

*A Preliminary Investigation of the Effects of Visual Cues on Sentence Stress
Production of EFL Elementary Students*

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Abstract

Teaching English phonics is a common practice in pronunciation instruction in Taiwan's elementary English language classes. However, elementary students in Taiwan often perform poorly on suprasegmentals like intonation and sentence stress, and the suprasegmental aspects of English are not emphasized in class and in textbooks. Nevertheless, research findings support the teaching of suprasegmentals as it brings benefits to students' communicative competence. Therefore, this study attempted to explore the effect of visual cues used in a written text on Taiwan elementary students' sentence stress production. The participants (11 elementary students) were given a reading aloud task where the experimental group used a written text with visual cues on sentence stress and the control group did not use such a text. The relatively low scores on the three rating items (sentence stress, fluency and pronunciation) for most students in both groups reflected that the text might be too difficult for the students' level or the students lacked practice time. The results indicated that in order for EFL elementary students, who are beginners of English, to apply sentence stress, teachers should make sure that they are familiar with the words and have confidence in word production first. Also, explicit teaching of sentence stress might be needed.

Keywords: second language learning, elementary education, pronunciation, suprasegmental

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Introduction

In Taiwanese elementary education, students start to learn English in grade three. Phonics has been integrated in some elementary English textbooks and classroom instructions to help students pronounce English words. Although Taiwan's grade one to nine curriculum guidelines have listed recognition of sentence intonation, word and sentences stress and sentence rhythm as part of the listening competence indicators and the use of appropriate intonation in sentences as part of the speaking competence indicators, such aspects are not emphasized in textbooks and in classes in Taiwan. Derwing and Rossiter (2003) also reported that many ESL materials in the West focus mainly on segmentals and very little on prosodic factors. It is understandable that phonics is more focused on in elementary classrooms in Taiwan because it is fundamental to speaking. A sentence is built from words. If a person cannot even pronounce words in English, they definitely will have difficulties saying sentences or communicating in English.

Nevertheless, it is common to find that elementary students in Taiwan speak English in chant with a flat tone. Juffs (1990) found that Chinese learners of English tended to stress every word in speech. Native speakers of Chinese seem to have a problem in the primary stress (sentence stress) system in English. Studies found that students' first language can be an influential factor regarding this problem (Celce-Murcia, Brinton, & Goodwin, 1996; Gillette, 1994; Graham, 1994; Pennington, 1994). Mandarin, Taiwanese elementary students' first language, is tonal and is very different from English, which is "stress-timed and syllable-timed (for example, WHAT's his addRESS?)" (Gilakjani, 2012b, p. 121). Suprasegmental features such as linking and stress will be foreign to them. This means that it will be a challenging task for them to master these aspects of English. Unfortunately, English lessons in elementary classrooms in Taiwan seem to be focused on correct pronunciation of words, and suprasegmental practices are not much emphasized.

Gilakjani (2012b, p. 120) illustrated the features of English pronunciation very clearly as shown in Figure 1. Phonics teaching, focusing on sounds, is on the segmental side. It provides students with a foundation in English pronunciation. Nonetheless, research found that teaching suprasegmentals (such as intonation, phrasing, stress, timing, rhythm) brought positive effects on communication competence (e.g. Anderson-Hsieh, Johnson, & Koehler, 1992; Anderson-Hsieh & Keohler, 1998; Derwing, Munro, & Wiebe, 1998; Derwing & Rossiter, 2003; Fraser, 2001; Hahn, 2004; Jenkins, 2002; Tanner & Landon, 2009). A study investigating 46 adult ESL/EFL learners' pronunciation needs and strategies found that learners perceived the suprasegmental aspect of pronunciation as more important than the segmental aspect (Kolokdaragh, 2010). Learning English is not just to be able to pronounce individual English words correctly. It is important to carry a message across and to be able to communicate with others.

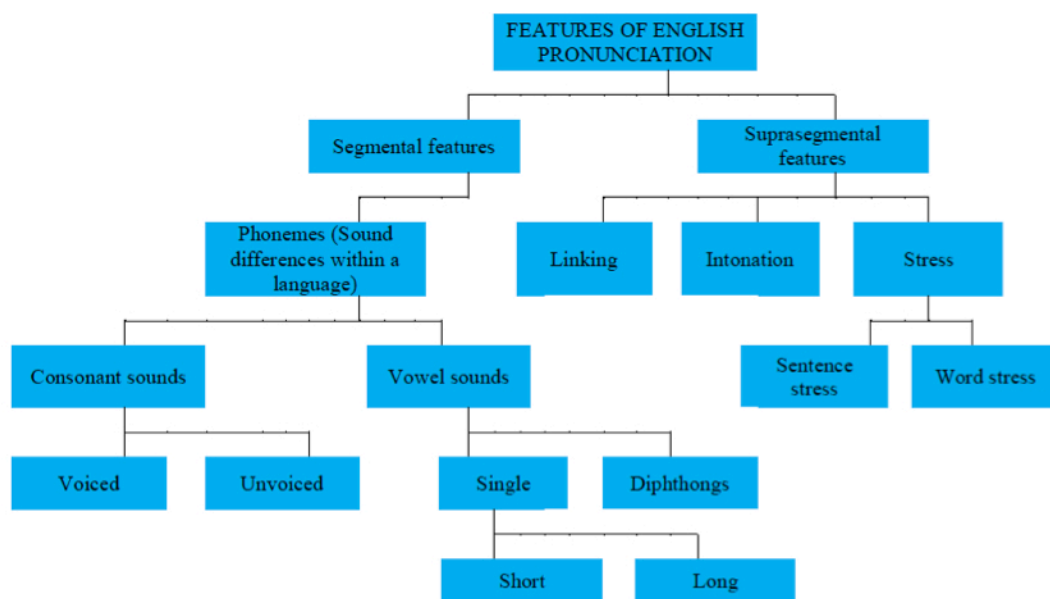


Fig. 1. Features of English pronunciation from Gilakjani (2012b, p. 120)

Suprasegmentals are found to be important to effective communication in English. Tanner and Landon (2009) found that rhythm, stress and intonation of speech were important to learners' overall intelligibility and perceived comprehensibility. Derwing, Munro and Wiebe (1997) reported that when prosodic features were emphasized in class, ESL learners with fossilized pronunciation showed significant improvement in intelligibility, comprehensibility and accent. In Derwing, Munro and Wiebe's other study (1998), the results suggest that global instruction focusing on suprasegmental features such as stress, intonation and rhythm could benefit learners in extemporaneous speech production. Derwing and Rossiter (2003) also found that the students in the global group showed significant improvement over time in comprehensibility and fluency for a narrative task and an 8% decrease in negative prosodic comments, whereas the students in the segmental group showed no improvement and an 8% increase in negative prosodic comments. In a study of 60 nonnative speakers, Anderson-Hsieh, Johnson and Koehler (1992) found that ratings of pronunciation comprehensibility and acceptability were highly correlated with overall prosody score.

To improve elementary students' communicative competence, English lessons should put more weight on suprasegmental practice (Derwing & Rossiter, 2003). In recent years, research has been advocating the instruction of suprasegmentals in ESL classes (e.g., Gauthier, Shi, & Yi, 2009; Morley, 1991; Seferoglu, 2005). Morley (1991) proposed a change of emphasis in teaching methodologies from segmental to suprasegmental with more focus on communicative competence than on linguistic competence. McNerney and Mendelsohn (1992) suggested that suprasegmentals were essential to the comprehensibility of students' English and, therefore, the teaching of suprasegmentals should be prioritized in short-term pronunciation courses.

It is important to note that while more emphasis should be put on suprasegmentals, this does not mean that the teaching of segmentals should be ignored. Burns (2003) reminded that pronunciation teaching should include both. In short, putting emphasis

on suprasegmentals in English language instruction would benefit learners' speaking skills.

Purpose of this study

Most research done in the area of pronunciation has focused on ESL/EFL adults. Therefore, more attention should be drawn to investigating ESL/EFL young children's learning of pronunciation. As mentioned above, elementary students in Taiwan often have a problem in English stress. This study attempted to make elementary students aware of stress in English, which is one of the suprasegmental features essential to effective English communication (Burns, 2003). When lexical stress is used incorrectly in speech, listeners have difficulties locating words (Field, 2005). Hahn (2004) maintained that sentence stress is crucial in effective communication. If sentence stress is used correctly in speech, it helps listeners understand and remember the content. Therefore, Hahn (2004) proposed to include sentence stress in ESL classes. Furthermore, stress was selected because it can be expressed in a more concrete way in texts by making the stressed parts bigger and bold, which is manageable for children in the concrete operational stage (Piaget, 1970). Gilakjani (2012a) also suggested that "[t]eachers can help students by highlighting elements such as sounds, syllables, stress and intonation" (p. 103). The highlight effect provides visual assistance to elementary students to know when to stress when reading texts aloud.

In this study, the visual aids for reading aloud (VARA) system developed by the author was used. The VARA system is used in reading texts, differentiating the syllables and highlighting word stress and sentence stress to give students visual cues for pronunciation.

In a pilot test, students found that the visual cues were too overwhelming. Therefore, this study focused on just one of the suprasegmentals, sentence stress.

The aim of this study was to explore the effect of the use of the VARA system on sentence stress production in reading aloud tasks for Taiwanese elementary students.

The context of the study

In this study, nine junior university students designed a five-day English summer camp for an elementary school in Taiwan. They were pursuing a bachelor's degree in foreign language instruction at a university in southern Taiwan. This degree program aims to prepare students to be EFL teachers. These nine student teachers did this five-day English summer camp in July as part of their graduation project. They started preparing four months before the English camp took place under the guidance of their advisor. They needed to organize all the camp activities, design English lessons, produce learning materials and teaching aids and teach in the camp.

The target elementary school is located in a remote area in central Taiwan. It is a small school with only 43 students from grade one to grade six. Formal English classes are provided starting from grade three onwards. Before the English summer camp took place, the target elementary school recruited 19 of their students between grade three and grade six to join this summer camp. They were divided into two

classes – Class A (10 students) and Class B (9 students). Each class contained mixed grade students ranging from grade three to grade six (see Table 1). The student teachers designed six 40-minute English lessons to teach three stories – two simplified Greek stories, Pandora’s box and Perseus and Medusa, and one adapted short story about Snow White and seven dwarfs. Both classes had the same lessons. On the fifth day of the camp, each class had to participate in an English performance event in the form of a readers’ theater. Class A performed on Pandora’s box and Class B performed on Perseus and Medusa. To prepare for the event, three lessons distributed on the second, third and fourth days of the camp were assigned for students to practice their readers’ theater performances. Students in lower grades were responsible for easier lines, and students in higher grades were responsible for more difficult lines in their readers’ theater. The aim of the camp was to cultivate students’ confidence in speaking English.

Table 1. Distribution of students in Class A and Class B

Grade	Number of students in Class A	Number of students in Class B
Grade 3	3	2
Grade 4	5	5
Grade 5	2	1
Grade 6	0	1
	Total = 10	Total = 9

Research Method

The 11 participants of this study were grade four to grade six students participating in the five-day English summer camp mentioned above (there should be 14 students, but 3 were absent on that day). Students in grade three were excluded as they just started learning English. The participants were randomly divided into the experimental group (6 students) and the control group (5 students) (see Table 2).

Table 2. Distribution of students in experimental group and control group

Grade	Experimental Group	Control Group
Grade 4	3	3
Grade 5	2	2
Grade 6	1	0
	Total = 6	Total = 5

After their story-telling lesson, the experimental group was given the story script of Pandora’s box where the VARA system was used to practice reading aloud the first half of the script for 15 minutes, whereas the control group was given the original story script. After the practice time, both the experimental and control groups were given time to read the story script aloud individually, and each was audio recorded. An excerpt of the story script with the VARA system is shown below:

“**H**ere is a gift for you, Pandora!”
 “It’s a **b**eautiful box. **T**hank you **v**ery much!”
 “But you **m**ust not open this **b**ox.”

The blinded recordings were graded on a scale of zero to ten on sentence stress as well as pronunciation and fluency by three independent English teachers, who were experienced EFL teachers in a university in Taiwan. Pronunciation refers to correct pronunciation of individual words, and fluency refers to overall flow of speaking. The story script with the VARA system and a native speaker's recording of the script were provided to the teachers as a reference. The scores of the experimental and control groups were analyzed using independent t-tests on the Students' T-Test website (<http://studentsttest.com>) and a Pearson correlation coefficient on the Social Science Statistics website (<http://www.socscistatistics.com/tests/pearson/Default2.aspx>).

Results

Inter-rater reliability Pearson coefficients (r) for the three teachers on the reading aloud task ratings were as follows: fluency, 0.79; sentence stress, 0.78 and pronunciation, 0.61.

In order to compare the sentence stress, pronunciation and fluency scores between the experimental (with the VARA system in text) and control (without the VARA system in text) groups, three separate independent sample t-tests were conducted. The means and standard deviations are reported in Table 3. The results of all three tests (sentence stress, pronunciation and fluency) did not show statistical significance ($p > 0.10$) (See Table 4). This indicated that the performance of sentence stress, pronunciation and fluency in the reading aloud task between the experimental group and control group was similar, and the scores (with a maximum of 10) on these three areas were relatively low.

Table 3. The means and standard deviations of sentence stress, pronunciation and fluency scores of the experimental and control groups

Scoring Items	Experimental Group n=6		Control Group n=5	
	Means	SD	Means	SD
Sentence stress	5.89	0.58	6.60	0.93
Pronunciation	6.50	0.81	7.13	0.90
Fluency	5.94	1.14	6.07	1.55

Table 4. Significance of sentence stress, pronunciation and fluency scores between the experimental and control groups

Scoring Items	Mean Difference	Sig. (2-tailed)
Sentence stress		
Exp. – Con.	-0.71	0.155
Pronunciation		
Exp. – Con.	-0.63	0.250
Fluency		
Exp. – Con.	-0.13	0.883

As there were no significant differences found on sentence stress, pronunciation and fluency scores between the experimental group and the control group, follow up correlation coefficient analyses between sentence stress and pronunciation, between

sentence stress and fluency and between pronunciation and fluency were conducted to find out their relationships. The Pearson correlation coefficient (r) was used. In the experimental group, the correlation coefficient between the sentence stress and pronunciation scores was found to be positively and strongly related ($r=0.894$, $p<0.05$). The correlation coefficient between the sentence stress and fluency scores and between the pronunciation and fluency scores were also positively and strongly related ($r=0.954$, $p<0.01$; $r=0.9005$, $p<0.05$ respectively). The correlation coefficient in the control group was similar. The scores between sentence stress and pronunciation, between sentence stress and fluency and between pronunciation and fluency were positively and strongly related ($r=0.812$, $p<0.10$; $r=0.971$, $p<0.01$; $r=0.925$, $p<0.05$ respectively). This means that when the pronunciation score or the fluency score goes up, the sentences stress score also goes up and vice versa.

Discussion and conclusion

This study investigated whether the use of the VARA system in a written text improves elementary students' sentence stress production in a reading aloud task. Although the aim of this study was to look at the effect on sentence stress production, two other scores, pronunciation (correct pronunciation of words) and fluency (the overall flow of speech) were also collected. The results showed that sentence stress, pronunciation and fluency scores were positively correlated, but showed no significant differences between the experimental and control groups. The relatively low scores on all three scoring items from both the control and experimental groups (see Table 3) revealed that the students did not perform well in the reading aloud task in general. It seemed that the text was difficult for the students.

In the students' audio recordings, the students seemed to struggle with word production. They quite often took a long time to utter a word. It could be speculated that sentence stress and fluency were, hence, negatively affected. When the students had to struggle with words, the VARA system seemed to pose no benefit on the reading aloud task. Some research (Foster & Skehan, 1996; Lennon, 1990; Skehan & Foster, 1997; VanPatten, 1990) suggested that, in second language production, people cannot process too much information at the same time. For example, Skehan and Foster (1997) found that second language learners could not focus on fluency, accuracy and syntactic complexity equally. Lennon (1990) pointed out that, when syntactic complexity increases, fluency will be compromised. When the elementary students tried to figure out how to say the words (spending their cognitive resources on the segmental), they would have difficulty drawing attention to the suprasegmental aspect (i.e. sentence stress in this study) even though there were visual cues.

Besides the fact that the text could have been too difficult for the students, it could be that the experimental group did not receive explicit instruction on sentence stress. The students were just provided with the reading aloud text with the VARA system and a brief description of the VARA system (i.e. the bigger and bold parts should be stressed). The students might not have realized what it was really about. Research found that when teachers explicitly taught suprasegmentals (Derwing, Munro & Wiebe, 1998) or sentence stress (Pennington & Ellis, 2000), this brought improvement to students. Therefore, to help students relate sentence stress with the VARA system in written text, teachers can explicitly demonstrate in class and have students practice using the system to guide them to read aloud. Teachers can give

corrective feedback when necessary. When students are more aware of and more familiar with sentence stress, it is more likely for them to make this skill automatic. As a result, students will need less effort when using the system (McLaughlin, Rossman & McLeod, 1983). After students understand how the VARA system works, they may be able to work on their own to practice sentence stress.

The fact that this study did not show significant differences between the experimental and control groups could be due to some limitations in this study. This present research can be improved in some ways:

- increase sample size;
- adjust the reading aloud task to match students' level;
- provide sufficient segmental practices before the task;
- expose the experimental group to the suprasegmental aspect, i.e. sentence stress, using the VARA system in the reading aloud text for a longer period of time and
- change the experimental design to between group and within group designs.

This study implied that, in order for EFL elementary students, who are beginners of English, to apply sentence stress, teachers should make sure that they are familiar with the words and have confidence in word production first. Teachers can use both the bottom-up and top-down approaches to teach pronunciation. In this way, when the students are learning about English sounds, they can also get a broader sense of what English is like. Furthermore, more research should be done to investigate the effect of the VARA system on learning English pronunciation, and the potential to use it in the ESL/EFL classroom as a self-study aid.

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