabulary acquisition, language usage, and meaning for adult university-level ESL students attending a major university located in the Peoples Republic of China. As noted, China represents the largest number of English learners in the world (Li, 2005), and thus it is important to continue finding ways to maximize the quality and effectiveness of ESL instruction for these particular English learners. Given the equivocal results found in previous research, and the fact that previous studies

apparently did not examine music's effectiveness for Chinese ESL students, this study makes a contribution by systematically examining the efficacy of song use in the ESL classroom with Chinese students.

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