

**THE IMPACT OF MUSIC-BASED LEARNING ON MEDICAL VOCABULARY
ACQUISITION AMONG STUDENTS IN U.S. SCHOOLS OF MEDICINE AND
PHARMACY**

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Abstract

This study explored the effectiveness of incorporating music-based learning to enhance medical vocabulary acquisition among first-year students in U.S. schools of medicine and pharmacy. The research involved 35 participants from a health sciences program at a U.S. university. Students were divided into two groups: the experimental group received instruction using songs designed to teach medical terminology, while the control group received conventional vocabulary instruction without music. Data were collected through a pre-test, post-test, and a student questionnaire. The results indicated that students exposed to song-based instruction demonstrated improved retention and understanding of medical vocabulary compared to those in the control group. Furthermore, the music-integrated lessons increased students' motivation and interest in learning complex medical terms. The findings suggest that integrating educational music into medical and pharmacy curricula can be an effective pedagogical strategy for enhancing vocabulary acquisition. Implications for instructional design and recommendations for broader application in health sciences education are discussed.

Keywords: Songs, medical vocabulary, enhance, retention, motivation.

INTRODUCTION

The key purpose of doctors is not only communicating with the patients to find out their symptoms to diagnose and prescribe or operate for treatment but also can be self-study or exchange knowledge in medical workshops. And if they want to do a great job in the health care field, they need to learn medical terminology and understand it because they may get stuck in interaction, misunderstand, or even waste time looking up words in the dictionary. Therefore, when studying at a medical university, students have to learn medical terms to be able to communicate, read, and watch medical materials in medical fields.

It is said that teaching English for young students can be seen as an art form. That is why the instructors need to create a natural and anxiety-free atmosphere through exciting activities in order to attract students' interests to learn a new language. Besides that, music is seen as a means of communication because it can break down all barriers such as language, culture, belief systems, age, gender, and nationality as well as it can "provide us with a window into a world that is not our own, a world that we glimpse and remember thanks to the power of music" (Murray, 2005).

Music and songs are related to the groups of fun activities and have the characteristics of repetition as well as language patterns, so they can help learners enhance a fun environment, and listening skills, pronunciation, intonation, stress, and rhythm.

In addition to the benefits mentioned above, music has therapeutic functions and it develops memory and focusing attention thanks to engaging both sides of the brain at the same time for information procession, “When a learning activity combines both left and right hemispheres simultaneously engaged in a particular activity, an ideal learning situation is established and the most productive learning occurs” (Anton, 1990).

In order to reach the goal of language acquisition, interest and motivation are key elements, and it is songs that can help with creating motivation to learn English. Thus, this study discovered the effects of using audio-visual songs on improving vocabulary retention. Additionally, it also identified the motivation to learn medical English when they are taught terminology with songs.

Research questions

1. Can the methodology of songs help more effectively than the traditional method in terms of vocabulary instruction?
2. Can song methodology motivate students to learn medical English terms?

LITERATURE REVIEW

The contemporary approaches have considered songs reaping the benefits of language learning. Anton (1990) believes that songs are vital tools to aid information memorization, grammatical structure recalling, vocabulary repetition and expressions thank to the melody, which is a combination method of singing and psychology.

Students can benefit considerably from songs: Griffé (1988) emphasize some advantages of using songs in teaching language. To be specific:

1. “Songs and music lower anxiety. If they are introduced in the early years of language learning, songs and music tend to create an enjoyable, anxiety-free environment.
2. Songs are useful for teaching vocabulary.
3. Songs serve as an excellent listening material.
4. Songs can be used as supplemental texts at the end of the lesson, on special occasions, or as an additional component for vocabulary development.
5. Songs and music can be used to support grammar presentation, practice, and revision.
6. Songs and music bring various cultures into the classroom.

According to Murphy (1992), songs make a significant contribution to both short and longterm memory with a simple, repetitive and conversational method, which creates fun, joyfulness, relaxation, and even dynamic features. And using songs to teach a language can exploit prominent characteristics with the following typical reasons, “Songs represent the strong feature of modern primary language programs; songs may extent young learners’ attention span; Songs are a great tool for language learning at an early age; songs are regarded as an excellent memory tool...” (Sevik’s, 2011: 1029-1030).

The chosen songs are actually important. Ur (1992:65) refers to two kinds of songs: authentic songs and specially-composed English teaching ones. The former is composed with the purpose of listeners' interests such as simple, entertaining, and catchy aspects while the latter is used for language teaching of vocabulary, structures, language comprehension skills as well as pronunciation. To choose appropriate songs, the song the instructor should pay attention to not only to the learners' level and thirst for knowledge but also the songs which need to be fun and meet the learners' needs in terms of the curriculum and the theme of the lessons. A great many of different activities can be applied to teach English skills with songs providing that they are adapted students' tastes for language aim.

METHODOLOGY

Based on Scott and Ytreberg (1991); and Sevik (2012)'s theory of teaching, the researcher selected, applied, and adapted some teaching strategies and activities of how to use songs to teach vocabulary for the experimental group. Then, SPSS (Statistical Package for the Social Sciences) was used to analyze the data with the use of t-test paired to find the differences between pre-test and post-test of both groups and the Chi-square test to illustrate the relationship between song and motivation to learn vocabulary and vocabulary retention.

Participants

The population of the study was a total of 34 students in class Y2A2- K48 at Thai Binh University of Medicine and Pharmacy. Those students, including female and male students, were at the age of 18 and passed the English placement test, which is equivalent to English level A2 (the second level of English in the Common European Framework of Reference ranked by the Council of Europe). At this level, students master the basics of English and are able to communicate simple, and basic needs. This class was randomly divided into two groups of 17 students. For the target of the study, these two groups were named the experimental group and control group.

Instruments and materials

The findings of the research were based on the results gained from two types of tests (pre-test and post-test) and the questionnaire survey. The pre-test, a vocabulary gap-filling exercise, and matching word definition exercise, which was done in the earlier lesson before applying a medical song to teach the experimental group and using a traditional method for the control group to measure the knowledge of medical terms. The post-test, the same format such as filling the gap and matching word definition exercises were carried out for both groups after the experiment group learning medical vocabulary by a song while the control group learning that by the traditional method. The questionnaire, which is adapted from Nihada (2016)'s statements about using songs in teaching the English language, comprises fifteen questions with yes/no answer requirement which mention students' view on songs with English language learning. It is essential that the songs selected must belong to the content of the lesson with a good source of pronunciation, intonation, accent practice, and vocabulary development.

Procedure

The pre-test was conducted for both groups before the day implementing teaching methods of vocabulary. After that, the same medical vocabulary was taught for both groups with different methodologies and different time on the day after by the same instructor. To be specific:

To control the group, the researcher exerted the traditional approaches of vocabulary instruction such as providing the list of vocabulary with its part of speech and translating it into Vietnamese, then illustrating it by giving examples. Students wrote the new words down and read them in the chorus after the teacher. Finally, students did the exercise by matching the word with its definition. To create an exciting atmosphere in the classroom, the researcher tried to make clear and funny examples.

To the experimental group, students listened to the song and took notes of every word they could hear. Then they answered the question from the teacher “which system they were going to learn) after that, they listened the second time, this time they filled out missing words of the song. If they could not catch the words, they were able to recognize their sounds and guessed the meaning. Following this, they discussed and shared their answers with their partners. I played the video of the song, paused in each sentence asking students to say it again and again. The post-test was tested the day after teaching vocabulary with the traditional method and method of teaching medical terms with the song. After the test, all these students answered the questions on the questionnaire. And then, the researcher and her colleague collected the students’ answers to mark and questionnaires to assess the motivation of learning by song.

RESULTS AND DISCUSSION

From table 1, it can be seen the results of the pre-test and post-test of the control group and experimental group. The mean difference between the post-test of both groups is higher than that of the pre-test. Particularly, in the control group, the mean of the post-test point is 0.38 higher than that of the pre-test while there is an increase of 0.88 points of the result of the post-test compared to that of the pre-test in the experimental group. Even though the result of the post-test of the experimental group is slightly higher than that in the control group, it proves that the experimental group indicated an improvement in vocabulary competence as compared to the control group.

Table 1: The results of the pre-test and post-test of the control group and experimental group

Groups	Test	n	Mean	SD	Sig
The control group	Pre-test	17	5.80	0.986	0.039
	Post-test	17	6.18	0.900	
The experimental group	Pre-test	17	5.94	0.966	0.050
	Post-test	17	6.82	1.185	

Table 2 shows the difference between the pre-test results of both mentioned groups. Before the study, obviously, the deviation of the pre-test of these groups is insignificant because of $p > 0.05$.

Table 2: The comparison of pre-test results between the control and experimental group

Groups	n	Mean	SD	Sig
The control group	17	5.87	0.99	0.83
The experimental group	17	5.80	0.68	

Table 3 illustrates the difference between the post-test results of both mentioned groups. While the average point of the control group is 6.00, the mean of the experimental group is 7.50. Thus, the latter gets 1.5 points higher than the former. There is a significant difference in vocabulary competence between the method of using songs and the traditional method of teaching with $p < 0.05$.

Table 3: The comparison of post-test results between the control and experimental group

Groups	n	Mean	SD	Sig
The control group	17	6.00	0.89	
The experimental group	17	7.50	0.84	0.01

Table 4 denotes the results that the students in both groups answer the questions about the songs.

Table 4: The responses to the statements about songs of the control group and experimental group

Questions	The control group		The experimental group		pvalue
	Number	%	Number	%	
1. I am really into listening to songs in English.	5	29.41	12	70.58	0.04
2. I don't like singing songs in English lessons.	9	52.94	2	11.76	0.028
3. Songs are boring.	7	41.17	1	5.88	0.039
4. The song that our teacher plays for us is not fun.	0	0	3	17.64	-
5. It is fun when we sing songs in English.	9	52.94	16	94.11	0.017
6. I learned some words with the help of songs.	1	5.88	14	82.35	0.001
7. I can remember the song quickly.	5	29.41	12	70.58	0.04
8. I sing English songs at home.	3	1.76	10	58.82	0.034
9. I can pronounce difficult words easier through the songs' rhythms.	6	35.29	12	70.58	0.039
10. When I do exercises I remember the song's lyrics.	1	5.88	15	88.23	0.001

11. I think songs make language learning more interesting.	10	58.8 2	16	94.11	0.039
12. Songs provide intentional vocabulary learning.	9	52.9 4	15	88.23	0.024
13. The song made learning engaging.	6	35.2 9	12	70.58	0.039
14. The song provides opportunities for widening my word knowledge.	7	41.1 7	14	82.23	0.034
15. I feel relaxed when I learn via song.	10	58.8 2	16	94.11	0.039

In table 4, it can be seen the overall survey results about general opinions of exerting the songs in medical English instruction. Questions from one to five were used to elicit the learners' enjoyment when they were learnt by songs. To be specific, in question 1 *I am really into listening to songs in English* even though both groups like listening to English songs in the English lessons, the number of the experimental group doubled the control group of 70.58% and 29.41%, respectively. It is rhythm, tone, and beat that makes the learners' brains relaxing, reduce stress, and improve their moods as well. That is why they are keen on learning English and focus on their pronunciation and understanding of the English language. In question 2 *I don't like singing songs in English lessons* the number of students in the control group does not like songs is much higher than that of the experimental groups because they are shy and rarely learn English by songs before. In question 3 *Songs are boring* there is only one student, which accounted for 5.88% in the experimental group and there are seven learners, which made up to 41.17% believing songs are not interesting. It is likely that those students concern about other methods to learn words not songs. And they are not interested in the noises caused by the sounds, and listening skills. They just focus on reading skills and grammar. To question 4, *The song that our teacher plays for us is not fun*, the p-value is insignificant because in the control group, students were not taught by songs, they did not give their answer. In the question 5, *It is fun when we sing songs in English* the great number of students in the experimental group (94.11%) and more than half in the control group (52.94%) marked that they become merit and playful when singing songs in English as songs are seen as a marvelous weapon for their students' mood and excitement.

When it comes to the benefits of learning English vocabulary with songs, it is reasonable to refer to the advantages of word retention (from question six to fifteen). The response to research question seven *I can remember the song quickly* was significant 70.58 % (12 out of 17 students) in the experimental group revealed that they were able to recall the song rapidly whilst 29.41% (five out of 17 students) expressed the ability to retrieve that. The student who listened to the song in the lessons can obviously remember the song better than those who didn't listen to it because they have experienced listening to the song. To question 8 *I sing English songs at home* there are more than seven students in the experimental group singing English songs at home compared to the control group. After the lesson, most students in the experimental group like listening to music and play songs by themselves to sing or follow the song when they have free time. *I pronounce difficult words easier through the songs' rhythms* is question nine which wants to elicit the word pronounced between two groups. Among 17 students in each group,

the number of students in the experimental group who pronounce challenging words easier is double that of the control group twelve and six students, respectively. Medical teams are really hard to remember the meaning as well as speaking since they are not common everyday words, so thank to listening to the songs the components such as *rhythm*, intonation, and stress can help speed up the speaker's progress. *When I do exercises I remember the song's lyrics* is question 10. Interestingly, when applying the learned words via the song, the majority of students in the experimental group can think about the lyrics of the song, which reached 88.23% compared to 5.88 % of the control group.

Surprisingly, when talking about emotions, both groups appreciated the songs in learning English from question 11 to 15. In the experimental group, songs can enhance interests to learn the English language and help learners create relaxation, which accounted for 94.11% while that is in the control group made up 58.82%. English vocabulary teaching should focus on the topic and students in the experimental group almost agree that songs help provide willful words (88.23%) while 52.94% is the opinion of the control group in question 12 *songs provide intentional vocabulary learning*. Those figures prove that songs are helpful to gain teaching any kinds of English vocabulary not only in a medical field. Many students evoke that songs aid learners to involve in language learning as the answer survey in question 13 *The song made learning engaging*, the control group made up 35.29% while the experimental group reaches double 70.58%. According to Gregory (2012) songs help students to learn science subjects because they pursue multiple modes such as verbal or nonverbal and modalities like auditory, visual, and kinesthetic. In question 14 *The song provides opportunities for widening my world knowledge*, the great number of the experimental group believes songs assist in enhancing the knowledge of vocabulary, which accounted for 82.23% and twice as much as the control group (41, 17%). The statement *I feel relaxed when I learn via song* in question 15, both groups highly believe that songs can make people feel more optimistic, relax the muscles, help with concentration better and manage stress.

CONCLUSIONS

The main points of this article are to denote the positive effects of using of songs to teach foreign language vocabulary for medical students. The findings are that the results of the posttest of the experimental group are a bit higher than those in the control group, which proves that the respondents who were taught with the song got more benefit than the compared ones. Or in the other words, teaching vocabulary with songs is a vital and significant component in the retention of the medical vocabulary.

Another advantage is motivation capacity. Teaching vocabulary with songs can be seen as extrinsic motivation because students may gain happy, cheerful, satisfied, emotional involvement when they listen to songs.

Limitations of the study and suggestions for future research

Besides some successful effects from the research, in view of the restrictions the researcher has come across, there are still some restraints. Firstly, it is likely to be difficult to choose effective songs because the instructors mostly base on the available songs to teach rather than making new songs owing to financial issues. In addition, the researcher needs to conduct further research with a bigger sample size and in different medical universities. Moreover, a longer

experimental period is needed to enable the researcher to study female and female students to compare the vocabulary acquisition of different genders, and from that, the improvements with regard to the effects of using songs can be utilized to improve vocabulary competence. Finally, measuring emotion is also needed to validate and confirm the effectiveness of using songs in teaching medical English terms.

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