ENGLISH LEXICAL STRESS ASSIGNMENT BY EFL LEARNERS: INSIGHTS FROM A VIETNAMESE CONTEXT

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Abstract:

In English, the accurate assignment of lexical stress is of paramount importance in attaining good pronunciation and speech intelligibility; however, it is by no means an easy task for many EFL learners, especially those whose first languages have no system of word stress. Vietnamese learners, for example, often face problems with the placement of lexical stress as their mother tongue is not a stress language but a tonal one. The current study was conducted to yield more insights into Vietnamese learners' acquisition of word stress in this regard. Specifically, it was conducted to investigate (1) the extent to which Vietnamese learners were able to assign stress patterns in English multisyllabic words and (2) whether there was a statistically significant correlation between their competence in recognizing and in producing English lexical stress. Data for the study were gained from 45 elementary EFL learners studying English at a foreign language center in the Mekong Delta of Vietnam. The process of data collection started with assignment tests (i.e., a recognition test and a production test), followed by a comparative analysis of the participants' performance on these tests and subsequently a retrospective interview. The results indicated that the participants' overall level of competence in assigning stress in English words was just above average. It was also found that the participants performed the recognition test better than they did with the production test, and there were several factors contributing to this inconsistency. A positive correlation between the participants' recognition and production of lexical stress patterns was also observed in this research.

Keywords: lexical stress assignment, word stress, recognition, production

1. Introduction

Pronunciation holds a crucial position in the process of learning English as a foreign language. In many EFL contexts, pronunciation competence is seen as an indicator of language proficiency since it affects learners' communication process in real-life

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contexts (Talebzadeh & Gholami, 2015). EFL learners with proper pronunciation can easily make themselves understood even when they make some lexical or grammatical mistakes; however, those learners who can speak English with correct grammar but unclear pronunciation may encounter problems when interacting with other non-native speakers or native speakers of English (Fraser, 2000). Despite the widespread agreement on the importance of pronunciation, compared with the four language skills of listening, speaking, reading and writing, it is an area that has received less attention in English classes until recently. This is particularly true in the teaching and learning contexts of Vietnam where pronunciation is not placed much emphasis and normally regarded as a part of speaking skill. Meanwhile, research on second language acquisition has so far supported the claim that pronunciation is an aspect of language that is difficult for learners to acquire (Gilakjani 2012; Huwari & Mehawesh, 2015; Vafaei et al., 2013), and the placement of stress is a factor contributing to this difficulty.

Referring to the teaching context under this investigation, the teaching of word stress plays a negligible role in EFL instruction. Many EFL learners are often confronted with certain pronunciation problems when they speak English, one of them being the inaccurate production of lexical stress, especially their inability to produce stress contrasts of multisyllabic words. Concernedly, through informal conversations with these learners, the researcher recognized that they appeared not to be aware of the importance of lexical stress in English pronunciation, leaving the area of pronunciation less explored.

In Vietnam, although numerous studies have been conducted to explore learners' English pronunciation ability, there has been a paucity of research looking at the suprasegmental aspects, especially lexical stress patterns (An, 2010). By extension, this study focuses on English lexical stress, primarily aiming to shed light on EFL learners' assignment of this aspect of pronunciation from a Vietnamese context.

2. Literature Review

2.1 English lexical stress patterns

In English, there are no fixed rules in identifying the positions of word stress in the sense that primary stress can fall on any syllable within a word. According to Kreidler (1997), the location of stress in English words can be on the *ult* (i.e., the final syllable), the *penult* (i.e., the second syllable from the end), the *antepenult* (i.e., the third syllable from the end) and the *pre-antepenult* (i.e., the fourth syllable from the end). It is apparent that the two latter positions must exist in words having at least three and four syllables, respectively. Table 1 below shows some examples of English words stressed on the aforementioned positions.

Table 1: Examples of English words having stress on the *ult*, the *penult*,
the *antepenult* and the *pre-antepenult*

Stress position	Example
The *ult*	a**gree,** con**vict,** engi**neer**
	millio**naire,** pro**mote,** Taiwa**nese**
The *penult*	a**ban**don, **car**bine, dis**cov**er
	e**xam**ine, **gar**den, **sen**tence
The *antepenult*	an**xiety**, hu**mil**ity, **loy**alty
	novelty, possi**bil**ity, **vig**ilant
The *pre-antepenult*	**bib**liophile, de**ter**iorate, **he**liotrope
	hesitancy, **pres**idency, **ste**reophone

2.2 Comparison between English lexical stress and Vietnamese tones

English stress and Vietnamese tones differ in the use of acoustic correlates in word production (Nguyen, 2003). Such a difference is attributable to the fact that English is a stress language while Vietnamese is a tonal one with the possession of a system of six distinctive tones: Level (ngang), Falling (huyền), Rising (sắc), Drop (nặng), Curve (hỏi) and Broken (ngã) (Nguyen & Ingram, 2005). Specifically, stress in English is phonetically characterized by at least four parameters, namely fundamental frequency, duration, amplitude and vowel quality (Lai, 2008; McMahon, 2002; Zhang et al., 2008). As opposed to English stress, Vietnamese tones employ pitch as a contrastive characteristic of prosody at the word level (Nguyen & Ingram, 2007). This dissimilarity in linguistic features of the two languages is regarded as one of the contributory factors in the occurrence of prosodic transfer effects in Vietnamese learners' production of English word stress. Celce-Murcia et al. (1996) also points out that Vietnamese speakers of English tend to *"stress syllables in English more equally, without giving sufficient stress to the main words and without sufficiently reducing unstressed syllables"* (p.210).

2.3 Relationship between lexical stress and intelligibility

The nature of English as a stress-timed language often poses difficulties for EFL learners, especially those whose first language is a syllable-time language in attaining intelligible pronunciation (Harmer, 2001 as cited in Arslan, 2013). Viewed as part of intelligibility, accurate lexical stress placement has a role to play in maintaining mutual understanding between and among interlocutors in communication. Therefore, in this sense, locating stress incorrectly decidedly impairs a speaker's intelligibility. As Underhill (1994) claims, *"it can be quite difficult to understand English speech in which the stress is either absent or wrongly placed"* (p.73). Analogously, Langrova (2012) contends that the assignment of lexical stress plays an important part in how well a native speaker is able to understand a foreign speaker's speech production.

In comparison to segmental features, whether suprasegmental aspects show a greater impact on intelligibility is a matter of controversy. In particular, many pronunciation experts assume that non-native English speakers' faulty word stress is more likely to cause misunderstanding in listeners than their production of non-native-like consonants and vowels (Celce-Murcia et al., 1996, as cited in Keyworth, 2014).

Nevertheless, Zielinski (2006) argues that both segmentals and suprasegmentals can influence intelligibility, with the former having more effects. Levis and Barriuso's (2012) research proved that the two dimensions of segmentals and suprasegmentals were of equal importance in achieving intelligibility, and they needed to be perceived in an integral fashion. Notwithstanding these arguments, it is indisputable that lexical stress significantly contributes to learners' intelligibility and their ability to understand English utterances.

2.4 Relationship between lexical stress recognition and production

In the present study, the assignment of stress at the word level denotes both lexical stress recognition and production. It is widely agreed that whether there is a correlation between the ability to recognize stress patterns in English words and the ability to produce these same stress patterns is a controversial issue. In 2010, Watanapokakul carried out a study to examine the relationship between EFL students' competence and performance of stress in English polysyllabic words. The participants consisted of 30 students who were taking a course of English for medical profession at Chulalongkorn University, Thailand. In order to gain data for the study, a list of 35 English polysyllabic words was compiled as the stimuli. The participants were required to pronounce the target words in the word list for recording, and subsequently they were asked to mark stress patterns in these words. The research concluded that there was a correlation between the participants' competence and performance of English lexical stress. The researcher, therefore, claimed that the findings of the study could be particularly helpful to EFL teachers in evaluating their students' competence in word stress assignment.

However, according to Watanabe and Yokokawa (2015), even when EFL learners have the mental representation of accurate lexical stress information, they may not apply prosodic representation effectively to their speech production. More recently, Isarankura (2016) has conducted a study with the same objective as that of Watanapokakul's (2010) study. There were 30 Thai students being involved in the study, all of whom were attending an English-majored program of a university in Thailand. The research instruments employed in the study included three consecutive tasks, with two oral-reading tasks and one written task. The researcher figured out that there was a significant correlation exiting between EFL learners' knowledge and production of stress in three-syllable words but not in those with two and four syllables. Thus, it was found out that the relationship between the participants' knowledge and actual pronunciation of stress was low.

3. Research Method

3.1 Research questions

Central to the current study is the investigation into the assignment of English lexical stress by Vietnamese EFL learners. In addition, given a strong need for providing more evidence on the relationship between EFL learners' competence in recognizing and in

producing English lexical stress, the study is also designed to investigate into this issue. These aims are parallel with two following research questions:

1. To what extent are EFL learners able to assign English lexical stress properly?
2. Is there a significant correlation between EFL learners' competence in recognizing and in producing stress of English words?

3.2 Research design

The study was designed as a descriptive one that used both quantitative and qualitative approaches. Fox and Bayat (2007) state that descriptive research *"is aimed at casting light on current issues or problems through a process of data collection which enables researchers to describe the situation more completely than was possible without employing this method"* (p.45). By using the descriptive design for the present study, the researcher intended to provide an accurate description of EFL learners' pronunciation competence in terms of lexical stress assignment.

To reinforce the study and enrich the results, the researcher attempted to gather both quantitative and qualitative data. Qualitative data were obtained by conducting a comparative analysis of the participants' performance on the two tests and a retrospective interview to further interpret the results of the statistical analyses. In addition, by means of the two tests, quantitative data were also obtained to find out whether there is a significant correlation existing between the participants' competence in recognizing and in producing English lexical stress.

3.3 Participants
3.3.1 Learners

A total of 45 elementary EFL learners at a foreign language center in Can Tho city took part in the study. Eighteen of the participants were males, and 27 of them were females. Their ages ranged from 18 to 22 years old. The participants had been identified as similar in their current language level (i.e., Level A2 in the Common European Framework Reference) by a replacement test before they were selected to participate in this study. All of them had not had any formal training in English phonetics when this study was conducted. These participants also reported that they had no hearing or speech problems; therefore, they were deemed suitable for the current study.

3.3.2 Raters

Together with the researcher, a native speaker of English was invited to take part in assessing the participants' accuracy of English lexical stress placement in their word production. The native English speaker is the researcher's colleague who has extensive experience in teaching English to EFL learners at different ages and levels of language proficiency in Vietnam. This rater's auditory acuity was reported as normal.

3.4 Research instruments

In order to collect the data for answering the two research questions, the researcher employed the following research instruments: (1) lexical stress assignment tests, (2) a

comparative analysis of the participants' test performance and (3) a retrospective interview.

3.4.1 Materials

The target words used for the assignment tests were selected from sources which were used in the participants' newly completed preparation courses for the English proficiency test of elementary level. Therefore, all the stimuli were identified as familiar to the participants.

Based on the placement of stress, the multisyllabic words in the chosen sources could be divided into three main groups: (1) two-syllable words, (2) three-syllable words and (3) four-syllable words. A list of 80 words (i.e., 20 two-syllable words, 30 three-syllable words and 30 four-syllable words) was compiled to represent the three groups. The distribution of the word list is shown in Table 2.

Table 2: Distribution of the word list

Word size and stress position	Number of words	Percent
Two syllables	**20**	**25**
The *penult*	10	12.5
The *ult*	10	12.5
Three syllables	**30**	**37.5**
The *antepenult*	10	12.5
The *penult*	10	12.5
The *ult*	10	12.5
Four syllables	**30**	**37.5**
The *pre-antepenult*	10	12.5
The *antepenult*	10	12.5
The *penult*	10	12.5
Total	**80**	**100**

3.4.2 Assignment tests

The participants' ability to assign stress patterns in English multisyllabic words were measured by a recognition test (i.e., a written test) and a production test (i.e., an oral-reading test), respectively. There are three parts in each test with a total of 80 target words, as previously mentioned in the above section. To be specific, part 1 consisted of 20 two-syllable words. Part 2 and part 3 were comprised of 30 three-syllables and 30 four-syllables in turn. In order to prevent the participants from guessing the patterns of word stress, the words in each part were sequenced in an alphabetical order.

3.4.3 Comparative analysis of participants' performance on the two tests and retrospective interview

The comparative analysis and the interview were conducted after the researcher had analyzed the participants' test scores to interpret the conclusion on whether there was a significant discrepancy between the participants' recognition and production of English lexical stress more fully. Referring to the interview, in addition to the main interview

questions, the researcher used probing questions to elicit further information from the participants. Probing questions are known as follow-up ones which are asked to obtain more specific information or to clarify the interviewees' responses (Colker, n.d).

3.5 Data analysis

In order to determine the extent to which the participants were able to assign lexical stress in English words, the researcher scored the written test manually, with 1 point being assigned to a correct answer and 0 points being given to an incorrect one. As for the production test, the participants' recordings were analyzed by using Praat (the 32-pitch edition), a speech analysis software. It is regarded as being appropriate to the purpose of the study because it could graphically display the pitch height and vowel duration of each syllable. In addition, the recordings could be played on this software, a condition that was convenient to acoustically check the prominence of stressed syllables produced by the participants. For instance, Figure 1 shows the spectrogram and waveforms of the word "improve" produced by a participant, and they were generated using Praat.
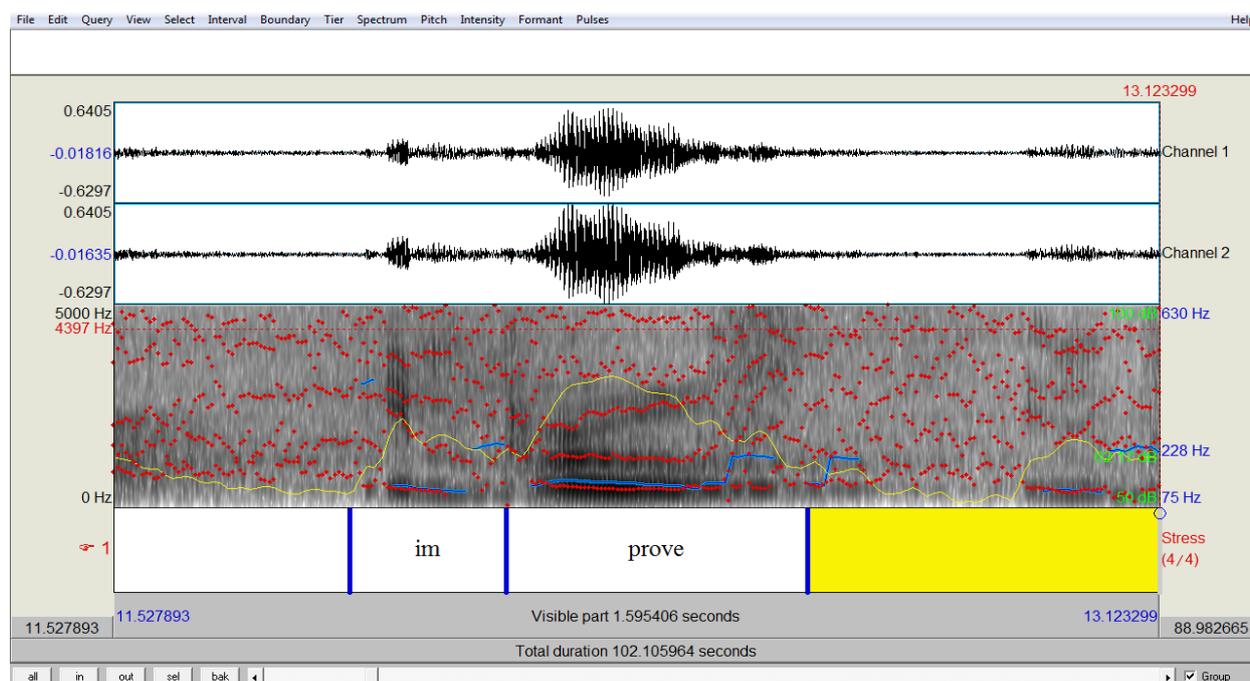

Figure 1: Spectrogram and waveforms of the word "improve" produced by a participant

The spectrogram and waveforms above illustrate that the primary stress falls on the ultimate syllable, which is a correct pattern. This is because, compared to the penultimate syllable, it is higher in pitch and longer in vowel duration.

In terms of scoring, the researcher adapted Aungcharoen's (2006) scoring guide of lexical stress production. In detail, participants who read a word with correct primary stress and intelligible pronunciation achieved 1 point. Those who read a word with (1) incorrect primary stress, (2) correct primary stress and unintelligible pronunciation or (3) equal stress on two or more syllables received 0 points. In order to

attain the reliability in scoring the participants' production of lexical stress, a native speaker of English was involved in the scoring procedure.

Regarding the qualitative data analysis, the researcher himself transcribed and translated all the interviews into English language. The interview data were then analyzed and presented together with data from the comparative analysis of the participants' performance on the two tests so as to provide more evidence and interpretation for the statistical results.

3.6 Statistical method

Results gained from the recognition and production tests were subjected to the Software Package of Statistics for the Social Science (SPSS, version 20.0) to measure the participants' recognition of lexical stress and their actual performance of this suprasegmental feature. Descriptive Statistics Tests were calculated to observe the frequency, mean scores and standard deviations of the two tests, and then the researcher went on to explore what stress patterns and words whose stress patterns cause difficulty for the participants to recognize and produce. In addition, Pearson's Correlation Test was computed to examine the correlation between the two observed variables.

4. Results

4.1 The participants' level of competence in assigning English lexical stress

To measure the participants' overall level of competence in assigning English lexical stress, the assignment tests were used. As described earlier in this research, each test consisted of 80 multisyllabic words with different stress patterns.

The Descriptive Statistics Test was run to check for the mean score of the participants' assignment of English lexical stress. Table 3 displays the results of this test.

Table 3: Descriptive statistics for the assignment tests

Variable	N	Min.	Max.	Mean	Percent	SD
Assignment	45	75	120	106.42	59.12	12.05

As indicated in the table above, the overall mean score the participants gained from the assignment tests was 106.42 on the 0-180 scale (SD=12.05). It is equal to the mean percentage score of 59.12%. Based on these results, it can be observed that the participants' level of competence in assigning English lexical stress was slightly above average. Given that, all the test items were relevant to the participants' current language level and familiar to them, their performance of the assignment tests was quite unsatisfactory.

A detailed look at the test results revealed that the participants' English lexical stress assignment classified according to test type was inconsistent (t=25.87, p=.00). This makes evident that there was a significant discrepancy between the participants' levels of competence in recognizing and in producing English lexical stress.

Table 4: Descriptive statistics for the recognition and production tests

Variables	N	Mean	Percent	SD	t	p
Recognition	45	59.62	74.53	6.82	25.87	.00
Production	45	46.80	58.50	5.62		

As seen from Table 4, there was a statistically significant discrepancy between the participants' levels of competence in recognizing and in producing English lexical stress (t=25.87, p=.00). It can be concluded that they were fairly competent in identifying primary stress of English words, whereas their level of competence in producing this suprasegmental feature was just above average.

4.2 Possible causes of the discrepancy between EFL learners' recognition and production of lexical stress

In order to further understand what factors possibly contributed to the inconsistency between the participants' competence in recognizing and in producing English lexical stress, the researcher collected qualitative data by first comparatively analyzing ten participants' performance of the recognition and production tests. These participants were ones whose mean scores between the recognition test and the production test were significantly different. Subsequently, the researcher interviewed five of these participants in connection with their experience in doing the tests. The interviewees were selected at random among the ten participants.

4.3 Results from the comparative analysis of participants' performance of the two tests

An overall observation from the comparative analysis of ten participants' performance on the two tests revealed that locating stress on wrong syllables was a common problem among these participants. In addition to this, in the production test, there were many cases when the participants gave equal stress on two or more syllables within a single word. This circumstance was likely to lead to more incorrect answers in their production test because lexical stress contrasts were not obviously reflected in the recognition test. Another reason was the participants' unintelligible production of some three- and four-syllable words. As previously described in the scoring guide for the production test, those who read words with unintelligible pronunciation would receive 0 points while intelligibility undoubtedly was not a requirement in the recognition test. For instance, three out of ten participants had correct stress placement in the word "mathematics" but produced this word unintelligibly.

4.4 Results from the interview

To gain more insights into the underlying reasons behind the inconsistency between the participants' recognition and production of lexical stress, another research tool was utilized in the study was the retrospective interview. The interview content focused on what the participants thought about their performance of the two tests. The interview

data was subsequently analyzed to find out whether there were any more factors attributable to the observed difference.

Almost all the interviewees reported that they were quite satisfied with their performance on the recognition test while all of them admitted that they did not perform the production test successfully. There were two common problems making the participants' performance on the recognition test different from that on the production test. These problems were likely to be the causes of such a disparity. One of the problems was the participants' less automaticity in using their existing knowledge of lexical stress in some cases. To be specific, more than half of the interviewees reported that there were several words whose stress patterns they could not assign immediately, so they needed some time to activate their knowledge of stress before coming up with the final answers. The recognition test was claimed to provide them with more time to do this, as shown in two of the interviewees' responses:

"… There were some words whose stress I was not able to locate at once, but I had to think fast in the test [the production test].… So, I think I made many mistakes."

"… In that case, I could wait to think about the answers by reading them silently several times in the recognition test."

(Participant 2)

Reponses from two participants manifested an additional reason that the emotional factors like nervousness and shyness might affect their production of lexical stress, whereas they did not encounter this problem in the recognition test. The following examples reflected these opinions in detail:

"…. When performing the reading test, I was somehow nervous and shy because I did not feel very confident in my pronunciation, and I was afraid of making mistakes."

"… I felt normal when doing the recognition test."

(Participant 5)

In general, the aforementioned results basically explain why there was a gap between the participants' recognition and production of English lexical stress. It is possible that the participants' failure to produce lexical stress contrasts in many instances was the primary cause. The other possible reasons of the issue were the participants' unintelligible production of some words with three and four syllables, their less automaticity in applying knowledge of lexical stress in producing words in some cases and the effect of emotional factors.

4.5 Correlation between EFL learners' recognition and production of English lexical stress

To investigate the overall correlation between the participants' competence in recognizing and in producing stress of English words, the Pearson's Correlation Test was used. The output generated from this test is presented in Table 5.

Table 5: Correlation between participants' lexical stress recognition and production

Variables	N	r	Sig. (2-tailed)
Recognition-Production	45	.88	.00

Note: Correlation is significant at the .01 level (2-tailed)

According to Table 4, the results from the Pearson's Correlation Test yielded a strong positive correlation between the participants' competence in recognizing and in producing English lexical stress (r=.88, p=.00). It means that, in terms of stress placement, attempting to enhance the participants' ability to recognize lexical stress would contribute to the improvement to their lexical stress production, and vice-versa.

5. Discussion

5.1 Participants' assignment of English lexical stress

According to the results of the assignment tests, the participants' level of competence in producing English word stress was identified as slightly above average. Because the words tested were taken directly from the sources which the participants used to learn with, these words were not too challenging for the participants to produce. This indicated that the participants' performance of the production test was quite unsatisfactory. As observed from the Vietnamese context, this phenomenon could arise from two main causes. First, Vietnamese language does not possess a system of word stress, so Vietnamese learners tend to face difficulty in producing stress patterns of multisyllabic words in English language. Second, it may be assumed that the participants did not have sufficient practice in pronouncing words with accurate stress placement.

5.2 Discrepancy between participants' recognition and production of English lexical stress

There was a significant difference in the performance of the participants on the two tests of lexical stress recognition and production. This inconsistency resulted from several factors, one of which was the participants' failure to produce lexical stress contrasts in a number of cases, although they could know where the primary stress is. For example, one participant was able to recognize stress correctly in the word "employee". Yet, in the production test, this participant produced the word with two equally stressed syllables (see Figure 2). This result may suggest a negative L1 transfer effect. That is, given Vietnamese as a tonal and monosyllabic language, Vietnamese

speakers have a tendency to read out English words with the same prominence for more than one syllable or all the syllables.

Another reason was the participants' unintelligible pronunciation of some three- and four-syllable words. It is agreed that the more syllables a word has, the more difficult it is for non-native speakers to produce that word intelligibly. Despite such difficulty, the participants seemed to lack practice in producing words, especially ones with high number of syllables, thus leading to their unintelligibility of pronunciation at the word level in some cases in this investigation.
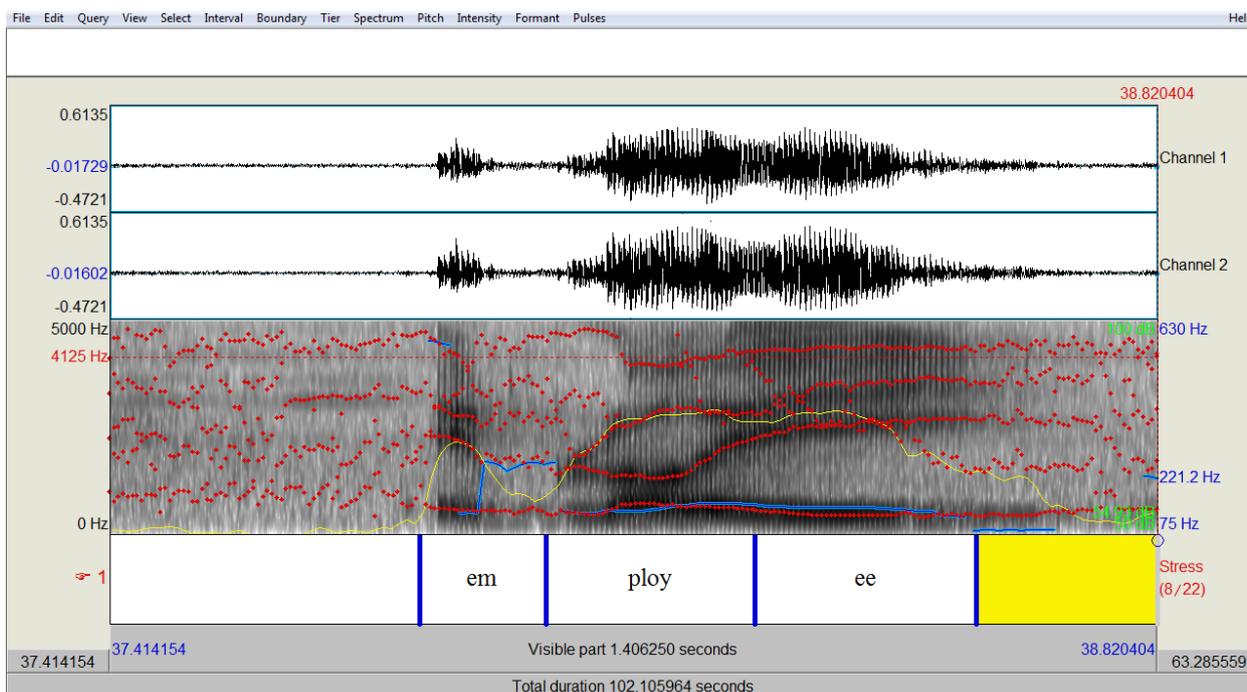
Figure 2: Spectrogram and waveforms of the word "employee" produced by a participant

The next reason was the participants' less automaticity in using lexical stress knowledge in producing words in several cases. According to Field (2004), the process of articulation requires high automaticity because fluent articulation involves "*the co-ordination of about 100 muscles at a speed that enables around 15 speech sounds to be produced every second*" (p.18). This implied that there were instances when the participants were unable to activate their mental representation of lexical stress immediately in producing words since the process of stress production is highly automatic. As a result, they sometimes misarticulate lexical stress patterns. However, in the recognition test, the participants had more time to retrieve their knowledge of lexical stress patterns, so they could locate stress in this test more correctly than in the production.

The last, but not least, important reason was the effect of emotional factors. It is known that the production of stress involves the manipulation of acoustic parameters, such as pitch, loudness and vowel duration. Therefore, personal factors like nervousness and shyness could affect the quality of stress produced by the participants.

5.3 Correlation between participants' competence in recognizing and in producing English lexical stress

In the examination of the relationship between the participants' competence in recognizing and in producing English lexical stress, the result from the Pearson's Correlation Test revealed a positive correlation between these two variables. Thus, it can be inferred that, in relation to stress placement, enhancing the participants' ability to recognize primary stress in English words would be associated with the improvement in their English lexical stress production, and vice-versa.

6. Conclusion

In conclusion, it is acknowledged that lexical stress is an important aspect of pronunciation, which EFL learners should pay attention to when learning English. Drawing on the results of this study, the participants were quite competent at recognizing stress patterns in English words, but they performed quite unsatisfactorily in terms of stress when actually reading these words. Apart from lexical stress misplacement, the disparity between the participants' recognition and production of English lexical stress could be due to their unsuccessful production of lexical stress contrasts in many cases, their unintelligible pronunciation of several three- and four-syllable words, their less automaticity in applying knowledge of stress in word production in some cases and the interference from L1. In spite of such a discrepancy, it was found that there was a positive correlation between the participants' recognition and production of stress patterns in English words.

In the context of Vietnam, successful communication with native speakers of English may be arduous for many Vietnamese learners to achieve owing to their low pronunciation competence, particularly their improper use of suprasegmental features of speech. In spoken language, stress assignment in words is perhaps one of the primary hassles in non-native settings with tonal languages like Vietnamese. It is hoped that this study can help both Vietnamese EFL teachers and learners become more aware of the problems of word stress and give greater importance to this feature of speech in formal EFL instruction. As such, it is likely that lexical stress will be no longer a negligent area in the teaching and learning of English in Vietnam in general and in the context of the study in particular.

About the author

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