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Impact of the usage of Vietnamese consonant-vowel (CV) structure on the intelligibility of Vietnamese speakers of English

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ABSTRACT

EN This paper reports on findings from an investigation into the potential impact of the mother tongue of 50 Vietnamese adult EFL learners on their English intelligibility, with a particular focus on CV (consonant - vowel) syllable structure. The data from this quantitative study indicate that participants applied the Vietnamese CV syllable structure (open syllables CV.V) to the pronunciation of English CVC syllable structure (closed syllables CVC.V particularly in polysyllabic words and words with CVL (consonant – vowel – lateral) structure, potentially affecting speech intelligibility. These outcomes contribute to research on EFL speakers' intelligibility.

Key words: CV SYLLABLE STRUCTURE, MOTHER TONGUE, EFL LEARNERS' INTELLIGIBILITY, VIETNAMESE SPEAKERS OF ENGLISH

ES El presente trabajo reporta los resultados de una investigación que se llevó a cabo con un grupo de 50 adultos vietnamitas aprendientes de inglés como lengua extranjera acerca del impacto potencial de su lengua materna en la inteligibilidad de su inglés, con un enfoque particular en la estructura silábica CV (consonante-vocal). Los datos de este estudio cuantitativo indican que los participantes aplicaron la estructura silábica vietnamita CV (sílabas abiertas CV.V) a la pronunciación de la estructura de sílaba CVC en inglés (sílabas cerradas CVC.V), particularmente en palabras polisílabas y palabras con CVL (consonante-vocal-lateral), lo cual podría afectar la inteligibilidad de su habla. Estos resultados contribuyen a la investigación sobre la inteligibilidad de los hablantes de inglés como lengua extranjera.

Palabras clave: ESTRUCTURA SILÁBICA CV, LENGUA MATERNA, INTELIGIBILIDAD DE LA ESTRUCTURA SILÁBICA CV DE APRENDIENTES DE INGLÉS COMO LENGUA EXTRANJERA, HABLANTES VIETNAMITAS DE INGLÉS.

IT Quest'articolo presenta i risultati di un'indagine condotta sul potenziale impatto della lingua materna di 50 vietnamiti adulti che studiano l'inglese come lingua straniera sulla comprensibilità del loro inglese con speciale attenzione alla struttura sillabica CV (consonante-vocale). I dati raccolti dalla presente ricerca quantitativa indicano che i partecipanti applicano la struttura sillabica CV del vietnamita (sillabe aperte CV.V) alla pronuncia della struttura sillabica CVC dell'inglese (sillabe chiuse CVC.V), specialmente in parole polisillabe e parole con struttura CVL (consonante – vocale – laterale) il che potrebbe potenzialmente incidere sulla comprensibilità del parlato. Questi risultati sono un contributo alla ricerca sulla intellegibilità dei parlanti di inglese di inglese come lingua straniera.

Parole chiave: STRUTTURA SILLABICA CV, LINGUA MATERNA, INTELLEGIBILITÀ DEGLI STUDENTI DI INGLESE COME LINGUA STRANIERA, PARLANTI VIETNAMITI DI INGLESE

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1. Introduction

English today is spoken worldwide. In the context of its globalization, interactions between diverse speakers are rapidly increasing throughout the world and intelligibility is crucial to these interactions. Reasonable intelligibility, rather than native-like pronunciation, should be the goal of phonological instruction in second language classrooms, argue studies such as Celce-Murcia, Brinton, and Goodwin (1996) and Kenworthy (1997). Reasonable intelligibility is defined by Smith (1988; 1992) as the ability of listeners to recognize words, and it is an important criterion and learning aim for EFL learners who want to use English as an International Language (EIF). While intelligibility has been investigated among EFL speakers in Association of the Southeast Asian Nations (ASEAN) settings in a few studies (e.g., Deterding, 2011; Jenkins, 2000; Kirkpatrick, 2010), the present study will provide more data on EIF intelligibility for teaching of English in the ASEAN in general and in Vietnam in particular.

In order to assist EFL learners in attaining reasonable intelligibility, we need to know what factors affect the speech output of EFL speakers. It is argued that there are various factors, such as aptitude for oral mimicry or years in an English speaking country influence the speech production of second language (L2) speakers (Purcell & Suter, 1980). Ioup and Weimberger (1987), Odlin (1989), and VanPattern (1998) suggested that the native language and negative transfer are the major sources of difficulties in inter-language phonology. Avery and Ehrlich (1992) also see the first language (L1) as a significant factor, showing that the sound pattern of the learners' first language transferred into second language and is likely the cause foreign accents, which reduce L2 speaker intelligibility. Other research supports the position that a higher degree of foreign accent is associated with lower intelligibility (Munro & Derwing, 1995; Puerto, Lacabex, & Lecumberri, 2007). Yet, although the relationship between L1 and speaker intelligibility in various respects has become an important focus of L2 pronunciation research in the last two decades, empirical studies that examine the relationship of L1 with speaker intelligibility in terms of suprasegmental features are few and their findings do not provide a significant conclusion (Beneabah, 1997; Derwing & Munro, 1997; Zielinski, 2006). Thus, it is the intention of this paper to explore this relationship.

2. Intelligibility and first language with reference to suprasegmental features

In English, suprasegemental elements of pronunciation include the following elements: syllable structures, stress, rhythm, adjustment in connected speech, prominence and intonation, pause, and pitch. These elements play a large role in English communication, as they provide crucial context and support (e.g. they determine meaning) for segmental production (Cunningham, 1998; Fromkin, Rodman, Collin, & Blair, 1990; Roach, 2002). Cunningham (2009) argues, however, that while many claims have been made as to the relationship between suprasegmentals in adult EFL learners' mother tongues and their speech intelligibility in English, few studies exist related to the impact of mother tongue on second language pronunciation. And in the few studies on suprasegemental features and L2 intelligibility, the results have been inconclusive. For instance, in studies on intonation (Munro & Derwing, 1995), prosody (Derwing & Munro, 1997), word stress and syllable stress errors (Benrabah, 1997; Suenobu, Kanzaki, & Yamane, 1992; Zielinski, 2006) and incorrect pause insertion (Suenobu et al., 1992), none of the authors came to a significant conclusion, although Benrabah (1997) and Suenobu et al. (1992) suggested there was some support for the idea that both word stress errors and incorrect pause insertion have the potential to affect intelligibility. Zielinski (2006) found that syllable stress errors are also a potential factor in reducing speaker intelligibility for adult Vietnamese ESL speakers' intelligibility by three native (Australian) listeners. This study suggested that the Vietnamese speakers' syllable stress pattern was sufficiently different from standard use to mislead the listeners, who had to concentrate heavily to achieve understanding. Additionally, Nakishima's (2006) findings in his research report from reanalyzing the data of Japanese adult EFL learners errors presented by Jenkins (2000) indicated 75 percent of the errors, (which Jenkins treated as segmental), could involve suprasegmental problems. Nakishima categorised the individual sound errors as suprasegmental, brought about by nasals that occur only at the end of a syllable, non-reduction of weak syllables (e.g. [sʌkɑ:] as in "soccer club"), and Japanese syllable structure. He further stated that these errors were mainly caused by the Japanese open syllables (CV#V) applied to pronounce English closed syllables (CVC#V), making words unlinked in their speech since Japanese has a very limited number of final syllable consonants (Nakishima, 2006). This view raises a hypothesis for further studies and specifically prompts this study, as the open syllable structure is probably used to articulate English closed syllables by Vietnamese learners due to the very limited final consonants in Vietnamese, reducing their English intelligibility.

The current quantitative research study aims at providing insight into Vietnamese CV syllable structure (open syllables CV.V) applied in the pronunciation of CVC syllable structure (closed syllables CVC.V) in English words, particularly polysyllabic words and words with CVL structure, (consonant–vowel–lateral), probably affecting Vietnamese adult EFL speakers' speech intelligibility. The usage of the CV structure in these cases has the potential to give rise to new words and non-English words from the intended words or hiatus between the syllables of polysyllabic words, producing "strange" prosody to interlocutors, as described in the next section. More precisely, this study focuses on examining how 50 Vietnamese university students' English intelligibility was affected by errors that are analysable as a result of the application of Vietnamese CV syllable structure in articulation of English closed syllables containing CVL and polysyllabic words in a pronunciation test and in their oral output. It is the intention of this paper to contribute to suprasegmental research and reduce the gap in the body of knowledge in this field.

3. English and Vietnamese syllable structures

Differences of syllable structures between the Vietnamese language and the English language may be one of the reasons why participants have trouble with English polysyllabic words and words associated with the CVL structure.

In English, there are various types of syllable structure, such as consonant-vowel (CV) then CVC, CCVC, CCCVC, CCCVCC (Erickson, 2001). Vietnamese is an Asian tonal language with a simpler syllable structure than English. In Vietnamese, like in Thai and Chinese, a syllable consists of two compulsory elements: a tone and a nuclear vowel. Beside the four tones shared with Thai and Chinese, namely mid, low, falling, rising, (Mok, 2007; Zhang, 1996), Vietnamese has a low-falling-rising tone and a low-falling broken tone. Ngo (2006) describes that in Vietnamese, "[e]ach syllable consists of two mandatory components: a tone and a nuclear vowel; in addition, three optional components may be present: an initial consonant, a sound indicating the labialization (rounding of the lips) of the syllable, and a final consonant or semivowel" (p. 7). In other words, the initial consonant, labialization and final consonant/semivowel are not always present. Thus, the syllable structure of the Vietnamese language can be displayed as in Figure 1.

<table>
<tr><td colspan="4">Tone</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td>Syllable-initial sound</td><td>Medial (labialization)
/u/</td><td>Principal/Nuclear vowel</td><td>Final sound or semi vowel</td></tr>
</table>

Figure 1. Vietnamese syllable structure (adapted from Doan, 1999; Ngo, 2006; Tang, 2007)

CV or CVC plus a tone are the two most common syllable structures in the Vietnamese language. A consonant-vowel (CV) syllable, like a vowel only (V) syllable, is classified as open syllable, or a syllable that ends with a vowel (Cox, Harrington, & Mannell, 2009). As Cox et al. (2009) state, "[n]o syllable has more than one vowel. Vowel-like sequences in a single syllable are interpreted as diphthongs or semi-vowel plus vowel sequences" (p. 3). Therefore, the vowels in the open syllable CV structure may include diphthongs or a vowel plus semi-vowel. A consonant-vowel-consonant (CVC) syllable is a closed syllable, which is defined by Cox et al. (2009) and Roach (2002) as a syllable that has at least one final consonant. These syllable structures (CV and CVC) can be illustrated with CV ***ba*** [ba:] (father), and CVC ***bang*** *[ba:ŋ]* (state) respectively. In Vietnamese, the frequency of open CV syllable structure is much higher than that of closed CVC syllable structure, as there are only six syllable-final consonants in Vietnamese (/p/, /t/, /k/, /n/, /ng/, and /m/) (Mok, 2007; Ngo, 2006), compared to 54 syllable-final consonants in English (Tang, 2007). Meanwhile, the Vietnamese language has 14 vowels and 27 diphthongs and triphthongs compared to 20 vowels and only 5 diphthongs in English (Roach, 2002). Tang (2007) stated, "[t]he English and Vietnamese languages share seven mono-vowels" (p. 7), while the vowel /ə/, listed as unshared by Tang, is considered to be a shared vowel by Dang (1998) and Ngo (2006). The latter also added to the shared list four diphthongs in English, called principal vowels in combination with final semi-vowels /i/ and /u/ in Vietnamese. Figure 2 and Figure 3 below show the final consonants and the vowels in English that are shared and unshared with Vietnamese.

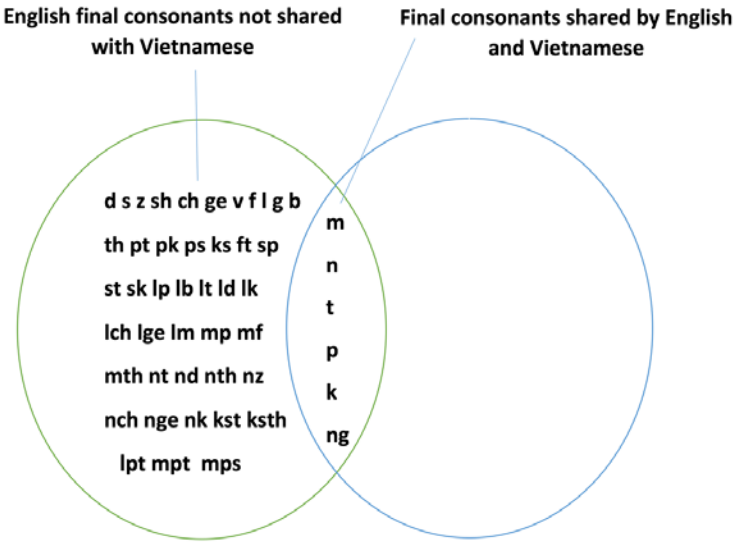

Figure 2. English final consonants shared or unshared by the Vietnamese language (adapted from Dang, 2014)

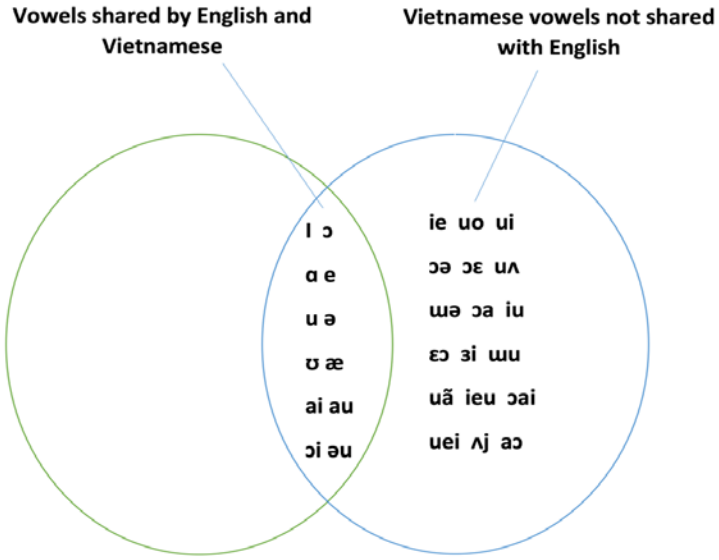

Figure 3. Vietnamese vowels shared and unshared by the English language (Dang, 2014)

One hypothesis arising from the differences of the segmental elements between the two languages is that Vietnamese adult EFL/ESL learners may use the Vietnamese open syllable CV when producing the English closed syllable CVC, making it hard for interlocutors to recognize the target words. In English, the distinction between CV and CVC is significant in determining meaning. The presence of a coda in a CVC syllable is contrastive to a CV syllable, when the two structures share the same vowel. For instance, ***say*** /seI/ and ***he*** /hi/ are different from ***sale*** /seIl/ & ***heal*** /hil/ respectively because of the final phoneme /l/. For Vietnamese adult EFL/ESL learners, because the final /l/ does not exist in the Vietnamese closed syllable CVC, ***sale*** /seIl/ and ***heal*** /hil/ sounds are heard to be similar to [sɛɔ] and [hiu] (Dang, 2006). One reason that speakers may substitute the open syllable CV for the closed syllable CVC might be the unshared vowels and

unshared syllable final consonants between Vietnamese and English. In a previous study conducted by the author of this article, Dang (2006) showed that CVC syllables in which L is the lateral consonant are often converted into various forms of open syllables with a CV structure. For instance, ***hill*** or ***heal*** will be produced as hiu/hieu; ***sell*** or ***sail*** will be produced as seƆ; ***smile***/***mile*** will produced as [smaI]/[maI].

A secondary hypothesis is that the Vietnamese open syllable CV structure might be used to pronounce English CVC syllables most frequently in polysyllabic words with a sequence of CVC.VC. In contrast to the CV for CVC substitution in monosyllabic words, this substitution in polysyllabic words also serves to make the prosody strange to listeners.

Part of this stems from the way that consonants work in polysyllabic words in English. In the English syllable structure, the maximum codas principle holds that a syllable must not end with a short vowel (Roach, 2002, p. 47). Therefore, for instance, ***botany*** is separated into three syllables by a hyphen as follows: bot-an-i, which coincides with the bot.an.i in Webster's New World Dictionary in which the dot (.) is a syllable boundary. Such division of the syllables has also been applied in Cambridge Dictionary as shown as /'bɒt.ən.i/ (Cambridge Dictionary.org), supporting Roach's view. However, based on the maximum onset principle many linguists suggest that phonemes /t/ and /n/ really belong to the second syllable and third syllable respectively. Roach (2002) proposes that both principles may be at play, with final syllabic consonants serving as initial ones of the following syllables. According to Roach (2002), "[i]n English, consonants have been analyzed as acting simultaneously as the coda of one syllable and the onset of the following syllable, as in 'bellow' bel-low, a phenomenon known as ambisyllabicity" (p. 49). The term accounts for connected sounds in polysyllabic words in English. Therefore, ***botany*** is linked as /bɔtəni/.

In contrast, in Vietnamese, as in Thai, all final consonants (including /n/ and /t/ in ***botany***) are unreleased with no audible explosion (Doan, 1999; Mok, 2007). This is why the words ***xem ô-tô*** /sem ≠ o.to/ (to look at automobiles) and ***xe mô-tô*** /se ≠ mo.to/(motopeds) are pronounced differently. In this pair, the final nasal sound /m/ (as in ***xem***) is unreleased whereas the initial /m/ (as in ***mô***) is explosive (Nguyen, 1987, p. 778). Perez and Carty (2004), suggest that this is why "Vietnamese students tend to drop English final consonant sounds" (p. 204). Following the Vietnamese pronunciation of final consonants, the /t/ and /n/ in **botany** would not be linked to both their preceding and following vowels. Instead, they would be considered only as the initial consonants of the second syllable and the third syllable respectively. In other words, the two initial syllables of ***botany*** would become open syllables. Therefore, based on the Vietnamese open syllable CV, ***botany*** might be produced as bɔ/ tə/ni clearly and separately syllable by syllable without connected syllables. Such a pronunciation habit is more likely to happen to polysyllabic words which are made up of closed syllables with final consonants unshared by the Vietnamese. This is underpinned by Nakashima (2006), who suggested, "[a]lmost all English closed syllables are pronounced as open syllables by Japanese English speakers since there are a very limited number of consonants in final syllabic position" (pp. 9-10).

4. Measurement of intelligibility

Munro et al. (2006) pointed out that a range of diverse techniques and methods have been employed by scholars to explore non-native speakers' intelligibility, including listening comprehension tests (Anderson-Hsieh & Koehler, 1988), cloze tests (Smith & Rafiqzad, 1979), and grammatical paraphrase task (Ingram & Nguyen 2016). The choice of which of these methods to employ depends on the features of non-native speakers' speech that are targeted for measurement of intelligibility. Some researchers (e.g. Water, 2002) have employed pre-selected speech stimuli for participants based on the assumption that non-native speakers' intelligibility is significantly influenced by their confusion between voiced and voiceless sounds or short and long vowel sounds. For instance, Water (2002, as cited in James, 2006, p. 8), in focusing on the pronunciations of CVC words, only used four minimal pairs (cap/cab, pick/pig, pot/pod, beet-bead) to test word-recognition intelligibility. Water's findings reveal that American English listeners frequently could not distinguish between the final voiceless and voiced consonants of the test words produced by ESL/EFL speakers (Japanese and Taiwanese). He therefore concluded that in order to improve speech intelligibility, English speaking instruction should have exercises of both pronouncing and distinguishing words with voiced and voiceless final consonants.

Speech intelligibility with a particular focus on prosody can be measured and evaluated by using technology. This method focuses on examining the prosodic differences in speech of non-native speakers (NNSs) and native speakers (NSs) in the range between the highest and lowest pitch for the falling tones and/or the rising tones. While a significant difference in range between NNSs and NSs is possible, this does

not appear to influence intelligibility: NNS speech can be intelligible in spite of this difference in the range of falling tones and rising tones (Binghadeer, 2008). This approach is also found in the studies conducted by Derwing & Munro (1997), Trofimovich and Baker (2006), who measured speakers' intelligibility in suprasegmentals by removing most of the segmental information, while leaving prosodic features largely intact. However, the effect of suprasegemental features on intelligibility was inconclusive. Thus, the effects of prosody and suprasegmental features should be explored further.

It is also important to investigate the approaches that are commonly used to measure ELS or EFL learners' intelligibility. Dictation tasks have been accepted to be one of the common approaches to evaluate L2 speakers' verbal intelligibility with reference to segmental features. In these dictation tasks, listeners are requested to write out speech utterances they hear, and the number of the words which are correctly interpreted is used as an index of speech intelligibility. This method was used in the studies conducted by Burda, Scherz, Hagerman, and Edwards (2003), Derwing and Munro (1997), and Munro, Derwing, and Morton (2006).

In the current research, dictation tasks were applied to identify utterances at syllable structure level. This is largely because potential errors would appear in words with final syllabic consonant /l/ and in polysyllabic words which were likely to be wrongly transcribed or missed mainly due to the application of open syllable CV in the pronunciation test.

5. Theoretical framework

From previous studies (e.g. Derwing & Morton, 2006; Derwing & Munro, 1997), the following theoretical framework has been developed (Figure 4). In this framework, transfer from the first language (Vietnamese, with an open syllable structure) to the second language (English, with a closed syllable structure) is presumed to have a negative effect on intelligibility of the speakers' English.

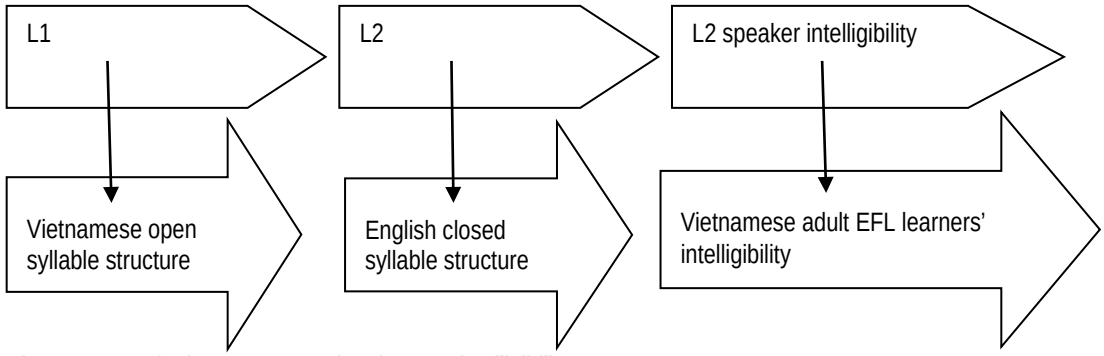

Figure 4. Transfer between L1 and L2 impacts intelligibility

6. Methods

This quantitative study involved collecting data from university students in Vietnam via a pronunciation test. This article attempts to respond to the following two research questions:

1. Do syllable word errors influence Vietnamese speakers' intelligibility on an English pronunciation test?
2. If so, how are these errors affected by the Vietnamese speakers' CV syllable structure?

6.1. Participants

Participants were 50 first-year students aged between 19 and 20 from the English Department of a university in Vietnam. They were all studying English for teachers, had seven years of English courses in high school taught by Vietnamese English teachers, and had been learning English at the university for more than one semester. The total number of the first-year students who majored in English for teachers is 250 or more, and students were divided into five classes. These students were usually better at English, particularly in speaking, than those who majored in other fields both from their university and from other universities. The curriculum for Year 1 covered English subjects associated with instruction in reading, writing, speaking, listening, grammar, and phonetics. None of them had stayed in English-speaking countries. In other words, they all had the same background of English learning and English exposure. Importantly, the sample was

decided on the basis of sample size and the confidence interval with the idea that "larger samples yield narrower confidence intervals" (Cooksey, 2007, p. 356). In this study, the confidence interval was 1/5 (50/250) from the target population (250). In other words, a random sample gave each student a 1 in 5 chance in the study or a probability of selection of 0.2. Such a probability sample meets precision requirements (Berends, 2004). Therefore, it could be said that this sample was useful for gathering information on the set research questions and support the hypothesis.

6.2. Judges

Listeners were selected based on two factors: their linguistic proficiency and their familiarity with Vietnamese NNS English. As Kenworthy (1997) suggested "[t]here are two listener factors in determining the speaker intelligibility; first the listener's familiarity with the respective foreign accent and, second, the listener's ability to use contextual clues when listening" (p. 14). Raters were selected who had no or very little contact with Vietnamese speakers, and who had a very high level of English proficiency. A group of ten listeners—five NS listeners (three Australian; two British) and five NNS listeners—who met these criteria were chosen to rate the 50 participating Vietnamese adult EFL speakers' intelligibility. The five non-native speakers were selected from a list of the researcher's colleagues. All had qualifications at the Masters level in Applied Linguistics or TESOL, were fluent in English speaking and listening skills, and had some years' experience in teaching English. The NNS assessors were Iranian, Chinese, Indian-Singaporean, Iraqi, and Dutch. As for the five native speakers, the selection was also made through the Vietnamese–accented English researcher's communications with assessors who rarely interacted or never talked with the researcher before. Such communications told the researcher whether or not they were friendly and how frequently they contacted Vietnamese-accented English speakers in order to minimize the bias which might be caused by listeners' attitude to foreign accents. This is largely because native (L1) listeners frequently have a negative attitude towards foreign-accented speakers and are known to be highly sensitive to foreignness in speech (e.g., Munro et al., 2006).

6.3. Data collection

A pronunciation test was designed by selecting from a reading text in an IELTS listening textbook from Scovell, Pastellas, and Knobel (2007), in which the vocabulary was not unfamiliar to the participants[1]. Participants read the text consisting of 312 words in which 70 are related to the aim of the current paper: English polysyllabic words with the closed English syllable structure (CVC.VC.VC.) and/or single words associated with the CVL structure (See Appendix 1 for text). This paper is concerned with the errors emerging from these 70 words, but ignores the other errors in the talk, as these were not relevant to the aims of the present study. This reading was tape-recorded by the researcher, resulting in 50 different recordings. Handouts of the text were given to the participants at the first meeting in the classroom, where the researcher presented the aims of the research, instructions about the pronunciation test, and the method of the measurement of their pronunciation performance. To make sure that all the informants understand and were able to read the text aloud meaningfully, they were asked to read it with the help of a dictionary at home before making an appointment with the researcher for the purpose of recording their pronunciation performance in a class room of the university.

To measure the participants' speech intelligibility, first, the recordings have been randomly coded 01 to 50 and burned to 10 CDs of which each contains five recordings. Each of the ten judges was then requested to listen to a subset of five recordings assigned to him or her and write down verbatim what he or she heard. Judges were asked to write down even non-English words because it was hoped that this would provide evidence relevant to the study. The students' pronunciation performance was measured based on the number of words which the judges found intelligible and could transcribe after listening three times to the recording. This was considered to be a dictation task for the ten judges. The 50 subjects' pronunciation performance was measured through the number of errors from the ten raters' mis-transcribed words at syllable structure level. The judges were also requested to make their comments on each recording about the speaker's speech production, adding some insights into the spoken data. However, only one of them did it.

[1] In fact, all words in the reading passage were ones that the students had encountered in previous reading comprehension classes. More complicated sentences have been found in English textbooks for high school and university students. It is the usual practice in Vietnam that two or three students were often asked to read a reading passage during a reading lesson while the other students were listening in silence.

6.3.1. Reliability of the pronunciation test

Several factors that could negatively influence the reliability of this research have been taken into careful consideration. Previous studies found that the faster speaking rate was, the lower the listeners' comprehension was. This was true for all speakers, both native and non-native (Anderson-Hsieh & Koehler, 1988; Llurda, 2000). In this paper, speaking rate is measured via the actual number of syllables per second of each speaker. Speaking rates of more than 4.15 syllables per second were judged to be fast, whereas rates of below 3 syllables per second were labeled as low (Llurda, 2000). In the current study, the judgment was made by dividing the total number of syllables (496) counted from 312 words of the text by the total seconds of each recording (See appendix 1). Based on these criteria, the outcomes have shown that none of the speakers' rates were considered "fast" as the fastest speaking rate in this study was calculated at 3.67 syllables per second compared to 4.15 or more syllables per second labeled as fast as mentioned above (Llurda, 2000). However, to ensure that speaking rate is not the potential cause in the current study, a statistical comparison of pronunciation errors (counted) was made between a group of 12 speakers with the fastest speaking rates of 3 – 3.67 syllables per second and a group of 12 speakers with the slowest speaking rates of 2.08 – 2.45 syllables per second. The results show that there is no significant difference in error means between these two groups. Therefore, it could be concluded that speaker rate did not influence intelligibility in this study.

The second potential confounding factor is that word recognition might have become easier with every new recording because of the high chance of having already heard some of the words in their correct forms and increased familiarity with the context. Potential order effects were mitigated by randomly assigning each of the ten judges to listen to their five different recordings in different orders. Additionally, an examination of two sets of recording heard by two judges indicates that although each listener had heard the same passage five times, they were not better able to recognize words in later recordings simply because they knew what to expect. For instance, the word "allocate" was transcribed correctly by Judge 1 in the first recording, but it was missed or wrongly transcribed in the later four recordings. The word "expectations" was accurately interpreted in the second recording assigned to Judge 2 but it was missed or wrongly transcribed in the three last recordings. This would also indicate that context familiarity is not a potential issue either.

6.4. Data analysis

The judges' transcriptions of the 70 test words as produced by the 50 participants were examined in order to determine the type of errors affecting speaker intelligibility. Syllable errors were recognized through mis-transcribed words that demonstrated the hypotheses discussed above. For instance, "where below" in transcript 4, transcript 5, transcript 10, transcript 18, and transcript 44, which was a result of wrong transcription of the original "well below," could be verified as a syllable error. This is because these errors were brought about by the application of the Vietnamese open syllable CV (in "where") to produce closed syllable CVL (in "well"). Based on this, total of syllable errors were counted for each transcript.

7. Findings and discussion

Three hundred sixty syllable errors were counted in the 50 transcripts. As seen in Table 1, 231 were classified as polysyllabic errors, accounting for 64.17%, compared to 35.83% CVL errors (129). This table shows that on average, 7.2 errors (Error Mean) were found per transcript, indicating that every 10 original words from 70 test words had a syllable error. Additionally, many words were, in general, omitted in almost all transcripts.

Table 1
Descriptive statistics about 50 speakers' syllable errors

Participants (N)	Mean	SD	Median	Mode	Min	Max	Sum
50	7.2	2.276	7	10 & 6	4	13	360

The 360 syllable errors, a considerable number, tell us about the impact of syllable errors on the intelligibility of the speech of the investigated cohort, and it provides evidence that speakers' intelligibility is likely affected by the application of their first language in the articulation of English. This is demonstrated in detail in the following sections.

7.1. Seventy test words in the pronunciation test

Based on the literature review, it was expected that errors resulting from the application of the Vietnamese CV syllable structure to CVL and poly-syllabic words would occur in 70 words out of 312 in the text. These include 23 single-syllable words containing the final syllabic lateral /l/ and 47 polysyllabic words in which the final syllabic consonants are recognized as ambi-syllabic (CVC.V(C)). For instance, according to this hypothesis, in the word "pur.pos.es" (ending with CVC.VC) belong to this sequence, the open syllable would be applied, to produce pur.**po.ses** , making a strange prosody to the listeners. The seventy test words and their expected syllable errors are included in Table 2 below.

Table 2
Test words in which errors likely result from application of open syllable CV structure

Monosyllabic words with syllabic consonant /l/ (*N* = 23) and expected mispronunciation			
▪ all (6)	[ɔ:], [a;] or [əu]	▪ pulse	[pə:s]
▪ will (2)	[wju:]	▪ we'll	[wi:] or [wju:]
▪ skill	[skju:]	▪ you'll	[ju:]
▪ well-below	[weɔ bl ləu]	▪ tell	[teɔ]
▪ well	[weɔ]	▪ also	['əusəu] or ['ɔsəu]
▪ results	[rl'zɔts] or [ri'səts]	▪ controlled	[kən'trəu(d)]
▪ material	[mə'tlərіəu]	▪ still	[stju:]
▪ stressful	['stresfəu]	▪ failed	[feɔ]or [fa:]
▪ little	['llt^{h}əu]		

Poly-syllabic words (*N* = 47)			
Division of syllables based on onset and coda principles, in reference to Cambridge Dictionary (frequency if > 1)		Division of English polysyllabic words on the basis of hypothesis 2 described in the literature review	
ex.am (5)	rec.og.nize	e.xam (5)	re.cog.nize
un.der.es.tim.ate (2)	phys.ic.all.y	un.der.es.ti.mate (2)	phy.si.ca.lly
all.o.cate (2)	sweat.y	a.llo ca.te (2)	swea.ty
aff.ect (2)	eff.ec.tive	a.ffect (2)	e.ffec.tive
rati.on.all.y (2)	man.age	ra.tio.na.lly (2)	ma.nage
stud.y (2)	phys.i.o.log.ic.al,	stu.dy (2)	phy.si.o.lo.gi.cal
diff.er.ent (2)	psy.chol.og.ic.all.y	di.ffe.rent (2)	psy.cho.lo.gi.ca.lly,
pur.pos.es	par.tic.u.larl.y	pur.po.ses	par.ti.cu.lar.ly
col.ours	rep.orts	co.lours	re.ports
per.form.ance	feel-ing	per.for.mance	fee.ling
con.fid.ent	rel.y	con.fi.dent	re.ly
com.fort.able	rid.ic.u.lous.ly	com.for.ta.ble	ri.di.cu.lous.ly
sit.u.a.tion	o.ver.es.tim.at.ed	si.tu.a.tio	o.ver.es.ti.ma.ted
or.gan.ized	gen.er.all.y	or.ga.nized	ge.ne.ra.lly
eff.ect	att.end	e.ffect	a.ttend
ac.ad.em.ic	an.oth.er	a.ca.de.mic	a.no.ther
ab.il.i.ty	foll.ow-up	a.bi.li.ty	fo.llow-up,
ass.ess	ach.ieve	a.ssess	a.chieve
press.ure		pre.ssure,	

7.2. CVL word and polysyllabic word errors caused by the application of open syllable structure

The data from Table 3 and Table 4 below provide evidence that the CVL word and polysyllabic word errors are mainly caused by the use of the CV structure for pronouncing these words in the pronunciation test, strongly affecting their intelligibility.

7.2.1. CV to CVL

Table 3 below shows errors in the pronunciation test that were caused by the application of the Vietnamese open CV to produce English closed CVL. The first column contains the original English CVL words with the final syllabic lateral /l/, the second column shows the CV or CVN variants of the original words produced by participants, and third column shows which listener and transcript number the variant(s) come

from. These variants are regarded as evidence of the participants' pronunciation errors, brought about by application of the Vietnamese open syllable CV to the English closed syllable CVL in their speech.

Table 3
Errors indicating the tendency of the application of CV to CVL

English Word (CVL)	Transcribed as (Vietnamese CV or CVN)	Listener & Transcript Number
All	Are	All transcripts
	Or, a	L5.T23, L2.T10
Still	Use(d)	L1.T1
	Stay	L2.T6
	Stew	L7.T31
Skill	Skew	L9.T41
Well-below	Where-below	L1.T5, L2.T10, L4.T18 L9.T44
	Or below	L8.T36
	Far below	L10.T50
	..below	L9.T43
Failed	Fair	L2.T6
	Far	L10.T50
Results	Research	L4.T16, L10.T46,47,49
	Precious	L7.T33
	The show	L8.T32
We'll	We	All transcripts
You will need	You unit	L4.T19

Table 3 also shows that there are a great number of variants from the 13 original CVL words. The specific variants were identified as follows:

- / ɔ:l/ as in "all" is pronounced as [ɑ:] as in "are" or [ɔ:] as in "or". The table shows that the "are" appears in the 50 transcripts written by all the ten listeners, indicating that the variant [ɑ:] from the /ɔ:l/ is almost certainly resulted from the application of Vietnamese open syllables to produce the English closed syllable CVL.
- /Il/ as in "still" is converted into [ju:] as in "use(d)" and "stew" found in transcript 1 and transcript 31 respectively, or into [eɪ] as in "stay" interpreted by listener 2 in transcript 6 while /Il/as in "skill" is also shifted into [ju:] as in "skew". It can be inferred from these variations the [ju:] (sound like [iu] in Vietnamese) applied to produce /Il/ is more recurrent than the other forms [eɪ] .
- Other findings identified are: "well-below" could have been articulated "where below" by speaker 5, speaker 10 and speaker 18, or "or below", and "far below" by other speakers ; "failed" has been recognized as "fair", "far" by listeners 2 in transcript 6 and listener 10 in transcript 50 respectively. Neither final consonant /l/ nor final semi vowel /r/ exists in Vietnamese. Neither final consonant /l/ nor final semi vowel /r/ exists in Vietnamese. The negative transfer could have been caused by the application of the clear CV "*que"* [weə] in Vietnamese (means "stick" in English) to produce "well" as in well-below because "*que"* sounds like [weə]"where" in English. Similarly, the negative transfer could also happen as shown in "far" almost certainly as a result of the application of the clear CV /fa:/. This is largely because the word "*pha"* in Vietnamese ("stage" or "current" in English), was probably applied to produce "failed", since "*pha"* sounds like "far" in English. Such transmission of the English CVL into different forms of CV could also be found in the other words in Table 3, reflecting that the Vietnamese open syllable CV could have been applied to pronounce the English CVL.
- Attention should be paid to double errors in single words which could be resulted either from the application of Vietnamese CV in production of the English CVL or from another cause. For instance, the word "results", has been interpreted as "research", "precious", and "the show". Whether or not other errors like [ʧ] in "research", [s] in "precious", and no final /st/ in "the show" as a result of conversion of the final cluster /st/ as in "results" under the influence of other causes might account for these variants is a contentious point. However, closer examination of two of the three variations

from the 'results' reveals that there is transmission from open syllable CVL as /zʌl/ in the second syllable of "results" to open syllables as [səː] in 'research' and [ʃəː] in "precious" because of no existence of the final syllabic consonant in Vietnamese, leading to the application of the open syllable CV [səː] or [ʃə] in production of CVL /zʌl/. In other words, replacing the closed syllable /ʌl/ with the open syllable /ə/ gave clear evidence about a large influence on such transcripts. That is, the phonetic variant [ə] from the phonemic representation of /ʌl/ could have made the listeners think up other words instead of "results", in which the consonants sound nearly alike. All in all, the alterations show that various CV forms such as [səː] in "research", [ʃə] in "precious" and [ʃəʊ] in "the show" have been applied to produce CVL /zʌl/ in "results", reflecting the fact that the Vietnamese open syllable CV could have been employed to pronounce the English closed syllable CVL.

7.2.2. CV to polysyllabic words

A clear separation between two or more adjacent syllables in multi-syllabic words in English has been shown to be a major factor in making the participant's speech unintelligible, as illustrated above. This is mainly caused by the application of the CV structure to the participant's pronunciation of English multi-syllabic words associated with the sequence of CVC.V(C), making the syllables in adjacency unlinked. Table 4 below shows evidence of such pronunciation habits.

When speakers apply open syllable pronunciation to pronounce closed syllables in polysyllabic words, they produce unlinked syllables which can result in listeners hearing new words or phrases, or even non-English words, which are very unlike the original words used in the pronunciation test. This is illustrated in Table 4, which shows that a single polysyllabic word can have several variants as a consequence of such pronunciation habits. Some words, like "exam," were misheard in all 50 transcriptions, while different variants of the other original words can be found in different transcripts by different judges. For instance, the original "allocate" is called a polysyllabic word since it is made up of three syllables, which are linked together in natural speech. This pronunciation sounds reasonable on the basis of the maximum onset and coda principles which require that a short vowel never ends a syllable (Roach, 2002), indicating that the first syllable of the "allocate" s /al/. However, this is a controversial problem. Many linguists have come up with a new term for the consonant /l/ in this context as semi-syllabic (Roach, 2002). In other words, this lateral belongs to both the first syllable and the second syllable, implying that it is linked between the first syllable and second syllable in pronunciation. Additionally, the variants of this word demonstrate a clear separation between them. This is shown in Table 4 that the pronunciation of "allocate" has been transcribed as "or locate" in transcript 41 by listener 9 or "air locate" by listener 10 in transcript 50. Both variants show a clear split-up of the vowel of the first syllable from its final lateral as a result of the application of open syllable CV. It can be inferred that this separation probably makes hiatuses between the first syllable and second syllable, mainly involving creation of the new words (variants) "or locate" and "air locate", whose meanings are quite different from that of the original word. The split-up can also be found in many more variants from the "allocate" such as, "are ok" in transcript 34, "that ok" in transcript 49 and others by different listeners, which reflect the fact that the participants have applied the Vietnamese open syllable CV to articulate closed syllables of this word. All of this indicates that the application of the open syllable CV in articulation of English polysyllabic words associated with a sequence of CVC.V(C) really creates strange prosody for the interlocutors, leading to new words or phrases from the original words.

Many more demonstrations of such a pronunciation habit can be found based on a variety of new words or phrases from the other polysyllabic words in Table 4, like "a fact" from "affect" in transcript 46, "we lie" from "rely" in transcript 2, or "a set" from "assess" in transcript 34 and so forth. One more example from the table which needs to be noted is about different variants of the original, "psychologically", reflecting the usage of the open syllable CV to the sequence of CVC.V(C). This is shown in the last four syllables, "log.ic.all.y" of the "psychologically", which have been transferred into "psychology call it" in transcript 21, "spychology colleague" in transcript 33, "biology colleague" in transcript 32 and "psychology course" in transcript 10. All of these variants show the open syllable /y/ applied to the fourth closed syllable /ic/, rather than linking them together as a single word. This clear separation was mistakenly recognized as two separate words by the hearers. Moreover, the hyphen (-) is used between the syllables of divided words as an indicator of the application of CV in articulation of English polysyllabic words. As can be seen from Table 4, many polysyllabic words were transcribed with the hyphen between the syllables by judge 10, who had a Master degree in Applied Linguistics degree and who had been professionally taught English in Australia for many years. Such transcriptions are supported by her overall comments on the five recordings assigned to her to assess that

there is a clear separation of multisyllabic words in the participants' pronunciation. "Spy-cho-lo-gi-cal-ly" from the original word, "psychologically"; "phy-si-lo-gi-cal" from the "physiological"; "a-llo-cate" from the "allocate" and so forth. Her divisions of the syllables reflect that the open syllables are being employed to articulate the closed syllables of the polysyllabic words.

Table 4
Errors indicating the tendency of the application of open syllable CV to multisyllabic words

English Word	Transcribed as	Listener & Transcript
Exam time	The same (time)	All transcripts
Exam (performance)	The same (performance)	L2.T8, T9, L4.T17 L5.T23
Exam (paper)	The same (paper)	L1-L10 (T1-T50)
Physiological	Physical or logical	L7.T33
	Seek for logical	L9.T43
	Physiolo..	L2.T8
	…logical	L2.T9
	Phy-si-lo-gi-cal	L50.T46_T50
Psychologically	Psychology call it	L4.T20
	Psychology colleague	L7.T33
	Biology colleague	L7.T32
	Psychology causes	L7.T35
	Psychology course	L10.T47
	Psy-cho-lo-gi-ca-ly	L10.T46,48,49,50
Assess	..sence	L5.T23
	a set	L10.T46
Physically	Physics colleague	L7.T34
	Phy-si-cal-ly (or)	L10.T46-T50
	phy si ca lly	
Purposes	Purpo	L7.T34
Rely	We lie	L1.T2
Rationally	Ra-tio-nal-ly	L4.T16
Attend	a-tend	L10.T46-T50
(they) allocate	(they) allow…	L5.T21
	(they) are ok	L7.T34
	Or locate, ..locate	L9.T44, T42
	Our case	L10.T46
	Other click	L10.T47
	That ok	L10.T49
	Ask acate	L10.T49
	Air locate	L10.T50
Allocate (to study)	A located study	L4.17
	a-llo-cate	L10.T47-50
Overestimate	….timic	L7.T31
	Over-es-ti-mate	L10.T46, T50
Underestimated	Under-es-ti-ma-ted	L10.T49, T50
Most effective way	Mostly motive way	L2.T9
	e-ffec-ti-ve	L10.T46_50
Achieve	Chew	L1.T2
	A chief	L10.T50
Affect	A fact	L10.T46
	a-ffect	L10.T47_T50
Ridiculously	Ri-di-cu-lous-ly	L10.T48_&50

As discussed in the literature review above, the impact of suprasegemental features on intelligibility was inconclusive in previous studies (Beneabah, 1997; Derwing & Munro, 1997; Munro & Derwing, 1995,

Zielinski, 2006, etc.). Despite this, there is agreement that pronunciation of suprasegmentals needs to be explicitly taught to L2 learners (Anderson-Hsieh, Johnson, & Koehler, 1992; Anderson-Hsieh, Riney, & Koehler, 1994; Celce-Murcia, et al., 1996; Gilbert, 1995; McNerney & Mendelsohn, 1992; Morley, 1994). Anderson-Hsieh et al. (1992) wrote that "[s]uprasegmental errors have a more serious effect on intelligibility than segmental errors," because "prosody provides the framework for utterances and directs the listener's attention to information the speaker regards as important" (p. 531). The current research study has provided evidence for syllable structure errors (part of suprasegmental features) that result from the application of Vietnamese open syllable structure (CV.CV.CV) to produce the closed English syllable structure (CVC.VC.VC.) in English polysyllabic words and in single words associated with the CVL structure (L is lateral). It shows that the usage of the CV structure in these cases has the potential to give rise to new words and non-English words rather than the intended words, or that clear separation between the syllables of polysyllabic words results in unusual prosody for interlocutors. This significantly reduces the EFL speakers' intelligibility. This work, thus, contributes to understanding the source of Vietnamese adult speakers' pronunciation problems with reference to syllable structure, which were not addressed in the previous study by Zielinski (2006).

7.3. Alternate sources of syllable errors

Alternate sources of errors may appear to be present through some of the transcribed words. Some errors might be recognized as consonant omission errors ("*still*" misheard "*stay*"), simultaneous consonant quality errors *("rely"* misheard as *"we lie"*), vowel quality errors *("failed"* misheard as *"far"*), consonant cluster errors *("still"* misheard as *"used"*), or word stress and linking errors *("psychologically"* misheard as *"psychology call it"*). Yet, syllable errors are still the mostly likely sources of even these errors. For instance, what might seem to be a consonant quality error in *"rely" /rel.y/* (CVC.V), heard as "we lie," is likely a result of the two syllables being pronounced separately as re-ly (CV.CV) because [re] is understood by Vietnamese speakers as the first syllable while the final consonant /l/ is recognized as the initial consonant of the second syllable [ly]. The clear separation of the two syllables probably made the "rely" misheard as "we lie" by the listener in attempting to make it meaningful.

Apparent vowel quality errors, like *"failed* misheard as *"far,"* are not really vowel quality errors according to Vietnamese speakers because neither final consonant /l/ nor final semi vowel /r/ exists in Vietnamese. The negative transfer could have been caused by the application of the clear CV /fa:/ (*pha* in Vietnamese means 'stage, or current...' in English), which has been applied to produce "failed", and *pha* sounds like "far" in English. What seem to be consonant cluster errors, such as *"still"* misheard as *"used,"* are as a result of application of the CV /iu/ in Vietnamese, which is heard as /ju:/ in English. For example /meal/ converted as /miu/ in which /iu/ is a Vietnamese diphthong, sounds like [mju:] in English. (refer to hypothesis and figure 3).

Finally, apparent word stress and linking errors, like "psychologically" misheard as "psychology call it," are also syllable errors, recognizable through the fourth CV syllable applied to pronounce English closed syllable, as shown in Table 2 as follows: psy.chol.og.ic.all.y vs. psy.cho.lo.gi.ca.lly (Table 2). Vietnamese is a monosyllabic language in which one word has one syllable, generally an open syllable, as discussed in the literature review. This negative transfer probably causes a clear pause between syllables, sounding like two words in English.

8. Conclusion

The findings of this study indicate that Vietnamese open syllables have been applied in articulation of English closed CVL syllables, particularly in polysyllabic words. Such a pronunciation habit was found to be one of the main reasons for these word errors, contributing to reducing Vietnamese adult EFL learners' speech intelligibility in the pronunciation test.

A limitation of this study is that the application of non-standard syllable stress patterns made by the participants may influence their transcripts. As Zielinski (2006) proposed "[t]he listeners appear to rely on the syllable stress patterns in the speech signal to identify the speaker' intended words" (p. 22). Another limitation is that context clues might have been used to understand some words, despite instructions given to the raters to write the words verbatim as they heard them even if it did not make sense. In future work, an acoustic analysis of participants' pronunciation data would also enhance reliability. Therefore, these findings point to the need for further studies in relation to the effects of open syllables on EFL speakers' intelligibility

and linked pronunciation instruction beyond individual sounds and words in Vietnam and other Asian countries.

References

Anderson-Hsieh, Janet, & Koehler, Kenneth (1988). The effect of foreign accent and speaking rate on native speaker comprehension. *Language Learning, 38*(4), 561-613.

Avery, Peter, & Ehrlich, Susan (1992). *Teaching American English Pronunciation*. Oxford, United Kingdom: Oxford University Press.

Benrabah, Mohamed (1997). Word-stress: A source of unintelligibility in English. *International Review of Applied Linguistics in Language Teaching Journal, 35*(3), 157-166.

Berends, Mark (2006). Survey methods in educational research. In Judith L. Green, Gregory Camilli, Patricia B. Elmore (Eds.), Handbook of *Complementary Methods for Research in Education* (pp. 623-640). Mahwah, New Jersey: Lawrence Erlbaum Associates Publishers.

Binghadeer, Nero (2008). An acoustic analysis of pitch range in the production of native and nonnative speakers of English. *The Asian EFL Journal Quarterlys, (10)*4, 96-113.

Bui, Hang (2004). Teaching speaking skills at a Vietnamese university and recommendations for using CMC. *The Asian EFL Journal.* Retrieved from https://www.asian-efl-journal.com/1871/teaching-articles/teaching-speaking-skills-at-a-vietnamese-university-and-recommendations-for-using-cmc/.

Burda, Angela, Scherz, Julie, Hagerman, Carlin, & Edwards, Harold (2003). Age and understanding of speakers with Spanish or Taiwanese accents. *Perceptual and Motor skills, 97*(1), 11-20.

Celce-Murcia, Marianne, Brinton, Donna, & Goodwin, Jannet (1996). *Reference for teachers of English to speakers of other languages*. Cambridge, United Kingdom: Cambridge University Press.

Cooksey, Ray (2007). *Illustrating statistical procedures*. Armidale, Australia: Tilde University Press.

Cox, Felicity, & Harrington, Jannet (2009). *Phonetics and phonology*. Sydney, Australia: Macquarie University.

Creswell, John (2008). *Educational research*: *Planning, conducting, and evaluating quantitative and qualitative research.* Upper Saddle River, New Jersey: Pearson.

Cunningham, Una (2009*). Phonetic correlates of unintelligibility in Vietnamese accented English FONETIK.* Deptartment of Linguistics, Stockholm University. Retrieved from http://www2.ling.su.se/fon/fonetik_2009/108%20cunningham_fonetik2009.pdf.

Cunningham, Una (1998). Improving Adult EFL Learners' Pronunciation Skills. *ERIC*. Retrieved from https://files.eric.ed.gov/fulltext/ED427553.pdf.

Dang, Tien (2014). An Inquiry into the impact of the mother tongue on Vietnamese adult EFL Learners' Speech intelligibility with reference to syllable structure. Unpublished doctoral dissertation. Griffith University, Nathan Queensland, Australia.

Dang, Tien (2006). *Spoken English for Vietnamese learners*. Ho Chi Minh City, Vietnam: Tre Publishing House.

Dang, Tien (1998). *Phonetic changes and phonological rules.* Ho Chi Minh City, Vietnam: Tre Publishing House.

Derwing, Tracey, & Munro, Murray (1997). Accent, intelligibility, and comprehensibility: Evidence from four L1s. *Studies in Second Language Acquisition, 19*(1), 1-16.

Doan, Thuat (1999). *Ngữ âm tiếng Việt.* [Vietnamese phonetics]. City, Vietnam: Hanoi National University Press.

Erickson, Jon (2001). English. In Jane Garry & Carl Rubino (Eds.), *Facts about the world's languages: An encyclopedia of the world's major languages, past, and present* (pp. 199-203). New York, New York: H. W. Wilson Company.

Fromkin, Victoria, Rodman, Robert, Collins, Peter, & Blair, David (1990). *An introduction to language*. Sydney, Australia: Holt, Rinehart and Winston.

Ingram, John, & Nguyen, Thu (2016). Vietnamese accented English: Foreign accent and intelligibility judgement by listeners of different language backgrounds. *English as an International Language Journal, 11*(1), 19-38.

Ioup, Georgette, & Weinberger, Steven (Eds.). (1987). Interlanguage phonology: *The acquisition of a second language sound system*. New York, New York: Newbury House Publishers.

Jenkins, Jennifer (2000). *The phonology of English as an international language.* Oxford, United Kingdom: Oxford University Press.

Kenworthy, Joanne (1997) *Teaching English pronunciation*. London, England: Longman.

Llurda, Enric (2000). Effects of Intelligibility and speaking rate on judgments of non-native speakers' personalities. *International Review of Applied Linguistics in Language Teaching, 38*(3-4), 289-300.

Mok, Peggy (2007) *Effects of syllable structure on V-to_V coarticulation (Thai vs. English)*. The Chinese University of Hong Kong. Retrived from http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=A411D8AC46B5205BAF4F9151D0A0B7FD?doi=10.1.1.495.5734&rep=rep1&type=pdf.

Munro, Marray, Derwing, Tracey, & Morton, Susan (2006). Mutual intelligibility of Foreign accents. *Studies in Second Language Acquisition, 28*(1), 11-131.

Munro, Marray, & Derwing, Tracey (1995). Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning, 45*(1), *73-97.*

Nakashima, Toru (2006). Intelligibility, suprasegmentals, and L2 pronunciation instruction for EFL Japanese learners. *福岡教育大学紀要, 第55 号, 第 1 分冊, 27-42*. Retrieved from http://libopa.fukuoka-edu.ac.jp/dspace/bitstream/10780/14/1/1003.pdf.

Ngo, Binh (2006). *The Vietnamese language learning framework*. Harvard University, Cambridge, Massachusetts. Retrieved from :http://www.seasite.niu.edu/jsealt/past%20issues/volume%2010/VN%20LLF%20Part%20I.pdf.

Nguyen, Ha (1987). Vietnamese. In Bernard Comrie (Ed.) *The world's major languages* (pp. 777-796). London, United Kingdom: Croom Helm.

Odlin, Terence (1989). *Language transfer: Cross-linguistic influence in language learning.* Cambridge, United Kingdom: Cambridge University Press.

Perez, Bertha, & McCarthy, Teresa (2004). *Literacy in Vietnamese and American communities: Sociocultural contexts of language and literacy*. Mahwah, New Jersey: Lawrence Erlbaum & Associates.

Puerto, Francisco, Lacabex, Esther, & Lecumberri, María (2007, August). *The assessment of foreign accent by native and non-native judges*. Paper Presented at Phonetics Teaching and Learning Conference, University College London, London, United Kingdom.

Purcell, Edward, & Suter, Richard (1980). Predictors of pronunciation accuracy: A reexamination. *Language Learning, 30*(2), 271-287.

Roach, Peter (2002). *English Phonetics and Phonology*. Ho Chi Minh City, Vietnam: Tre Publishing House.

Robertson, Paul (2003). Teaching English pronunciation skills to the Asian learner. A cultural complexity or subsumed piece of cake? *ASIAN EFL Journal*, *4*(2). Retrieved from https://www.asian-efl-journal.com/1457/quarterly-journal/teaching-english-pronunciation-skills-to-the-asian-learner-a-cultural-complexity-or-subsumed-piece-of-cake/#squelch-taas-tab-content-0-3.

Scovell, Donna, Pastellas, Vickie, & Knobel, Max (2007). *404 Essential Tests for IELTS*. Ho Chi Minh City, Vietnam: Ho Chi Minh City Publishing House.

Smith, Larry (1992). Spread of English and issues of intelligibility. In Braj B. Kachru (Ed.), *The other tongue: English across cultures* (2nd ed.) (pp. 75-90). Urbana, Illinois: University of Illinois Press.

Smith, Larry, & Rafiqzad, Khalilullah (1979). English for cross-cultural communication: The question of intelligibility. *TESOL Quarterly, 13*(2), 371-380.

Suenobu, Mineo, Kanzaki, Kazuo, & Yamane, Shigeru (1992). An experimental study of intelligibility of Japanese English. *International Review of Applied Linguistics*, *2*, 146-153.

Tang, Giang (2007). Cross-Linguistic analysis of Vietnamese and English with implications for Vietnamese language acquisition and maintenance in the United States. *Journal of Southeast Asian American Education and Advancement*, *2*(1), Article 3. www.doi.org/10.7771/2153-8999.1085

Trofimovich, Pavel, & Baker, Wendy. (2006). Learning second language suprasegmentals: Effect of L2 experience on prosody and fluency characteristics of L2 speech. *Studies in Second Language Acquisition, 28*, 1-30.

VanPatten, Bill (1998). Cognitive characteristics of adult second language learners. *In Heidi Byrnes (Ed.), Learning foreign and second languages* (pp. 105-127). New York, New York: The Modern Language Association of America.

Wong, Jean (1993*).* Applying conversation analysis in applied linguistics*:* Evaluating dialogue in English as second language textbooks*. International Review of Applied Linguistics in Language Teaching (IRAL)*. *40*(1), 37-60.

Wong, Rita (1987). *Teaching pronunciation*: *Focus on English rhythm and intonation.* Upper Saddle River, New Jersey: Prentice Hall Regents.

Yang, James H. (2006). *A Phono-Numerical Measure: English phonological intelligibility* [PDF document]. National Yunlin University of Science and Technology, City, Taiwan. Retrieved from http://teacher.yuntech.edu.tw/yanght/cv/phono-measure-reference.pdf.

Zhang, Jialu (1996, October). *On the syllable structures of Chinese relating to speech recognition*. Paper presented at International Conference on Spoken Language Processing. Philadelphia, Pennsylvania.

Zielinski, Beth (2006). The intelligibility cocktail: An interaction between speaker and listener ingredients. *Prospect, 21*(1), 22-45.

Appendix A

PRONUNCIATION TEST TEXT

(FROM SCOVELL, PASTELLAS, & KNOBEL, 2007)

We've all known students who've had a good understanding of the subject material yet failed exams or performed well-below expectations. Likewise, we've known students that have, for all intents and purposes, done very little work and passed with flying colours. Often these results can be put down to one thing – stress or a lack of it.

Don't underestimate the importance that stress plays in exam performance. With any exam, you should front up feeling confident, comfortable and organized. Rightly or wrongly, exams in effect, not only test your academic ability, they assess your frame of mind and your skill to perform under pressure.

We all recognise that stress affects us physically – I'm sure you've all experienced an increased pulse, or sweaty hands or underarms, or shortness of breath when placed in a stressful situation. Sleeplessness can also be a problem around exam time. The most effective way to manage these physiological reactions is through controlled breathing – which we'll practise later.

Psychologically, stress affects the way you think. For an exam you need to think rationally, particularly after you read an exam paper which you know nothing about is very hard to do[2]. Otherwise, stress can make you panic. Look at the question calmly and rationally and dissect the question. And let's face it, even if you haven't prepared well enough, you'll still need to think rationally in order to do your best under those very trying circumstances!

Don't rely on what other students tell you about the time they allocate to study. The reports we have had over the years have been ridiculously overestimated and underestimated. We're all different, so it stands to reason that the time we need to allocate to study will be different! Generally speaking, for every hour of lectures you attend, you will need another hour of follow-up or research work if you want to achieve good grades.
End of the pronunciation test

Total of words: 312 including 496 syllables

[2] Transcribed verbatim from Scovell, Pastellas, & Knobel (2007).

Appendix B

INDIVIDUAL PARTICIPANT ERROR COUNTS

Errors related to the application of the Vietnamese open syllable in production of English closed syllable

Participant	Total Errors (out of 70 test words)
1	4.00
2	6.00
3	9.00
4	4.00
5	6.00
6	5.00
7	12.00
8	6.00
9	7.00
10	4.00
11	6.00
12	5.00
13	4.00
14	6.00
15	9.00
16	8.00
17	10.00
18	11.00
19	11.00
20	7.00
21	5.00
22	7.00
23	6.00
24	8.00
25	8.00
26	9.00
27	9.00
28	10.00
29	5.00
30	6.00
31	6.00
32	5.00
33	7.00
34	8.00
35	9.00
36	6.00
37	8.00
38	9.00
39	10.00
40	13.00
41	5.00
42	5.00
43	9.00
44	9.00
45	9.00
46	9.00
47	6.00
48	5.00
49	5.00
50	4.00

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