Teaching English Stress: Can Song-Lyric Reading Combined with Mobile Learning Be Beneficial to Non-English Majors?

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Abstract

Although stress patterns in English and Chinese are strikingly different, most English learners in China have overlooked or ignored this difference, resulting in poor speaking performance. In an attempt to approach this issue, this study designs the mobile assisted language learning (MALL) based instruction by integrating stress lessons on the mobile application and adopting song lyric-reading as stress pattern training, aiming to help college students improve their speaking performance in terms of English stress. Two groups of Chinese freshman (N=60), non-English majors, participated in the study by separately receiving the MALL-based lyric-reading instruction and the in-classroom lyric-reading instruction. Both qualitative and quantitative methods were used to collect data. Quantitative data comprise scores of both pre- and post-test, and qualitative data include an interview used to gain participants' insights after the experiment. The results suggest that students with the former instruction achieve a better learning outcome. The study also extends the theoretical sphere of English stress learning by providing empirical findings such as stricter scoring rubrics for reading-aloud tests and the Chinese pronounfossilization influence on stress acquisition.

Keywords: English stress instruction, college non-English majors, mobile assisted language learning (MALL), song lyric-reading

Introduction

English is a stress-timed language where each syllable in a word or each word in a sentence gains unequal prominence in speaking (Archibald, 1997, p.263-264). Put another way, word stress and sentence stress constitute the two main types of English stress, which is the instrumental nature of English that second language (L2) learners need to master. However, the stress nature of English has been overlooked or ignored by most Chinese learners, especially those college non-English majors. Lack of English stress knowledge results in wrong placement of high pitch or long duration on syllables in speaking (Zhang,

Nissen & Francis, 2008, p. 4500), also brings about Chinese accent which frustrates learners to gain improvement in speaking performance (Zhang & Li, 2012).

The article describes the development of a new approach to teaching English stress using MALL and reports the results of an experiment which compares MALL-based and conventional classroom approaches to teaching English stress using song lyrics, so as to address the following question:

Between MALL-based lyric-reading instruction and in-classroom lyric-reading instruction, which approach is more effective in improving Chinese college non-English majors' English stress acquisition?

Literature Review

While the teaching of reading continues to gain considerable attention in the English education community in China, the teaching of speaking has not been addressed to the same degree. (Lin, 2002, p.8). The prevalence of "dumb" English, which refers to students' lack of speaking skills, is largely a reflection of the insufficient speaking education (Fang, 2010, p.111), and even in recent years, "dumb" English still exists, impairing the quality of English teaching (Zhu, 2017, p.176). Among those factors that contribute to the scarcity of speaking teaching, the difficulty of teaching suprasegmental features of pronunciation is a prominent but mostly overlooked one. As suprasegmentals are deemed to be challenging to teach for teachers, and elusive and hard to learn for students, they have been ignored in the curriculum for decades, especially for college non-English majors.

Stress patterns, as an integral part of suprasegmentals, play a blatant role in the pronunciation system for they inform the stress-timed nature of English. However, Chinese, as a syllable-timed language, follows a totally different stress rule, where syllables in spoken Chinese bear nearly equal emphasis. The syllable-timed nature of Chinese appears to influence Chinese learners' acquisition of English stress. In other words, the way a syllable is stressed in Chinese appears to bring negative effects on how Chinese learners place stress in spoken English. This is a commonly observed issue reported in various studies over a long span of time (Juffs, 1990; Zhang & Yin, 2009; Xia, 2012; Liu, 2017).

In order to approach this issue, Xu (2007) points out that the cultivation of stress consciousness is a key factor to help Chinese learners gain improvement in English stress placement. This claim has gained much attention and is echoed by other scholars (Zhang & Li, 2012; Ma & Wang, 2013). However, views differ in terms of cultivating stress consciousness, because instruction in traditional classroom teaching context is not in favor of speaking compared to other language skills (Li, 2011; Peng & Ali, 2015).

Rather than to change the existing situation, more and more scholars and researchers are attempting to seek the use of out-of-class instruction. With the widespread use in pronunciation teaching, MALL highlights the effectiveness of improving college students' speaking skills on mobile phones in an out-of-class setting (Saran, Seferoglu & Cagiltay, 2009), particular in recent years, with the advanced technology, Automatic Speech

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Recognition (ASR), embedded in the easy-to-use pronunciation training mobile applications, new opportunities for speaking learning beyond the classroom are unfolding. Because these mobile applications can help learners identify and correct their errors in pronunciation by outputting feedback at a word or sentence level. Therefore, Learners could gain improvement in pronunciation in a shorter time frame (Neri, Mich, Gerosa, & Giuliani, 2008; Ahn & Lee, 2015, p. 784). However, most studies on this issue have examined pronunciation in a "general" level, where segmentals and suprasegmentals are not discussed separately, let alone stress patterns would be investigated individually. In order to bridge this gap, this study would explore the ASR-based pronunciation learning beyond the classroom by focusing only on English stress patterns.

With regard to the acquisition of English stress patterns, text-reading exercises are advocated as a worthy strategy (Juffs, 1990, p. 104). This strategy is echoed and adopted in several studies as the text here refers to textbooks. However, in a study reported in 2013, Ting, Kuo, Chiang and Pierce extend the text to poetry/poems and gain satisfactory results in helping college students, whose first language (L1) is Chinese, improve their stress acquisition (p. 318). The effectiveness of poem-reading provokes our conception of adopting lyric-reading in stress learning, as songs are poems and should be treated as such (Gioia, 2003; Bradley, 2009; Jones, 2012), and lyric-reading requires the ability of distinguishing the inherent stress patterns in the context (DeSantis, 2015, p.220).

Method

Design of the Study

The study adopted a quasi-experimental design. Participants who volunteered to take part in the study were 60 non-English majors, whose L1 is Chinese, from a university in China. Experimental group (EG) and control group (CG) were then formed with 30 participants randomly assigned to each one. Participants in EG were numbered from E01 to E30 and receiving the MALL-based lyric-reading instruction; whereas participants in CG were numbered from C01 to C30 and taking in-classroom lyric-reading instruction. Table 1 summarizes the procedures involved in the study.

Topics of the Stress Lesson EG CG Lyric-reading materials Week Pretest 2 Introduction of syllable and stress My heart will go on 3 Pronouncing full, clear Let her go sounds 4 Stress of compound nouns Baby MALL-based lyric-In-classroom 5 Unstressed syllable: schwa Rolling in the deep lyric-reading reading instruction 6 Strong forms and weak forms of You belong with me instruction function words (1) 7 Strong forms and weak forms of Pretty boy function words (2) 8 Sentence stress (1) As long as you love me 9 Sentence stress (2) Someone like you 10 Post-test, interview and ARCS survey

Table 1 Design of the Study

Design of the Instruction

MALL-Based Lyric-Reading Instruction

Regarding the purpose of the present study, stress learning in this instruction comprises stress lessons and lyric-reading exercises. Therefore, an application served as the platform for watching stress lessons and an application used for lyric-reading are needed. In order to select the applications that best match our goals, the following guidelines proposed by Howard and Major (2005), Tomlinson (2010), and Liu and He (2014) were followed. The guidelines are summarized in Table 2:

Table 2 Guidelines for selecting appropriate applications:

Item	Selection guidelines		
1	ASR-based self-correction feedback should be provided.		
2	Lyric-reading should be provided.		
3	Learning activities should stimulate interaction and be interesting.		
4	Learners should be encouraged to develop learning skills when they use online resources.		
5	Online English resources should link to one other to develop a progression of skills, understanding and language items.		
6	Learners should be able to easily adapt the material to their own needs and language.		

Two applications were finally selected for the experimental instruction. One was QQ, the most popular instant messaging mobile applications in China. Another was *Duo Shuo Ying Yu* (means "speak English more"), which was an ASR-based pronunciation training mobile application features lyric-reading. For convenience it is referred as "Speak English More" hereinafter.

QQ served as the platform for participants to receive, store and watch stress lessons; Speak English More was adopted for lyric-reading exercises. Fig. 1 demonstrates how they were incorporated into the MALL-based lyric-reading instruction.

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Figure 1. Configuration of the MALL-based lyric-reading instruction

Content of Stress Lessons and Lyric-Reading

Eight lessons that aim at improving learners' speaking performance in terms of English stress at an elementary level were compiled based on a phonetics textbook, *English Pronunciation and Intonation for Communication* (second edition) (Wang, 2005), which won the first prize for excellent teaching materials of general colleges and universities in China. Eight pieces of song lyrics, "My heart will go on", "Let her go", "Baby", "Rolling in the deep", "You belong with me", "Pretty boy", "As long as you love me" and "Someone like you" were selected from the repertoire of Speak English More as stress practice materials, which embody the most relevant stress features that each corresponding lesson has taught to the participants. All lesson content and selected song lyrics were examined and approved by three phonetics experts according to the goal of the instruction.

Steps of the Lyric-Reading Exercise

The exercise of lyric-reading comprises four steps with different processes and goals (see Table 3).

Table 3: Lyric-reading exercise

Step	Process	Goal	
1.Listening	Listen to the exemplary lyric- reading recording embedded in Speak English More.	To help the participants perceive and experience the stress pattern.	
2. Reading aloud	Listen to the recording again then read the lyrics aloud while ASR was on. Then listen to the playback and check the score. (When ASR function was on, Speak English More would automatically record what participant had said and give a score on the scale of 0 to 100 as a feedback.)	To imitate the stress pattern by listening and reading aloud; self-correction was provided in this step.	
3. Blind reading	It was a repetition of step 2 but lyrics were not displayed in this step.	To strengthen what participant have learned in the previous steps.	
4. Reading aloud	Listen to the exemplary lyric- reading recording again then read the lyrics aloud with ASR was off.	To review the stress pattern so as to enhance the stress acquisition.	

In-classroom Lyric-Reading Instruction

The in-classroom lyric-reading instruction consisted of the same stress lessons and lyric-reading exercises. What differentiated this instruction from the former were that stress lessons were presented in a traditional in-classroom way; lyric-reading exercises were carried out in the classroom with participants in pairs; the exemplary lyric-reading recording was played via speakers by the researcher; participants in pairs gave feedback to each other for self-correction.

Data Collection and Analysis

Both qualitative and quantitative methods were used to collect data in this study.

Quantitative data include scores of a reading test (see Appendix A) conducted before and after the experiment. The reading test with possible scores ranging from 0 to 70, was compiled based on the tests from *English Pronunciation and Intonation for Communication* (second edition) (Wang, 2005). Qualitative data consisted of a survey for collect participants' basic information, and an interview (see Appendix B) used to investigate participants' points of view, feelings, and perspectives after the experiment.

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In order to confirm the content validation of the instruments, the reading test and the interview questions were sent to three phonetics experts to assess and confirm the content validity as Lynn (1986) recommends that three experts are the minimal acceptable number for a content validation effort.

Praat, a free scientific computer software package for the analysis of speech in phonetics designed by Boersma and Weenink (1992), was introduced by Wilson (2008) as an instrument to analyze English stress, for stress can be straightforwardly interpreted and shown on Praat as high pitch, high intensity (loudness) and longer vowel duration. In the study, Praat is adopted to analyze participants' recordings of the pre- and post-test in terms of English stress by obtaining acoustic information as described above. Fig. 2 and Fig. 3 show a pair of examples of analysis of the word "economy", produced by a participant in EG. It is visible that with high pitch, high intensity and long duration, the participant misplaces stress on the third syllable "no" in the pretest. However, after four weeks of learning, a noticeable improvement is found in the post-test with the high pitch, high intensity and long duration moving to the second syllable "co", which is the right syllable upon which to place the stress in "economy"; meanwhile, the reduction of duration in "no" suggests that there is also an improvement in pronouncing the unstressed syllable.

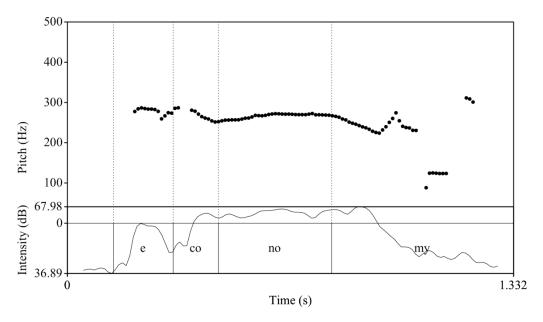


Figure 2. Stress features of "economy" (Pre-test EG participant)

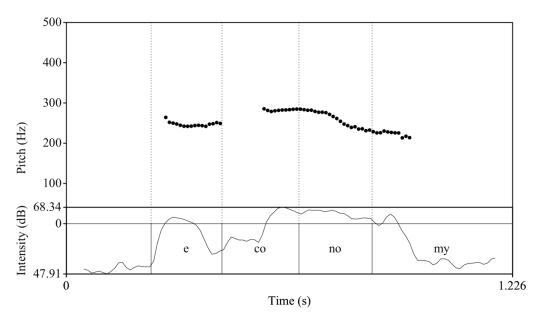


Figure 3. Stress features of "economy" (Post-test EG participant)

The Statistical Package for the Social Science (SPSS) was used to compare the scores of the EG and CG on the pre- and post-test in terms of whether they are statistically different. The significance level is set at p < 0.05 for all statistical analysis.

Results and Discussion

Before the present study, a pilot study was conducted to test the scoring rubric of the reading test, and an issue did attract our attention. It was noticed that, if the scoring rubric only focused on the stress patterns, participants could score when pronouncing a word with correct stress placements but incorrect vowel sound of the stressed syllable. For example, the word "idiom" /'idiəm/ in the reading test was pronounced by one participant as / 'aidiəm/, and a point was still awarded. Scoring tests like this might convey a wrong message to the student if we reassessed it from a strict pedagogical view. Therefore, the present study adopted a stricter scoring rubric: A point was awarded only when the stress placement was correct and the vowel sound of the stressed syllable was correct.

Based on the new scoring rubric, Fig. 4 shows the mean scores of EG and CG on the reading tests, and Table 4 illustrates the descriptive statistics of the reading tests. In order to answer the research question, an independent samples t-test was conducted, and the results shows that there is a significant difference in the post-test between EG and CG (t = 5.989, p = 0.000), with a large effect size (Cohen's d = 1.546) according to Cohen's criterion (1992), while both groups did not differ in the pre-test (t = 1.489, p = 0.826). This result offers a positive answer to the research question and confirms the effectiveness of the MALL-based lyric-reading instruction in improving Chinese college non-English majors' English stress acquisition.

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According to the interview, participants in both group state their preference in lyric-reading compared to text-book-reading, which is perceived as prosaic and boring in their opinions. More than half of the participants in EG voice that lyric-reading in Speak English More is more useful because the feedback provided by the application showed their weakness part in reading and made them want to remedy the errors. Since the reading exercise could be repeated without limitation, they sometimes would repeat the lyric-reading exercises until a higher and more satisfactory score is achieved.

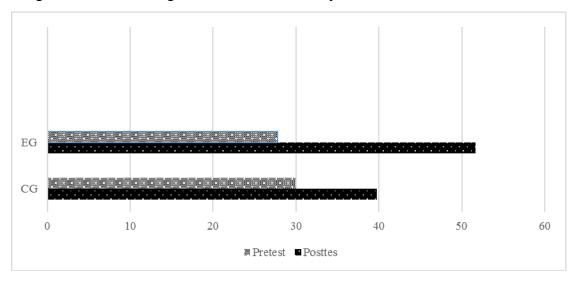


Figure 4. Mean scores of Pre- and Post-test.

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Table 4 Mean	Scores and	t-values	Obtained	from the	Pre- and	Post-tests.

Tests	EG		CG			
	(n=30)		(n=30)		t	p
	M	SD	M	SD		
Pre-test	27.77	5.513	29.93	5.759	1.489	0.142
Post-test	50.07	5.977	39.77	7.281	5.989	0.000

There is another interesting issue attracting our attention, the error rate of the stress placement on the pronoun "he". Based on the data analysis result, over 55% participants in both groups stressed "he" in the pre-test where it should not be, and the error rate is not decreased in the post-test. As one kind of function words, pronouns in English are usually pronounced in weak forms and unstressed. This principle was taught in the lesson of "Strong forms and weak forms of function words (1)" and reviewed in the lesson of "Sentence stress (1)". However, participants appear to gain no improvement in acquiring this rule even after the treatment. This phenomenon echoes what Deterding (2006, p. 194) outlined in his study, i.e. that Chinese speakers have the tendency to stress pronouns in English speaking. It is certainly true that this tendency is affected by the fossilization of their L1 pronunciation skills as pronouns are normally stressed in spoken Chinese. There seems to be a need to study on the fossilization influence in the future investigation of English stress acquisition.

Conclusion and Recommendations

Classroom instruction appears to have a negligible impact on students' speaking skills, particularly in large-class teaching with over 80 students, which is typical of university freshman English courses in China, precluding students from gaining improvement in the quality of their spoken English (Meng, 2009). By designing and evaluating the MALL-based lyric-reading instruction, this study shows that college students could benefit from the use of the out-of-classroom learning in terms of English stress patterns, which have been overlooked for decades in college English education.

The findings remind us of the discussion, nearly a decade ago, of "What would effective and efficient pronunciation teaching for L2 learners look like in a Utopia?" The development of technology was advocated by Derwing (2010) as one of the paths to approach the utopian world (p. 30). Although Praat and ASR were mentioned in her discussion, they were introduced as unrealistic for use by teachers (Praat) and unlikely to give accurate feedback to learners sometimes(ASR). Her statements seem to still hold true based on the experience of conducting this study: the interface and manipulation of Praat are not user-friendly compared to Speak English More, and the ASR in Speak English More may sometimes not function well due to the background noise or the distance between user and microphone on the phone. However, the empirical results of the present study still cast a positive light on the future research of pronunciation teaching and learning, particularly in terms of suprasegmentals such as English stress. To make a bold conjecture, the next generation of applications developed along the line of Speak English More may integrate the acoustic analysis function of Praat with ASR. Then students might see their own pitch, duration and intensity analysis results, and repair the sound errors by themselves. Pronunciation would accordingly be more self-paced and effective in this way.

What may seem futuristic does have a realistic basis. According to the 41st China Statistical Report on Internet Development (2018), by December 2017, students, one fifth of whom are in college, are the largest group of online education users, and the mobile phone is the main device they use to access the Internet. Learning on mobile phones is emerging as popular among college students, and studies on MALL have begun to proliferate in recent years. It is not hard to imagine that the growing need for learning on MALL and the proliferation of MALL would bring learners the next generation of learning applications, as mentioned above, in the next decade.

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Appendix A

Reading Test

Part 1. Read the Following Words.

- 1) argument 2) opinion 3) operation 4) Canadian 5) post office
- 6) creation 7) grandfather 8) economy 9) timetable 10) education

Part 2. Read the Following Phrases and Sentences, Paying Special Attention to the Schwa.

- 1) Milk or tea? 2) It's impossible. 3) young lovers.
- 4) have a look. 5) There is no future.

Part 3. The Following Pairs of Sentences in Part A are Exactly the Same, and Sentences in Part B are Different Responses to Those in Part A. Read Each Sentence in Part A Out with Regarding to the Response in Part B, Placing Stress on the Proper Word.

A B

1) a. They bought two bottles.b. They bought two bottles.Not cans?

2) a. I think that animal is a big cat. No, it's a baby cat.

b. I think that animal is a big cat.

Not a dog?

3) a. Frank wrote the report. No, he translated it.

b. Frank wrote the report. No, Jack did.

4) a. Does she speak English? No, Chinese.

b. Does she speak English? No, but she can read it.

5) a. Mary wants to go on Monday. When?

b. Mary wants to go on Monday. Who?

Part 4. Read the Following Sentences, Paying Attention to the Pronunciation of the Unstressed Forms of the Function Words.

1) Ask the girl. 2) Bring her flowers.

3) Give me a new bike. 4) Tony told us a new story.

5) I like apples and oranges. 6) Just as you do.

7) What are you eating? 8) They can take a taxi.

9) My sisters are at home. 10) I will bring it to you.

Part 5. Read Aloud the Following Paragraph, Paying Attention to the Sentence Stress. Before Reading, You Have to Predict the Unstressed Words and Stressed Words. Use a Pen to Highlight Them If Necessary.

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A big head and a big mouth

An idiom is a group of words with a special meaning. The words in the idiom do not have their usual, ordinary meanings. English is full of idioms. You know some already, and you will certainly learn more.

Many idioms mention parts of the body: the head, the hands, the heart, and so on. You might hear a girl say, "My brother's getting a big head." The boy's head isn't growing! A big head is an idiom: the boy thinks he is very important and special. His sister doesn't think he is. She says that he's getting too confident.

A friend might tell you, "Be careful. That girl has a big mouth." The literal meaning is that the girl's mouth is large. However, to have a big mouth is also an idiom. Your friend means the girl talks too much or she tells other people's secrets. Your friend is giving you some advice: You shouldn't tell that girl any private information. You can't trust her to keep quiet.

Appendix B

Interview Questions

- Q1. "Do you think the song lyric-reading is interesting? Why or Why not?"
- Q2. "Do you think the song lyric-reading is useful? Why or Why not?"
- Q3. "Are you satisfied with your stress learning achievement? Why or Why not?"
- Q4. "Will you continue reading lyrics for stress learning? Why or Why not?"