# PERCEPTION AND PRODUCTION OF ENGLISH REGULAR PAST FORMS BY THAI EFL LEARNERS

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## ABSTRACT

The purposes of this study were 1) to investigate the extent to which the first-year and the third-year English major undergraduate students in Naresuan University perceive and produce the English regular past tense verbs, and 2) to examine the strategies they used to perceive and produce the '-ed' ending verbs among the three different allomorphs ([t], [d] and [ɪd]). The data collection was derived from the perception test, the production test, a Pronunciation Learning Strategy (PLS) questionnaire and the semi-structure interview. The perception test and the production test were divided into two subtests: perception test part 1 (general test) and part 2 (syllable identification) as well as production test part 1 (general test) and part 2 (syllable identification). The PLS questionnaire was employed to elicit the strategies they used in English pronunciation learning. The interview was conducted to gain more in-depth information. The findings show that the statistically significant difference did not found in the overall performance of the perception test part 1 ($t=-2.93$: $p>.05$). However, the high proficiency group did better than the low proficiency group on the allomorph [d] when each allomorph was taken into consideration. Furthermore, there was no statistically significant difference between the overall performance of the syllable identification of both groups in the perception test part 2 ($t=-1.70$: $p>.05$). Nevertheless, the syllable identification ability of the high proficiency group was better than the low proficiency one in the allomorph [ɪd] ($t=-2.42$: $p<.05$). Besides, no statistically significant difference was found between both groups in the production test part 1 ($t=-.66$: $p>.05$). On the other hand, when each allomorph was considered, the high proficiency group better produced the non-syllabic

allomorph [t] and [d] than the low proficiency group. In contrast, the low proficiency group better produced the syllabic allomorph [ɪd] than the high proficiency one. Additionally, the statistical data of production test part 2 revealed no significant difference between both groups in overall performance and in each allomorph. Moreover, the findings from the questionnaire indicated that both groups employed the same pronunciation learning strategies. The affective strategies were the most strategies that both groups employed then the cognitive strategies. The interview results revealed that watching movie or some other kinds of entertainment and listening to a song in English was a very prevalent pronunciation learning strategy. Also, the qualitative data from the interview were supportive to the tests' results and the questionnaire findings.

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# CHAPTER I

# INTRODUCTION

## Rationale for the Study

In English, the past simple tense is usually used to represent actions or states which occur in the past and those already finished. Fundamentally, verbs are used to show past events in the past simple tense in English. Additionally, the past time references such as *yesterday*, *last month* and *one year ago*, or any one of the many possible times in the past are also added in the past simple sentences to specify past events. The past simple tense necessarily consists of the past regular or irregular verbs to show the period of time of the actions or states. There are fewer irregular verbs than regular ones in English. To form the irregular verbs, a suffix '-ed' is not added to the stem, but by other methods, such as ablaut, pseudo-inflection, suppletive, and identical forms as the examples shown below (Declerck, Reed, & Cappelle, 2006).

think - thought　　cut - cut

drink - drank　　write - wrote

On the other hand, the regular forms are very much simpler and more straightforward than the irregular ones in that only a suffix '–ed' is attached at the end of a word. This pattern of past tense verb forming is also applied to new verbs such as googled, blogged, emailed, texted and even friended (Lobeck and Denham, 2014). Some examples of the regular past tense verbs are displayed below:

play - played　　kick - kicked

apply - applied　　clean – cleaned

According to the pronunciation principle of the regular past tense verbs, the three allomorphs, "the phonologically distinct variants of the same morpheme" (Lieber, 2009), ([t], [d], or [ɪd]), of the past tense morpheme are applied due to the phonological rules. "It depends on the last phoneme of the verb to which the suffix (-ed) is added; for example, kicked /kɪkt/, begged /bɛgd/, and petted /pɛtɪd/" (Kreidler, 1989, p. 139). When the regular verbs are in the form of regular past tense, the following rules of pronunciation are applied:

1. When a verb ends with [d] or [t], the verb is inserted with the epenthetic vowel and perceived as [ɪd] or [əd].

2. When the verb ends with a voiced sound except [d] and a vowel sound, the ending goes through a progressive assimilation and it is pronounced as [d].

3. When a verb ends in a voiceless consonant except [t,] the ending also goes through a progressive assimilation and it is pronounced as [t] (Celce-Murcia, Brinton, & Goodwin, 1996).

For many years, pronunciation has been considered an essential element of English language teaching in both America and England. Together with correct grammar, the accuracy of pronunciation is indeed a high-priority goal in both countries (Morley, 1991). For several years, research on English pronunciation has been investigated in several aspects. Some of them focus on the English pronunciation of English native speakers. Some focus on analyzing the English pronunciation of English non-native speakers, while some researchers are interested in comparing the English pronunciation of both English native and non-native speakers. The results of these research studies explicitly and implicitly influence second language research and education. People in many fields of language learning acquire new approaches in terms of English pronunciation in order to improve their language teaching and learning.

In particular, the issue of tense-marking verbal inflection or the regular past tense verbs' pronunciation has been one of the remarkable pronunciation research studies which are interesting to educators. It was found that the regular past was used more inconsistently than the irregular past (Wolfram, 1985; Bayley, 1994 as cited in Solt, Pugach, Klein, Adams, Stoyneshka, & Rose, 2004). Celce-Murcia et al. (1996) propose that students whose first language has more restricted final consonant clusters than English frequently pronounce every '-ed' endings as fully syllabic [ɪd] or [əd] owing to a lack of knowledge of past tense marking phonological rules. Bayley (1996) adds that a barrier to perceiving or even producing the English regular past tense allomorphs may arise from phonological factors like L1 transfer or variable L2 input. Following the study by Bayley (1996), the study of Lardiere (2003) discovered that two phonological factors probably play a role in perception and production of regular past tense. According to her study, the first factor is learner-internal which relates to

"transfer of an L1 constraint prohibiting final consonant clusters" (production). The second factor is learner-external concerning "the variable nature of the input with respect to final -t/d deletion among native speakers of (American) English" (perception) (p.179). Solt et al. (2004) suggest that the important obstacle to correct production of the three allomorphs of the '-ed' morpheme is the inability of L2 learners to perceive these allomorphs consistently. They give a very clear summarization about the perception and production of L2 learners in relation to phonological effects that "learners simply do not consistently produce what they do not consistently perceive" (Solt et al., 2004, p.562).

As we can see from the previous studies mentioned above, many researchers pay attention to the study of the English regular past tense verbs' pronunciation in terms of both perception and production in foreign countries. However, few studies in Thailand have been available in the literature discussing this issue. This study also examined whether Solt et al. (2004)'s study was applicable to Thai EFL learners. That is, Thai EFL students were supposed to do well on the syllabic allomorph [ɪd], and have difficulty in perceiving and producing the non-syllabic allomorphs [t] and [d] due to the markedness between Thai and English language in terms of phonological rules. More details about Solt et al. (2004)'s study will be discussed in Chapter 2. Nonetheless, the present study is different from Solt et al.'s study in the following aspects: 1) the study of Solt et al. (2004) did not include verbs ending in a vowel or glide (e.g., play), which take the [d] form of the regular past while the current study did, 2) the participants of the present study were not trained on the vocabularies which used in the tests before taking them whereas the participants of Solt et al.'s study were trained, 3) the perception and production tests of Solt et al.'s study were the written tasks, having a sentence containing a lexical adverb or phrase implying past time and a common irregular verb in the past tense as a cue, while the perception and production tests of this study were tests containing only words in lexical level in order to investigate whether the participants would correctly perceive and pronounce the regular past tense, 4) no interviews were included in Solt et al.'s study whereas the present study included a semi-structured interview in order to elicit in-depth information as qualitative data to examine the consistency with the quantitative data

(perception and production test). As a result, this study could fill the gap to draw a picture of how EFL Thai learners dealt with the English regular past tense verbs.

**Purposes of the Study**

The purposes of the study were 1) to investigate the extent to which the first and the third-year Naresuan University undergraduate students perceive and produce the English regular past tense verbs, to be precise, this study compared the performance of perception and production in the regular past tense between the first and third-year students, and 2) to examine the strategies they use for perceiving and producing the '-ed' ending verbs among the three different allomorphs ([t], [d] and [ɪd]).

**Research Questions**

This study attempts to answer the following questions:

1. To what extent do the first-year and the third-year students perceive and produce the English regular past tense verbs among the three different allomorphs ([t], [d] and [ɪd]) of the regular past tense morpheme?

2. What are the strategies that the first-year and the third-year students employ to perceive and produce the three different allomorphs of the regular past tense morpheme?

To answer the research questions above, the hypotheses are proposed as follows:

**Hypothesis 1:** The third-year students will perceive and produce the regular past tense verbs with a higher rate of accuracy than the first-year students.

**Hypothesis 2:** The first-year students and the third-year students use different strategies to perceive and produce the three different allomorphs of the regular past tense morpheme.

**Scope of the Study**

The participants of this study consisted of the first and the third-year Humanities students majoring in English. They were studying in the academic year 2017 at Naresuan University when the study was carried out. The words used in the

perception tests and the production tests were purposively selected from a book, *Upstream 6* (Evans, & Dooley, 2016), which was verified by the Bureau of Academic Affairs and Educational Standards Thailand to be used in secondary schools in Thailand. Since this study focused on the ability to perceive and produce the three allomorphs of regular past tense morpheme, the performance regarding the initial consonants and vowels was not taken into consideration.

However, not all voiced and voiceless codas of regular past tense verbs were included in this study. Regular verbs end with codas /-p, k, f, s, ʃ, v, ð, l, dʒ, t, d/ and vowels were reasonably chosen. The reasons for choosing just some codas were the limitation of words derived from the chosen book and the difficulty of each word. The researcher considerably selected only words that the participants seem to be familiar with or often see in their textbooks. Another reason was having too many words in the tests would discourage or fatigue the participants, especially in the production test. They would feel exhausted to pronounce if too many words were given. To make the characteristics of the participants homogenous or share similar or identical traits, the students with overseas experience were not included in the group. Nonetheless, the subject's age, gender, and personality were not involved in this study.

**Significance of the Study**

This study intended to investigate the non- English speakers' perception and production of the regular past tense verbs. The findings of this study would be conducive to the benefits of English pronunciation studies in Thailand, especially the pronunciation of the past form of regular verbs. The results of this study would reveal the phonological comprehension of the regular past tense morpheme of the Thai EFL students, so it would guide English teachers in Thailand to focus on the weakness in each regular past tense allomorph ([t], [d], [ɪd]). Moreover, the results of the study would guide the instructors on what should be emphasized when they design a pronunciation course.

**Definition of Terms**

1. **Perception** refers to the ability to perceive the pronunciation of the 3 allomorphs of the regular past tense morpheme by Thai EFL learners.

2. **Production** refers to the ability to produce the 3 allomorphs of the regular past tense morpheme by Thai EFL learners.

3. **Syllabic allomorph** refers to the allomorph [ɪd] which is one of the 3 allomorphs of the regular past tense morpheme. When verbs end with the syllabic allomorph [ɪd], one more extra syllable is added.

4. **Non-syllabic allomorphs** refer to the two allomorphs ([t] and [d]) of the '–ed' morpheme. When the regular verbs end with these allomorphs, no extra syllable is added. That is, the final consonants of that word are considered to be the coda consonant cluster such as the word "stopped" /stɑːpt/.

# CHAPTER II

# REVIEW OF RELATED LITERATURE AND RESEARCH

The aims of this study were to investigate the extent to which the first-year and third-year Naresuan University undergraduate students perceive and produce the English regular past tense morphemes and to examine the strategies they use for perceiving and producing the '-ed' ending verbs among the three different allomorphs ([t], [d] and [ɪd]). Hence, the related literature and previous research were reviewed in order to enable the readers to have pertinent background knowledge of this study. The review was divided into six main sections, namely speech perception, speech production, the Markedness Theory, language learning strategies, pronunciation learning strategies, and related research.

## Speech Perception

The foreign language productions of foreign language learners seem to be a very common problem, especially, when the learners acquire the language in their adulthood. What is the major cause of this problem? The phonetic realization of phonological structures in a foreign language is markedly different from native-language patterns for almost all late foreign language learners (Strange, & Shafer, 2008). Foreign speech productions (phonetic segments and sequences) of the learners reveal complex interactions between native language and foreign language phonetic realization rules. In fact, the reason why the language learners encounter difficulties in comprehension of producing foreign speech is they do not often correctly recognize and categorize the phonetic segments of the foreign language which are phonologically distinctive in a foreign language. Thus, Flege (1995) claims that it can be assumed that the perception of L2 phonological structures determines and affects the production of L2/foreign accents which can be an underlying problem leading to the difficulty of understanding in non-natives.

Strange, & Shafer (2008) propose that "perception is an internal mental (and physiological) process by which the perceiver recognizes incoming stimulus events as

instances of mental categories" (p. 159). Some researchers have paid attention to cross-language perception in non-native adult learners both consonant and vowel contrasts. The overall result shows that adults' perception of L2/foreign consonant and vowel contrasts are "markedly poorer performance than native language listeners for many of the phonetic contrasts investigated" (Strange, & Shafer, 2008, p. 157). The variable perceptual difficulties of non-native consonant contrasts have been investigated in many languages. There were some studies on native Japanese listeners' identification and discrimination of English [ɹ/l] contrast by employing a variety of stimulus materials, a variety of tasks and listeners with varied experiences who study English as a foreign language. The results of these studies reveal that the performance in identifying and discriminating [ɹ/l] of most Japanese listeners was essentially poorer than native English speakers' performance (Strange, & Shafer, 2008). The learners mention that the sounds of [ɹ] and [l] are alike to them. In addition, Flege and Wang (1989) report that compared to native English listeners in terms of final stop consonants, Chinese English learners were capable of perceiving voicing contrasts when all the acoustic cues were included together with clearly articulated syllables (preceding vowel duration, closure voicing, and release cues). Nevertheless, the Chinese listeners' perception of the final stop consonants were diminished when the final consonants were unreleased and closure cues were removed. The research study of native Spanish-speaking learners of English on final stop consonant voicing contrasts of Pikser (2003) is almost similar to the results of Flege, & Wang (1989). That is, the native Spanish-speaking learners indeed faced difficulty in perceiving the voicing contrasts in both stop and fricative consonants even when including all the acoustic cues.

In addition, research on non-native vowel contrasts' perception also illustrates the variable perceptual difficulties. A range of experience in learning a language is also taken into consideration. One of the research studies about this issue was conducted by Flege (1995). Flege reports that even Spanish speakers who have some experience in learning English as a second language have perceptual difficulties in differentiating some English vowel contrasts [ɛ/æ:, ɑ:/ʌ]; however, they can discriminate other vowel contrasts [i:/ɪ, ʌ/ʊ] which do not occur in Spanish. Consequently, the former research studies reveal that "perception of non-native place

and voicing contrasts in consonants and vowels ranges from very poor to quite good depending upon a host of variables" (Strange & Shafer, 2008, p. 158).

From the former research reviewed above, it is obvious that the perceptual difficulties of consonant and vowel contrasts of adult L2 learners are significant problems in learning the non-native language because some of these issues still exist over a time period (Strange, & Shafer, 2008).

**Speech Production**

Nowadays, it seems that there are a greater number of bilinguals than monolingual speakers throughout the world (Crystal, 2003). A myriad of children start to acquire two languages since they were young; furthermore, teenage and adult students increasingly decide to learn a second or foreign language in a tutorial school or in a naturalistic environment in order to improve their second or foreign language skills especially speaking skill (Kormos, 2006). However, Zampini (2008) informs that an abundance of adult learners speak their L2 with a foreign accent; besides, their L2 speech perception, processing, and production can be restrained by means of their first language. For this reason, much second or foreign language speech acquisition research currently makes use of the Contrastive Analysis Hypothesis (CAH) in order to describe the similarities and the differences of the L1 and L2 sound system's aspects.

Applying CAH to L2 acquisition research, some previous research studies reported that when an L2 sound system is compared to an L1 sound system, the L2 sound system will be easy to acquire if the aspects of L2 sound system resemble those of the L1. Acquiring L2 sounds will be difficult if the aspects of an L2 sound system are different from those of the L1. On the other hand, much research has found that some L2 sounds may be comparatively easy to acquire when they are completely different from the L1. By contrast, other sounds which are like the L1 might be troublesome. The L1 sound system of non-native learners may sometimes facilitate or interfere with L2 pronunciation. Nevertheless, other than that some other factors can influence L2 phonological acquisition by reducing or raising the role of L1. Those factors include age, markedness, and social factors (Zampini, 2008). Hence, it is very important for many linguistic researchers, teachers or any others who are relevant to

language education to understand how a learner produces his/her speech in second or foreign language (Kormos, 2006).

**Model of Speech Production**

According to Kormos (2011), researchers who take an interest in speech production research agree that language production has four components:

1. Conceptualization: planning what a speaker wants to say
2. Formulation: the grammatical, lexical and phonological encoding of the message
3. Articulation: the production of speech sounds
4. Self-monitoring: checking the correctness and appropriateness of the produced output

The first processing of speech production starts at conceptualization. In this phase, in virtue of macro-planning and micro-planning, the output (message) is generated. Macro-planning relates to the elaboration of the communicative intention, while micro-planning relates to the planning of the linguistic realization of the content. In micro-planning, the speaker makes his/her own decision to convey the message in which perspective or to select the appropriate tense. For example, the speaker should say "The book is behind the vase" or "The vase is in front of the book". The consequence of macro- and micro-planning is the *preverbal plan* (Kormos, 2011).

In L2 speech production, it is agreed that the process of speech production progresses respectively as following: conceptualization, formulation, and articulation. Somehow, the L1 speech production is different. The conceptualization in L1 speech production (planning the message) needs attention, whereas formulation and articulation work automatically in parallel. This is the reason why the speaker generally creates L1 speech smoothly and fast (Kormos, 2011).

**The Markedness Theory**

Since last century, the concept of markedness has been studied and applied in various fields of knowledge. In terms of linguistics, markedness has been extensively taken into account and has been applied in various levels of linguistic analysis such as phonology, vocabulary, syntax, and discourse. For example, in the case of syntax, most languages of the world have the same word order in sentences of SVO (subject-

verb-object), which is more common than SOV. Thus, the presence of SOV in some languages is considered to be "marked", and the presence of SVO is considered to be "unmarked". One more example is the markedness in English vocabulary. It seems that the meaning of the prepositions "in" and "into" are almost identical. However, their meanings are rather different. The word "in" conveys location while the word "into" conveys both location and direction. Hence, "into" is considered to be marked in contrast to "in" because it is more complex in terms of structurally and conceptually (Saville-Troike, 2006). According to Saville-Troike (2006), the notion of markedness is concerned with "whether any specific feature of a language is marked or unmarked" (p. 55). A feature of a language will be considered to be "unmarked" if it occurs more frequently, it is more normal or expected, or its structure is less complex than a contrasting element in the same category. Furthermore, with reference to Celce-Murcia, Brinton, and Goodwin (1996) the markedness notion can account for two phenomena as mentioned below:

1. A linguistic phenomenon is considered to be psycholinguistically unmarked when it is more basic or neutral, more universal, more frequent and first acquired.

2. A linguistic phenomenon is considered to be psycholinguistically marked when it is more specific, less frequent, more limited and later acquired.

The markedness notion can be applied to not only specific language but also between languages. Jakobson (1941 as cited in Saville-Troike, 2006) proposed that "unmarked" elements are likely to be acquired before "marked" ones in children's L1 in order to manifest the order and relative difficulty for language acquisition. In terms of a second language phonological acquisition, the concept of the Markedness Differential Hypothesis (MDH) by Eckman (1977) indicating the markedness relation cross-linguistically has been applied to current research (Celce-Murcia, Brinton, & Goodwin, 1996; Jin, 2008). The Markedness Differential Hypothesis can be used as a measure of relative difficulty in second language phonological acquisition. Eckman (1977) suggests that the extent of the difficulty which a language learner will have can be predicted as follows:

1. Those areas of the target language which differ from the native language and are more marked than the native language will be difficult;

2. The relative degree of difficulty of the areas of difference of target language which are more marked than the native language will correspond to the relative degree of markedness;

3. Those areas of the target language which are different from the native language, but are not more marked than the native language will not be difficult.

To exemplify the notion of markedness in terms of English pronunciation, one of the English phonology research studies illustrated an interesting markedness in terms of perception and production of the English regular past form by non-native adult learners. Solt et al. (2004) investigated the ability to correctly perceive and produce the English regular past tense morpheme. The overall results showed that the ability to perceive and produce the morpheme '–ed' of the non-native adult learners including Mandarin, Cantonese, Russian, Spanish, Turkish, Arabic, Ukrainian and French Creole can be shown as this scale: [ɪd] > [t] > [d]. The participants in both groups (low proficiency learners and high proficiency learners) quite accurately perceive the syllabic allomorph [ɪd]. Nevertheless, one of the results of their study revealed a noticeable markedness of the non-syllabic allomorphs: the voiced stop [d] and the voiceless stop [t]. The participants in the high proficiency group performed more accurately on the perception of [t] than [d]. Hence, the researchers supposed that "this pattern may relate to the unmarked nature of the voiceless stop [t] compared to the more marked nature of its voiced counterpart [d]" (Solt et al., 2004). The results of Solt et al.'s study showed that the non-native learners of English had difficulties perceiving the English regular past tense allomorphs [t] and [d] due to the markedness in phonology between languages. This also contributed to the syntactic errors by the non-native learners.

At this point, it can be concluded that the markedness theory can explain the differences of the linguistic difficulties' degree between languages, and account for what linguistic problems a language learner faces. Particularly, this notion is certainly necessary to answer the questions of this study.

**Language Learning Strategies**

To learn a language, people have their own ways to try to understand the language even it is their first language. Particularly, a foreign language is supposed to be much more difficult to learn than their first language when people start to learn or start to try to understand the foreign language with their maturation. As mentioned in Saville-Troike (2006), "learners past the age of puberty are in all probability unable to achieve native-like pronunciation in any case - no matter how much effort is spent on the learning task" (p. 142).

On the contrary, the difficulty of language learning can be simplified by using some strategies. The issue of language learning strategies has been taken into consideration by many researchers for many years. To find what strategies language learners employ, many researchers try to define the meaning of "good language learners" due to the fact that they seem to be successful in language learning. However, identifying certain good language learners is still obscure since some good language learners display some unexplainable aspects in their language learning. Some various factors should be taken into account to specify a good language learner.

**Definition of Language Learning Strategies**

Wenden, & Rubin (1987) give the meaning of learning strategies as "any sets of operations, steps, plans, routines used by the learner to facilitate the obtaining, storage, retrieval, and use of information" (p. 19). They also add that it is necessary to verify what a learner knows about language and what the learner believes about the language learning process for the purpose of better understanding why learners decide to use those strategies.

O'Malley, & Chamot (1990) define learning strategies as "the special thoughts or behaviors that individuals use to help them comprehend, learn or retain new information" (p.1). These are the "special ways of processing information that enhance comprehension, learning or retention of the information" (p. 1).

On the contrary, some researchers deem that the previous definitions of learning strategies are over-focused on learner behaviors and products of learning. They suggest adding cognitive processes to the procedure of using learning strategies of language learners. Eventually, the definitions of learning strategies seem clearer and more understandable. Learning strategies are defined as "processes which are

consciously selected by learners and which may result in actions taken to enhance the learning or use of a second or foreign language through the storage, retention, recall, and application of information about that language" (Cohen, 1990 as cited in Zare, 2012, p. 163). However, Oxford (1990 as cited in Zare, 2012) provides the most applicable definitions of language learning strategies. She states that language learning strategies are "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (p. 164).

All in all, to precisely define the definitions of language learning strategies, various aspects which would affect learner strategies should be taken into account in order to attain universal definitions that can explain how all language learners use their own strategies.

**Classification of Language Learning Strategies**

Oxford (1990) divides language learning strategies into two main categories, direct and indirect strategies, which can be classified into six classes.

Direct strategies consist of memory strategies which lead to the process of storing new information and retrieving them when needed, cognitive strategies which lead to the process of handling the target language in conscious ways, and compensation strategies which lead learners to use the language both in speaking and writing although learners still have knowledge gaps (Oxford, 1990 as cited in Zare, 2012).

Oxford (1990) claims that the indirect strategies are the strategies that help learners learn the target language indirectly by employing different strategies. She proposes three main strategies, namely metacognitive, affective, and social strategies. Metacognitive strategies lead learners to control their own cognition. Affective strategies support learners in managing their emotions, motivation, and attitudes about their learning. Social strategies offer learners the opportunities to learn the target language by interacting with other people.

Although the language learning strategies classification of Oxford (1990) seems to be ordinary, her notion of classifying language learning strategies is inclusively employed in most literature and research.

**Pronunciation Learning Strategies**

Apart from language learning strategies, pronunciation learning strategies of a second language are directly involved in this study. Speaking with incorrect pronunciation leads to an unpleasant or unsmooth conversation since a listener has to ask the speaker to repeat constantly. Hence, L2 learners, generally, seek ways to improve their pronunciation in order to help them accurately communicate through not only speaking but also reading and writing, to avoid confusion during conversations, and to encourage more confidence and to feel more relaxed when communicating in a target language. (Alexghali, 2018)

Similar to language learning strategies, "good pronunciation users" (GPU) have attracted the interest of several researchers. The types of pronunciation learning strategies which the good pronunciation users deployed were explored and investigated by many researchers. Recently, Szyszka (2015) conducted a study to examine the good pronunciation users' opinions regarding the variables which considerably influence their L2 sound system acquisition, and enquire into the pronunciation learning strategies they deployed. Following the notion of Brown (2008), Szyszka (2015) focused on the three variables (motivation, aptitude, and opportunity) which influence on the pronunciation learning of the good language learners to identify a good pronunciation user.

Moyer (2004) clarifies motivation as a direction or an impulse to succeed at something involving conscious efforts, intentionality, and planning toward a goal as the basic elements processing simultaneously. However, although it is greatly difficult for defining and measuring motivation, many researchers have attempted to define and measure it to affirm that motivation certainly has an influence on phonological attainment (Szyszka, 2015). Moyer (2007) discovers a critical relationship between the degree of a foreign accent and the desire to enhance it. In addition, further evidence of Szyszka (2005)'s study support Moyer's findings that the intention of GPU to have native-like pronunciation and foreign accent are in a good agreement with their motivation to acquire a target language pronunciation. Altogether, it can be assumed that motivation acts as a strong internal drive for good pronunciation learners.

In terms of aptitude, Rubin (1975) believes that it is the "least subject to manipulation" (p. 42). Abrahamsson, & Hyltenstam (2008) propose that "language

learning aptitude is a largely innate, relatively fixed talent for learning languages" (p. 485). However, as a rebuttal to this point, others have argued that certain language learners can improve their aptitude through training. Good pronunciation learners usually find their own aptitude for acquiring pronunciation. The aptitude of good pronunciation learners most frequently found is sound imitation (Brown, 2008). Supporting this idea, the study results of Purcell and Suter (1980 as cited in Szyszka, 2015) reveal that the second key factor affecting L2 pronunciation accuracy is the aptitude of oral mimicry. Coupled with the experimental study of Hinton (2013), the identical results showed in both the highest and lowest scoring participants that the mimicry ability does significantly influence the degree of foreign language accent. Notwithstanding, due to the complicated components of the language aptitude, the aptitude measuring has not been always distinguished and not on a main focus of investigation although much research reveals that aptitude always plays an essential role in language pronunciation learning (Gass, 2013).

Opportunity is one of the important variables to have good pronunciation in language learning. Learners should find the opportunities to practice their foreign language both within and outside the classroom. It is obvious that good language learners usually seek and create opportunities to practice what they have learned whereas the poorer learners are not enthusiastic even if they are assigned to do something. To actively perceive foreign language, the good language learners use various ways such as watching foreign language movies, joining foreign language clubs, listening to T.V. or the radio, and using the foreign language with other students outside of class (Rubin, 1975). Further evidence supports that a learner who has an opportunity to frequently communicate with a native speaker develops in a target language sound system (Moyer, 2004). Thus, it seems that the language learners who are willing to take any opportunities to use the language are able to make the most progress.

The three variables (i.e., aptitude, motivation, opportunity) are somewhat hard to delineate because they do overlap one another in language learning process. Together with learning strategies, all of them consistently proceed while a learner decides to learn a language.

**Definition of Pronunciation Learning Strategies**

According to a definition provided by Pawlak (2010) pronunciation learning strategies are "deliberate actions and thoughts that are consciously employed, often in a logical sequence, for learning and gaining greater control over the use of various aspects of pronunciation" (p. 96). The definition of pronunciation learning is also defined as "specific actions taken by the learner to make learning pronunciation easier, faster, more enjoyable, more self-directed, more effective and more transferable to new situations" (Oxford, 1990 as cited in Rokoszewska, 2012, p. 392). To succeed in pronunciation learning, learners consciously realize which strategies are the most appropriate for them and employ those strategies throughout their learning process. However, one learner may employ more than one strategy to make his/her learning process run smoothly and to get satisfactory results.

Although little attention has previously been devoted to the study of pronunciation learning strategies (PLS), some researchers have attempted to categorize them (Szyszka, 2015). Peterson (2000)'s study revealed twelve basic pronunciation learning strategies which derived from the exploratory of diaries and interviews by eleven adult learners of Spanish. Based on Oxford (1990)'s language learning strategies classification system, the twelve PLS were categorized into two major types of pronunciation learning strategies which were divided into six sub-categories: memory, cognitive, compensation, metacognitive, affective and social strategies.

**Table 1 The six sub-categories of PLS**

| The six sub-categories with twelve basic pronunciation learning strategies (Peterson, 2000) | | |
|---|---|---|
| **Direct strategies** | Memory strategies | • representing sounds in memory |
| | Cognitive strategies | • formally practicing with sounds<br>• practicing naturalistically<br>• finding out about TL pronunciation<br>• analyzing the sound system |

**Table 1 (cont.)**

| The six sub-categories with twelve basic pronunciation learning strategies (Peterson, 2000) | | |
|---|---|---|
| Indirect strategies | Compensation strategies | • using proximal articulations |
| | Metacognitive Strategies | • planning for a language task<br>• setting goals and objectives<br>• self-evaluating |
| | Affective Strategies | • using humor to lower anxiety |
| | Social Strategies | • asking for help, and cooperating with peers |

More recent attention has focused on the language learning strategies usage (Khamkhien, 2010; Rokoszewska, 2012). Khamkhien (2010) conducted a study on Thai and Vietnamese EFL learners to investigate the correlation between three variables (gender, motivation, and experience in studying English) and the use of language learning strategies based on Oxford (1990)'s language learning strategy categorization. The findings of his study corroborate that language learning factors have influences on the learners' decision to employ their most appropriate language learning strategies. That is, among the three factors, motivation particularly affects the choice of the strategies in both groups, followed by experience in studying English and gender, respectively. Furthermore, Rokoszewska (2012)'s recent study reveals the result of the reciprocal action between PLS and production of English vowels, both pure vowels and diphthongs, by first-year students of an English department. A 5-point Likert scale questionnaire was distributed to the participants to inquire in depth about the frequency of PLS use. Based on Oxford (1990)'s and Peterson (2000)'s classifications, the PLS questionnaire used in Rokoszewska's study was designed by Całka (2011). To measure the production of English vowels, she employs a vowel production test comprised of the pronunciation of pure vowels and diphthongs, as well as reading minimal pair words and a chosen text. The overall results of her study showed that the students used various strategies in their pronunciation learning. According to data analysis, it seems that there was a weak significant positive

connection between PLS and the production of English vowels. This implies that there were other considerable factors influencing the process of pronunciation learning.

In conclusion, understanding the difficulties of pronunciation learning of non-native learners of English is somewhat delicate since there are several determinants that control or affect the individuals' process of pronunciation learning. Therefore, to be able to comprehend more about the problems of perceiving and producing English sounds, some researchers pay attention to study in this term.

**Related Research**

For several years, great efforts have been devoted to the study of English regular past tense by EFL/ESL learners in various dimensions. Much previous research has demonstrated that many L2/foreign language learners have been confronted with difficulties in perceiving and producing English past tense morphology. To solve this issue, many researchers have proposed various methods of investigating the causes of this phenomenon.

The literature on English regular past tense morphology in terms of perceptual and productive abilities abounds with examples of children and adult acquisition in various conditions. The acquisition of the English regular and irregular past tense of L2 children with and without language impairment (LI) was the principal focus in Blom, & Paradis (2013)'s study. To investigate the differences in the abilities to acquire the English past tense verbs, the Test of Early Grammatical Impairment (TEGI) was employed. The completed test was scored by English native speakers. The findings reveal that both groups had a low accuracy for [ɪd], which is supposed to be the easiest sound in Solt et al. (2004)'s model. The L2-LI group employed fewer tense-marked verbs than the L2-TD (or typically developing) group. In addition, the L2-TD children were most accurate at using the allomorph [d] among the three allomorphs, which is the most marked form based on Solt et al.'s study. Not surprisingly, children with a tense-marking L1 (L2-TD) were found to be more accurate with tense marking in English than children whose L1 did not mark tense on the verb (L2-LI). However, Solt et al.'s study was conducted with adult L2 learners; it might not be applicable to the child L2 learners. Despite the language impairment of L2 learners, other factors were also examined to fill the gap of literature in this issue.

The effects of age of arrival to an English native speaking country is also found in the literature of English past forms (Birdsong, & Flege, 2001). Divided by ages into child, adolescence, and adult groups, the Korean and Spanish participants took a multiple choice test with forty items evenly mixed of high and low frequent regular and irregular verbs. The findings confirm that the earlier, the better. That is, if the participants come to the English speaking country early, they tend to have a high performance in English past forms. In addition, regular past forms reveal a higher score than irregular past forms in three age groups in both Korean and Spanish speakers. Furthermore, the results revealed that only irregular verbs were sensitive to the interaction of frequency since the acquisition of irregulars is computed by the declarative system relating to the learning and storage of unruly-related information, while the acquisition of regulars which employs the cognitive skills is evaluated by the procedural system. However, the purposes of this study did not concentrate on the three allomorphs of the English past forms. Thus, an analysis in the three past allomorphs does not appear in the study.

An interesting longitudinal study on English past forms has been proposed by Lardiere (2003). A Chinese native speaker who had been in the US for many years and was considered to be an advanced Chinese learner of English participated in the investigation of possible factors affecting past tense marking in L2 learners. Like previous studies, the regular past forms were more widely found than the irregular ones. The researcher argues that the participant's mother tongue plays a role here since Chinese does not allow final clusters in its system. As a result, a /t,d/ deletion strategy was found. Nonetheless, Lardiere did not mention much about the three past tense forms. Only the two sounds [t,d] are mentioned. She claims that possible factors affecting the past tense marking are the phonological reduction, the role of aspect, the role of discourse foregrounding/backgrounding, and the declarative/procedural model. However, for the purposes of the present study, the most relevant study dealing with speech sounds to the present study was carried out by Solt et al. (2004) to explore production and perception in English regular past forms. With a wide range of native languages, the sixty-eight participants were chosen from various nationalities, including Mandarin, Cantonese, Russian, Spanish, Turkish, Arabic, Ukrainian and French Creole. The participants were divided into two groups (low and high proficient

groups). Previous to the setting up of the study, all participants were trained on the vocabulary that appeared in the tests, and then took the perception and production test. Both groups attained the highest scores on the allomorph [ɪd], then [t] and [d], respectively, since it was the most salient one. Hence, [d] was the most difficult sound for both groups. The researchers propose a hierarchical scale as: [ɪd]>[t]>[d]. The left sound on the scale is expected to be the easiest one and the right sound is the most difficult one to acquire. Since this study deals with speech sound production and perception, the present study employs their scale to measure Thai native speakers whether this scale is applicable for the Thai EFL learners or not.

Two Thai research studies dealing with English past forms exist in the literature. As a lexical-oriented study, Sriphrom, & Ratitamkul (2014) used a cloze test to elicit both regular and irregular past tense forms from twenty undergraduate university students (ten high proficiency level, ten low proficiency level). The cloze test was a short story which consisted of fifty-nine blanks together with a provided infinitive verb phrase in the bracket after each blank. However, only forty-eight blanks were considered because their correct answers represented past-time events. In addition, since this study is morphologically-oriented, the target verbs were divided into three lexical aspectual categories, namely state, activity, and telic based on the Aspect Hypothesis. According to the findings, as they predicted, the high proficiency group deployed the past tense form more accurately and consistently than the low proficiency one. In terms of regular and irregular past tense forms, no difference in the use of regular and irregular verbs was found in the high proficiency group, but the other group employed more irregular verbs that regular ones. The other study by Thai researchers related to English past forms is conducted by Prapobaratanakul & Pongpairoj (2016). Like Chinese, Thai does not have past tense morpheme inflection but rather through context; thus, Thai learners of English are confronted with the potential problem in perceiving and producing English past tense morphology. Prapobaratanakul, & Pongpairoj (2016)'s study exposed the production variability of English past tense morphology by an L1 Thai learner of English. A 40-year-old adult female Thai speaking learner of English took the Grammaticality Judgment Test with eighty forced choice elicitations and then had an interview to manifest how well she could use English past forms in the conversation. Even though the participant, as an

advanced learner of English, performed very well in the grammar test, the scores on the interview were very low. The researchers argue that the contradiction between high grammar knowledge from the paper-based test and low speaking performance from the interview can be explained by the Missing Surface Inflection Hypothesis (MSIH). That is, errors in L2 production come from an extra-syntactic factor, specifically a syntax-morphology mapping problem. In other words, the mismatch between syntactic and morphological knowledge causes the problem.

While the two studies regarding Thai EFL learners had been carried out on a written production and on a spoken production, there have been few empirical investigations into regular past morphological perceptual performance. Hence, in this study, in addition to the production performance, we also address the perception performances of high and low proficiency Thai EFL students in terms of past tense morphological perception showed in hierarchical scale. As well, we report a comparison of the perception ability of the three past tense morphemes between the two groups, as well as the discussion of the perception ability and the production one.

The previous research mentioned above revealed some past tense morphological productive difficulties and the effects that caused the morphological perspective problems. In order to enhance these obstacles, various attempts have been made to discover useful solutions to solve or even improve it. These solutions came in the forms of strategies. Szyszka (2015) investigated pronunciation learning strategies (PLS) which were developed by good English pronunciation, and their beliefs regarding the variables affecting their pronunciation competence. The sixty-one foreign language learners of English who participated in this study included twenty-eight English phonetics and phonology specialist (high education teachers and scholars) with various L1 backgrounds, who were represented as good pronunciation users (GPU), and thirty-three EFL teacher training students, who were defined as average pronunciation learners (APL). The participants took part in a survey on pronunciation learning strategies and demonstrated their opinions on several aspects affecting the L2 pronunciation learning process. The findings revealed that GPU believe that their L2 pronunciation acquisition is considerably related to phonological competence, meta-competence, and awareness-raising efforts. One interesting result revealed in this study was that GPU significantly use more frequent forms and use

hypotheses about pronunciation and read reference material about English pronunciation than APL, which supported GPU's belief. Moreover, GPU acknowledged that staying in an English speaking environment is one of the major impacts helping them improving their L2 pronunciation. They also believe that experiencing L2 out-of-class more greatly influenced L2 pronunciation than in-class. Additionally, the results demonstrated that GPU most frequently used listening strategies to acquire L2 pronunciation. Besides, GPU preferred more active PLS including repetition, imitation, and singing songs, which involve the process of speech production.

Another study on PLS is found in Rokoszewska (2012)'s study. The researcher examined the impact of PLS used by the first-year students of English on the competence to perceive and produce English monophthongs and diphthongs and verified the positive relationship between students' PLS on their perception and production of English pure vowels and diphthongs. The instrument used in this study was a PLS questionnaire and a pronunciation test (perception test and production test). The study's results showed that the students sometimes used PLS. They preferred indirect strategies to direct strategies. The direct strategies they employed most were cognitive strategies. That means they would rather read aloud, talk to themselves in a target language, and check the pronunciation of new words in dictionaries. On the other hand, the indirect strategies that they mostly used were metacognitive strategies which referred to planning for a language task, paying attention to pronunciation in general, and self-monitoring. Furthermore, the results also revealed that the PLS of the students did not have any positive relationship with the results of the perception test, although they had good scores on the test. He proposed that this might be caused by different factors. However, the results of the production test were statistically significant and revealed a weak positive correlation between PLS and the production of English vowels and diphthongs. This result indicated that other factors had an effect on the process of mastering L2 pronunciation. From previous studies, it is found that little research has been done on learners' pronunciation learning strategies, particularly by Thai EFL learners. As a result, the present study on speech sounds and pronunciation strategies is needed and can extend the literature on the topic of English regular past forms.

With this in mind, this study was conducted to investigate the perception and production potential of Thai EFL students in terms of English regular past tense marking basing on Solt et al. (2004)'s study. However, this study was designed a bit differently in some aspects such as the nationality of the participants, words and patterns used in the tests, and the additional method to identify the pronunciation learning strategies replicating the PLS questionnaire in Rokoszewska (2012)'s study based on Oxford (1990)'s and Peterson (2000)'s classifications. Moreover, the qualitative data was also indispensable; hence, the semi-structured interview was employed to elicit more information to affirm the tests' and questionnaire's results.

# CHAPTER III

# RESEARCH METHODOLOGY

The present study investigated the extent to which the first and the third-year Naresuan University undergraduate students perceived and produced the English regular past tense verbs in terms of phonological perspectives. Furthermore, this study aimed to examine the strategies they used for perceiving and producing the '-ed' ending verbs among the three different allomorphs ([t], [d]and [ɪd]) of the regular past tense morpheme /-ed/. To achieve the purposes of the study, this chapter provides the details about participants, the research instruments, instruments' validity and reliability, pilot study, data collection and analysis of data and statistical devices.

## Participants

Participants were thirty first-year and thirty third-year English major students at the Faculty of Humanities, Naresuan University in the first semester of the academic year 2017. They were purposively selected because of two reasons. First, both groups formally have to take a required course "English Phonetics and Phonology". Its contents explain English sounds and their systems including the topics of vowels, consonants, organs of speech, minimal pairs, phonemes, allophones and rules of sound. Second, English major students in each year have different proficiency in English. The third-year students who had already taken the English Phonetics and Phonology course were considered to have a higher proficiency level than the first-year students who had never taken the course, since the course would be offered in the second semester of the first-year students.

**Table 2 Number of participants**

| Participants | Number of participants |
|---|---|
| First-year students | 30 |
| Third-year students | 30 |
| **Total** | 60 |

As previously stated, it is clear that the first-year and the third-year English major students as Thai EFL students were appropriate representatives for this study because all of them met the conditions of this study, and they could provide the informative data which was appropriate for answering the research questions of this study.

**Instruments and Instrumentation**

This research employed four research instruments: perception test, production test, questionnaire, and interviews. The perception and production tests were used as the assessments to measure the skill, knowledge and the proficiency of the participants in terms of the regular past tense verbs perception and pronunciation.

The perception test and the production test were divided into two parts. The first part of the perception test was a general test. It was used to examine the participants' perceptual ability of the regular past tense verbs. In addition, the first part of the production test was created to examine the proficiency level of the participants of producing the three different allomorphs. The second part of both tests were designed to investigate the comprehension of the students in identifying the number of syllables of the regular past tense verbs when they perceived and produced the regular past tense verbs, respectively, and to bear out the results of the first part of perception test and the production test. The two tests provide a quantitative dataset to answer research question one (*To what extent do the first-year and the third-year students perceive and produce the English regular past tense verbs among the three different allomorphs ([t], [d] and [ɪd]) of the regular past tense morpheme?).* In addition, the questionnaire and interview were used to answer research question two (*What are the strategies that the first-year and the third-year students employ to perceive and*

*produce the three different allomorphs of the regular past tense morpheme?*). The questionnaire provided the quantitative data of the PLS strategies which the students in both groups used to perceive and produce the regular past tense morpheme. The interviews worked efficiently to get the in-depth information about the strategies the participants used to perceive and produce the regular past tense verbs in the matter of phonology and provided more in-depth details about their perception and production performances of the regular past tense allomorphs.

**1. Perception Test**

The perception test was employed to investigate the proficiency level of the first-year and the third-year English major students of perceiving the regular past tense verbs. The test was divided into two parts. The first part, namely the general test, consisted of thirty-five words without contexts. There were five tricky words, fifteen actual tokens and fifteen pseudo tokens. The five tricky words (test items 1-5) were used to relieve the students' excitement and nervousness so they were not counted when the test was done. The fifteen actual tokens were the regular past form lexical words which were selected from the English book of secondary schools in Thailand, *Upstream 6* (Evans, & Dooley, 2016). The fifteen pseudo words were employed to evaluate students' comprehension of the phonological rules of the regular past tense morpheme. A pseudo word is a series of letters that can be pronounceable and resembles a genuine word in terms of its orthographic and phonological structure, but it does not truly exist in the language such as "deached" can be pronounced as [di:ʧt], "lermed" can be pronounced as [lɝ:md] or "derted" can be pronounced as [dɝ:tɪd]. Therefore, only thirty items (fifteen actual tokens and fifteen pseudo tokens) were counted in this test (Appendix A). The thirty tokens in this test were equally divided into three groups as follows:

1. The regular past tense verbs ending with voiceless consonant, the sound of certain consonant which is produced without the vibration of vocal folds such as [p], [k], [f], [s], [ʃ], [ʧ] and [ɵ]

2. The regular past tense verbs ending with voiced consonant or vowel, the sound of a certain consonant which is produced with the vibration of vocal folds such as [b], [v], [g], [z], [j], [ð], [l], [m], [n] and [r]

3. The regular past tense verbs ending with [t] and [d]

To form the perception test, a male American native speaker pronounced each chosen word twice as recorded voices on a laptop computer. Then, the researcher made an appointment with each group of students to take the test in a classroom. The students were asked to listen carefully to each word, then circled the best answer (a, b, c, and d). The test lasted twenty-five minutes. The answers of the test were scored by the researcher. A correct item was counted as 1 point and an incorrect item was counted as 0 points.

The perception test part 2 (syllable identification) was designed to attest to the results of the perception test, and to examine the comprehension of the regular past tense phonological rules of the students. All words used in this test were the same as those in the first part. Thus the major focus was also on fifteen regular past form lexical words and fifteen pseudo words. This part began immediately after the participants finished the first part. They were asked to listen carefully and identify how many syllables they heard for each word by writing down the number of syllables on the test paper sheet (Appendix B). The researcher used the same audio sounds as in the first part. It took twenty-five minutes to complete the test.

In the perception test, the researcher checked all the answers by marking 1 point for a correct answer and 0 points for an incorrect answer.

**2. Production Test**

The production test was divided into two parts: 1) the general test and 2) production test part 2 (syllable identification). The purpose of the general test was to examine the participants' ability to pronounce the three different allomorphs. All words in the test were identical with those in the first part of the perception test, thus the same thirty items were counted. The test was set individually in a silent room. It was noted that before taking the test, the participants did not know that they had to pronounce the same words as they heard in the perception test. They were requested to carefully pronounce each word on the list twice (Appendix C). The pause between the first and second readings was approximately 2-3 seconds. Then, the researcher recorded their pronunciation by an audio recorder with a headset. It took fifteen minutes to complete the test. After getting all production data, the recorded sounds of each student in both groups were sent to the two American raters to mark the test. The criteria for scoring the test were similar to the perception test. Note that in scoring this

task, only the '–ed' ending sounds of participants' production were considered. The other sounds (such as initial consonants or vowels) in the words were not taken into consideration. The scores received from the two raters were counted and analyzed by the researcher. There were three ways to count the scores received from the two raters. First, if both raters considered that a student correctly produced the sound, that item would be counted as 1 point. Second, if both raters considered that a student incorrectly produced the sound, that item would be scored as 0 points. Third, if the decisions of the two raters were different, for example, one rater considered that a student correctly pronounced the sound while another rater considered that it was incorrect, that item would be scored as 1 point.

In the second part of the production test, the purpose was to demonstrate the validity of the production test and to confirm the participants' comprehension of the regular past tense morphological pronunciation. Different from the perception test part 2, all of the same thirty-five tokens appeared on the paper in this test; thus, students could see the spelling of those words (Appendix D). The researcher asked the participants to write down the number of syllables of each token on the list within twenty-five minutes. All participants' answers were marked with the same criteria as in the perception test part 2 by the researcher.

The thirty target tokens in all tests were divided into three following groups:

**Table 3 Actual tokens divided into three allomorphs**

| Actual tokens | | |
|---|---|---|
| [t] | [d] | [ɪd] |
| stopped | studied | needed |
| worked | moved | sounded |
| laughed | breathed | invented |
| passed | called | started |
| finished | changed | transmitted |

**Table 4 Pseudo tokens divided into three allomorphs**

| Pseudo tokens | | |
|---|---|---|
| [t] | [d] | [ɪd] |
| forthed | ranned | debted |
| taughed | regged | mudded |
| runched | linged | plented |
| grosed | skumed | indeeded |
| trushed | ried | anded |

### 3. Pronunciation Learning Strategies Questionnaire

In this study, the Pronunciation Learning Strategies (PLS) questionnaire was employed to find out what strategies the first-year and the third-year students use to perceive, produce and identify the three different allomorphs of the regular past tense morpheme /-ed/. Replicating the PLS questionnaire in Rokoszewska's study (2012) on the basis of Oxford's (1990) classifications, the researcher divided the questionnaire questions into two sections. The first section referred to the general information about the participants including gender, age, English language study experience, while the second section provided the information about participants' strategies in sound perception and production. In section two, according to Oxford's (1990) Language Learning and Pronunciation Learning Strategies, the questions were classified into six parts: memory strategies (1-7), cognitive strategies (8-17), compensation strategies (18-21), metacognitive strategies (22-26), affective strategies (27-31), and social strategies (32-35). The participants were requested to rate how frequently they used them on a 5-point Likert scale, from 1- never to 5 always (Appendix E).

### 4. Interviews

Interviews are a way to systematically collect data from individuals by talking and listening to people. The participants or the interviewees can have a chance to talk about their opinions, experiences and individual feelings towards the topics in the interview. The interviews provide in-depth information as qualitative data.

In this study, the semi-structured interview was employed. According to Harrell, & Bradley (2009), in semi-structured interviewing, guided questions are used to cover the topics or the particular issues. Moreover, the order of the questions is well arranged deliberately. This kind of interview is often used to elicit deeply into a topic to get in-depth information from the interviewees for analyzing and answering the research questions. Cohen, & Crabtree (2008) propose that a semi-structured interview is often used by many researchers since they can prepare interview questions ahead of time. This provides the interviewer to have enough time to arrange and appear to be skilled during the interview. Semi-structured interviews also provide the interviewees the opportunity to express their perspectives in their own terms. Additionally, semi-structure interviews can provide reliable and comparable qualitative data. Hence, for this study, the researcher employed the semi-structured interview to ask the participants in depth about their English pronunciation problems, perception and production performance of the three regular past tense allomorphs, and the strategies they used to perceive and produce the regular past tense morpheme.

**4.1 Participants of the Interview**

There were twelve participants in the interview. The interview participants were purposively selected from the sixty participants of the tests. Six participants from the low proficiency group and another six participants from the high proficiency group were chosen by using their scores from the tests. Thus, each group consisted of two high scored, two medium scored and two low scored students.

**4.2 The Interview Questions**

The interview questions were divided into three main focuses: 1) the difficulty of perception and production of English (items 1-2), 2) the knowledge of the regular past tense verbs pronunciation rules and the potential perceptual and productive performances (items 3-4), and 3) the pronunciation learning strategies of the regular past tense morpheme (items 5-7) (Appendix F).

In essence, the results from all tests were employed to answer the first research question. The findings of the PLS questionnaire and the interview would answer the second research question.

**Research Validity and Reliability**

In this study, the IOC (Index of Item-Objective Congruence) was used to verify all tests and the questionnaire questions in order to ensure that all tokens and questions fit the objectives of the study. All thirty words used in the tests were sent to three experts in English phonetics and linguistics to check their appropriateness for examining the proficiency level to perceive the regular past tense verbs in terms of phonology of the first-year and third-year English major students. Likewise, the questionnaire questions were also checked by the three experts to justify and adjust each question to suit its category and appropriateness for eliciting the information about language learning and pronunciation learning strategies of the learners. After checking by the three experts, the researcher made a few changes in terms of words used in the tests and some contents in the questionnaire questions. With this, content validity was established (Appendix G).

Moreover, a pilot study was also conducted to assure and check the validity and reliability of the tests and the questionnaire. The pilot study was conducted with ten first-year and ten third-year English major students at the Faculty of Education, Thepsatri Rajabhat University. The results of the pilot study were used to improve the research tests and gave a good chance to the researcher for practicing how to manage the details of data gathering. During running of the pilot study, the researcher discovered some problems regarding time limitation and sound environment around the piloting room. Due to the limitations of the testing room, the audio sounds were not particularly good in quality. The students could not clearly listen to the recorded sounds in perception tests, and there were some disturbance sounds when recorded in the production test. Thus, the researcher managed the proper scheduled time and prepared a soundproof room for the tests in the current study.

Additionally, the inter-rater reliability (IRR) was also taken into consideration to check the reliability of the level of agreement between the two raters on the production test. The Pearson correlation coefficient value of $r = .56$ demonstrated a moderate positive correlation between the two raters on the performance of the first-year students. As well, in the third-year students, the Pearson correlation coefficient value of $r = .81$ revealed a very strong positive correlation. With this in mind, the inter-rater reliability was confirmed.

**Research Design**

The researcher started to collect quantitative data by using the perception test, the production test and the questionnaire in the first phase. Following up with qualitative data, the second phase started after analyzing quantitative data using quantitative results to shape the interview questions. The purposes of using this method, namely a Mixed Methods Explanatory Sequential Design, were to help explain quantitative results that need further exploration by using qualitative data, and to purposefully select the best participants for qualitative study.

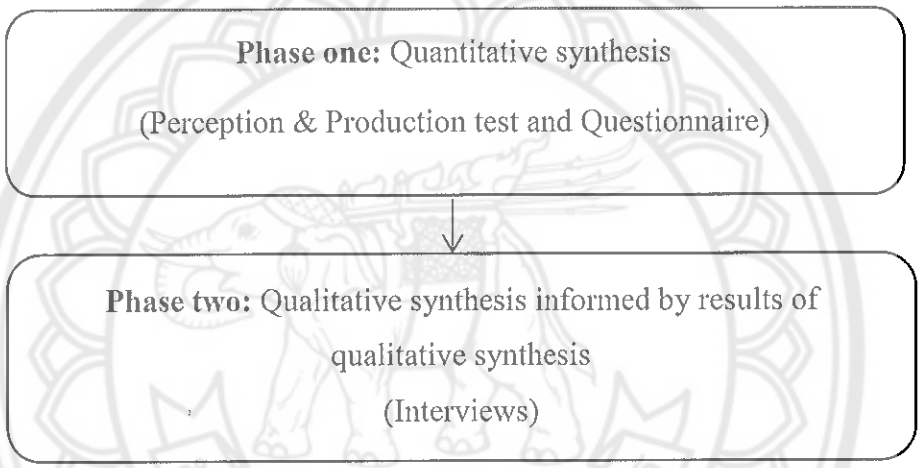


**Figure 1 Sequential explanatory design**

**Data Collection Procedure**

After the validity of contents in the tests and questionnaire was measured, the procedure of data collection progressed according to the following steps.

First, the researcher scheduled the participants in both groups to take the perception test. All thirty participants in each group took the test at the same time. The participants sat in a room and were asked to listen carefully to the audio sounds pronounced by an American native speaker. Each item was pronounced twice. The pause between the first and second readings was 2-3 seconds. The participants chose the best answer from the four choices (a, b, c, and d). The test took approximately twenty-five minutes to complete. Shortly after the participants completed the perception test part 1, the perception test part 2 was handed out. In part

2, the participants were asked to listen to the same audio sounds as in part 1. What they had to do was to write the number of the syllables of a word they heard on the paper sheet. It took them another twenty-five minutes to complete the test. Finally, the pronunciation learning strategies questionnaire was distributed to the participants. They were requested to fill out the questionnaire related to their pronunciation learning strategies. The questionnaire took about fifteen minutes to complete. The reason why the perception test must be taken before launching the questionnaire was to allow the students to get some ideas of how well they can handle English sounds.

Second, three weeks after the data collection of phase one finished, the same group of students was asked to do the production test. The first part of the production test was carried out individually in a soundproof room. The researcher requested the individual participants to carefully pronounce each word on the list twice and pause between the first and second pronunciations for about 2-3 seconds. The pronounced sounds of each participant were recorded by an audio recorder. It took fifteen minutes to complete the test. Immediately after the students finished the test, the researcher asked them to do the second part of the production test (the syllable identification) by writing down the number of syllables of each token on the list within twenty-five minutes. After a few weeks, the researcher checked the answers of the perception test and the answers the production test in part 2. The answers of the production test in the first part were scored by two native English speakers. Then the researcher analyzed all the results from the perception test, the production test and the findings from the PLS questionnaire to design the interview questions.

Finally, a few weeks after finishing all tests and the interview questions were prepared, the researcher scheduled the times with the participants individually to conduct the interviews. Before starting the interview, the researcher briefly explained the background information involving the purposes of the study and the interview procedure. Then the researcher asked the participants for permission to have the interview recorded. The interviews were carried out in Thai, and took approximately 25-30 minutes. Below is a summary of a flow chart of the data collection process.

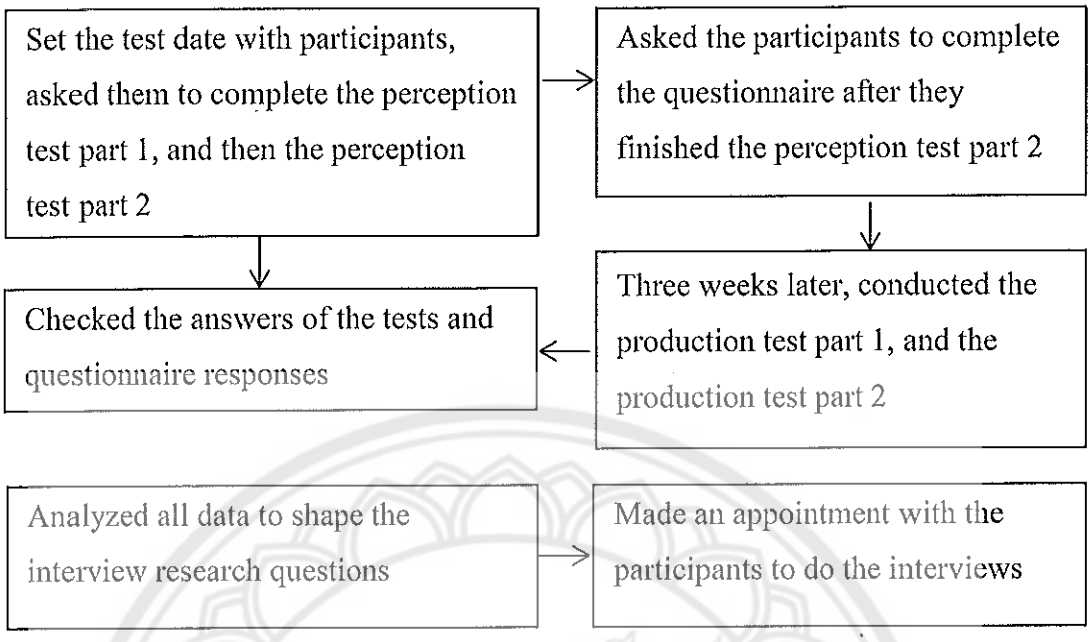


**Figure 2 Procedure of data collection**

**Analysis of Data and Statistical Devices**

To answer the first research question (*To what extent do the first-year and the third-year students perceive and produce the English regular past tense verbs among the three different allomorphs ([t], [d] and [ɪd]) of the regular past tense morpheme?*), the scores of the tests were computed via the SPSS (the Statistical Package for the Social Sciences) program. The computed data were divided into two sections. One made use of an independent sample t-test with the aim of finding out the significant differences of the ability to perceive and produce the regular past tense morphemes between the first and the third-year students. Another section was formed into three groups according to the three allomorphs of the regular past tense morpheme and displayed in mean scores and standard deviation. The analyzed data of the three allomorphs in each test were scaled from high to low mean scores (e.g., [ɪd] > [t] > [d]). The scale respectively showed the extent which the participants could perceive and produce the three allomorphs. The total mean scores were used to compare the ability to perceive and produce the allomorphs between the first and the third-year students.

To answer the second research question (*What are the strategies that the first-year and the third-year students employ to perceive and produce the three different allomorphs of the regular past tense morpheme?),* the strategies which the participants used to perceive and produce the regular past tense morpheme were collected from the questionnaire and interviews. In this step, the processes of analyzing data were divided into two parts. First, the information derived from the questionnaire was computed by the SPSS program to find out the significant difference of the pronunciation learning strategies between both groups. Second, the interviews were attentively listened to and coded. The coded data were categorized according to strategies classifications. Further information derived from the interviews would be analyzed to support and describe the results of all tests. The interviews' findings were presented in descriptive form and then followed by illustrative quotes from the actual data.

# CHAPTER IV

# RESULTS

This chapter reports the results of the investigation into the extent to which the first-year and the third-year English major Naresuan University undergraduate students perceive and produce the English regular past tense morphemes. In addition, the results of the investigation of pronunciation learning strategies used by both groups of students are also presented. Based on collected data from the perception test, the production test, the questionnaire and the interviews, the findings were presented to answer the following research questions:

1. To what extent do the first-year and the third-year students perceive and produce the English regular past tense verbs among the three different allomorphs ([t], [d] and [ɪd]) of the regular past tense morpheme?

2. What are the strategies that the first-year and the third-year students employ to perceive and produce the three different allomorphs of the regular past tense morpheme?

To answer the first research question, the overall results, the results of the three allomorphs of the perception test and the production test by the first and the third year students are described below.

## The Results of the Perception Test Part 1

**Table 5 The total mean scores and standard deviation of both groups in the perception test part 1**

| Group | N | Mean | SD | t | p-value |
|---|---|---|---|---|---|
| first-year students | 30 | 18.53 | 1.20 | -1.92 | .061 |
| third-year students | 30 | 19.47 | 2.37 | | |

p>.05

According to table 5, the mean score of the first-year students was 18.53 (SD=1.20), and the mean score of the third-year students was 19.47 (SD=2.37). The results of an independent t-test showed no significant difference between the first and the third-year students at an alpha level of 0.05 (t=-1.92; p>.05). Based on the statistical findings, we cannot identify which group performed better.

**Table 6 Mean scores and standard deviation of both groups in the perception test part 1 by allomorphs**

| Allomorphs | Group | N | Mean | SD | t | p-value |
|---|---|---|---|---|---|---|
| Allomorph [t] | first-year students | 30 | 5.53 | .97 | .22 | .826 |
| | third-year students | 30 | 5.47 | 1.33 | | |
| Allomorph [d] | first-year students | 30 | 5.33 | 1.18 | -2.93 | .005* |
| | third-year students | 30 | 6.33 | 1.45 | | |
| Allomorph [ɪd] | first-year students | 30 | 7.67 | 1.12 | .00 | 1.00 |
| | third-year students | 30 | 7.67 | .99 | | |

*p<.05

As the statistical data show in Table 6, there was a statistically significant difference at an alpha level of 0.05 between the first and the third-year students (t=-2.93; p<.05) in the allomorph [d]. The performance in perceiving the allomorph [d] of the third-year students (M=6.33; SD=1.45) was better than the first-year students (M=5.33; SD=1.18). In addition, no statistically significant difference was found between the first and the third-year students in the allomorphs [t] (t=.22: p>.05) and [ɪd] (t=.00: p>.05). The performances in perceiving the allomorph [t] and [ɪd] were not different between both groups.

**The Results of the Perception Test Part 2**

**Table 7 The total mean scores and standard deviation of both groups in the perception test part 2**

| Group | N | Mean | SD | t | p-value |
|---|---|---|---|---|---|
| first-year students | 30 | 23.57 | 2.66 | -1.70 | .063 |
| third-year students | 30 | 25.03 | 3.30 | | |

p>.05

As shown in Table 7, no statistically significant difference was found (t=-1.70: p>.05) between the first and the third-year students in the perception test part 2. Thus, we cannot identify which group performed better.

**Table 8 Mean scores and standard deviation of both groups in the perception test part 2 by allomorphs**

| Allomorphs | Group | N | Mean | SD | t | p-value |
|---|---|---|---|---|---|---|
| Allomorph [t] | first-year students | 30 | 8.93 | .78 | .40 | .688 |
| | third-year students | 30 | 8.80 | 1.63 | | |
| Allomorph [d] | first-year students | 30 | 8.37 | .96 | .19 | .852 |
| | third-year students | 30 | 8.30 | 1.68 | | |
| Allomorph [ɪd] | first-year students | 30 | 6.27 | 2.64 | -2.42 | .019* |
| | third-year students | 30 | 7.93 | 2.69 | | |

*p<.05

Table 8 shows the results of the independent t-test in each allomorph. The p-value on the syllabic allomorph [ɪd] shows that there was a statistically significant difference between the performance of the syllable identification of the first and the third-year students in the perception test part 2 (t=-2.42: p<.05). The third-year students' ability (M=7.93; SD=2.69) to identify the number of syllables of the

allomorphs [ɪd] was better than the first-year students' (M=6.27; SD=2.63). In addition, there was no statistically significant difference between the first and the third-year students in the non-syllabic allomorphs [t] (t=.40: p>.05) and [d] (t=.19: p>.05). The performances in identifying the number of syllables of the allomorph [t] and [ɪd] were not different between both groups.

**The Results of the Production Test Part 1**

**Table 9 The total mean scores and standard deviation of both groups in the production test part 1**

| Group | N | Mean | SD | t | p-value |
|---|---|---|---|---|---|
| first-year students | 30 | 22.67 | 4.20 | -.66 | .512 |
| third-year students | 30 | 23.30 | 3.16 | | |

p>.05

As shown in table 9, no statistically significant difference was found (t=-.66: p>.05) between the first and the third-year students in the total scores of the production test. Once again, we cannot identify which group performed better.

**Table 10 Mean scores and standard deviation of both groups in the production test part 1 by allomorphs**

| Allomorphs | Group | N | Mean | SD | t | p-value |
|---|---|---|---|---|---|---|
| Allomorph [t] | first-year students | 30 | 7.40 | 2.63 | -2.21 | .032* |
| | third-year students | 30 | 8.63 | 1.54 | | |
| Allomorph [d] | first-year students | 30 | 7.93 | 1.95 | -3.05 | .004* |
| | third-year students | 30 | 9.17 | 1.05 | | |
| Allomorph [ɪd] | first-year students | 30 | 7.33 | 2.04 | 2.75 | .008* |
| | third-year students | 30 | 5.50 | 3.04 | | |

*p<.05

As shown in Table 10, the results of the independent t-test show that among both high and low proficiency groups, there were significant differences in the production of the 3 allomorphs. ([t]; t=-2.21: p<.05), ([d]; t=-3.05: p<.05), and ([ɪd]; t=2.75: p<.05). The high proficiency group performed the non-syllabic allomorphs [t] and [d] better than the low proficiency one. Nonetheless, the low proficiency group had better performance than the high proficiency group in the syllabic allomorph [ɪd].

**The Results of Production Test Part 2**

**Table 11 The total mean scores and standard deviation of both groups in the production test part 2**

| Group | N | Mean | SD | t | p-value |
|---|---|---|---|---|---|
| first-year students | 30 | 20.07 | 3.52 | .86 | .393 |
| third-year students | 30 | 19.13 | 4.79 | | |

p>.05

Table 11 displays the results of the independent t-test of the production test part 2. No statistically significant difference was found between the low proficiency and the high proficiency group in terms of identifying the number of syllables of the regular past tense verbs (t=.86: p>.05). The overall ability to identify the number of syllables in the production test by both groups was not different.

**Table 12 Mean scores and standard deviation of both groups in the production test part 2 by allomorphs**

| Allomorphs | Group | N | Mean | SD | t | p-value |
|---|---|---|---|---|---|---|
| Allomorph [t] | first-year students | 30 | 7.40 | 2.62 | .87 | .39 |
| | third-year students | 30 | 6.73 | 3.31 | | |
| Allomorph [d] | first-year students | 30 | 6.90 | 2.28 | .42 | .68 |
| | third-year students | 30 | 6.63 | 2.61 | | |
| Allomorph [ɪd] | first-year students | 30 | 5.77 | 2.98 | .00 | 1.00 |
| | third-year students | 30 | 5.77 | 2.92 | | |

p>.05

As can be seen in table 12, there were no statistically significant differences between both groups in every regular past tense allomorph in the production test part 2 ([t]; t=.87: p>.05), ([d]; t=.42: p>.05), and ([ɪd]; t=.00: p<.05). The students in both groups equally performed in the production test part 2.

**The Findings from the PLS Questionnaire**

To answer the second research question, the PLS questionnaire results and the interview findings are described and illustrated below.

The second question was: *What are the strategies that the first-year and the third-year students employ to perceive and produce the 3 different allomorphs of the regular past tense morpheme?*

**Table 13 Mean scores and standard deviation of both groups in the PLS questionnaire**

| Group | N | Mean | SD | t | p-value |
|---|---|---|---|---|---|
| first-year students | 30 | 3.36 | .37 | .18 | .857 |
| third-year students | 30 | 3.34 | .32 | | |

p>.05

Table 13 shows that there was no statistical significance at an alpha level of 0.05 (t=.18; p=.857). Both groups did not show any different opinions on the strategies of learning English pronunciation.

**Table 14 Mean scores and standard deviation of both groups in the questionnaire by types of PLS strategies**

| Strategies | Group | N | Mean | SD | t | p-value |
|---|---|---|---|---|---|---|
| Memory | first-year students | 30 | 3.01 | .62 | .07 | .948 |
| | third-year students | 30 | 3.00 | .51 | | |
| Cognitive | first-year students | 30 | 3.63 | .54 | .63 | .530 |
| | third-year students | 30 | 3.54 | .48 | | |
| Compensation | first-year students | 30 | 3.15 | .59 | -.29 | .776 |
| | third-year students | 30 | 3.19 | .54 | | |
| Meta-cognitive | first-year students | 30 | 3.38 | .65 | .09 | .927 |
| | third-year students | 30 | 3.37 | .45 | | |
| Affective | first-year students | 30 | 3.69 | .51 | .90 | .374 |
| | third-year students | 30 | 3.55 | .64 | | |
| Social | first-year students | 30 | 3.30 | .57 | -.67 | .508 |
| | third-year students | 30 | 3.40 | .59 | | |

p>.05

The findings presented in Table 14 shows that among both high and low proficiency groups, there were no statistically significant differences in the strategies they employed in every type of PLS [(memory strategies; t=.07: p>.05), (cognitive strategies; t=.63: p>.05), (compensation strategies; t=-.29: p<.05), (meta-cognitive strategies; t=.09: p>.05), (affective strategies; t=.90: p>.05) and (social strategies; t=-.67: p>.05)]. The first and the third-year students identically used every strategy, on the average. However, the highest mean scores by both groups display in the cognitive (M=3.63: SD=.54 in low proficiency group and M=3.54: SD=.48 in high proficiency group) and affective strategies (M=3.69: SD=.51 in low proficiency group and

M=3.55: SD=.64 in high proficiency group). The cognitive and affective strategies were more slightly used by the first and the third-year students when compared to the other strategies.

**Table 15 The three highest mean scores and standard deviation of the questions in the PLS questionnaire by the first-year students**

| Group | N | Question No. | Mean | SD |
|---|---|---|---|---|
| 1st year students | 30 | Q9: I listen to songs or watch any kinds of entertainment in English via the radio, TV or the Internet. | 4.27 | .88 |
| | | Q29: I encourage myself to work on pronunciation even when I think that something is too difficult for me or when I do not feel like learning. | 4.27 | .87 |
| | | Q23: I notice the pronunciation when teachers or speakers speak English and compare to myself in order to improve my pronunciation. | 4.10 | .85 |
| | | Q28: I encourage myself to speak English even when I am afraid that my pronunciation is not good. | 4.00 | .95 |

Table 15 shows the three highest mean scores of the questionnaire questions by the low proficiency group. First, they equally made the greatest use of the strategy number 9 (M=4.27: SD=.88) and the strategy number 29 (M=4.27: SD=.87). Second, the second highest mean scores showed in the strategy number 23 (M=4.10: SD=.85). Finally, the low proficiency group rated the strategy number 28 as the third highest mean scores.

**Table 16 The three highest mean scores and standard deviation of the questions in the PLS questionnaire by the third-year students**

| Group | N | Question No. | Mean | SD |
|---|---|---|---|---|
| 3rd year students | 30 | Q9: I listen to songs or watch any kinds of entertainment in English via the radio, TV or the Internet. | 4.37 | .67 |
| 3rd year students | 30 | Q22: When I prepare a talk in English, I look up the pronunciation of new words in a dictionary and practice their pronunciation. | 4.07 | .74 |
| | | Q28: I encourage myself to speak English even when I am afraid that my pronunciation is not good. | 4.03 | .85 |

The results displayed in table 16 illustrate the three highest mean scores of the questionnaire questions by the high proficiency group. Similar to the low proficiency group, the highest mean scores appeared in the strategy number 9 by the high proficiency group (M=4.37: SD=.67). The second highest mean scores emerged in the strategy number 22 (M=4.07: SD=.74). The strategy number 28 was rated as the third highest mean scores (M=4.03: SD=.85).

**Table 17 The lowest mean scores and standard deviation of the questions in the PLS questionnaire by both groups**

| Group | N | Question No. | Mean | SD |
|---|---|---|---|---|
| 1st year students | 30 | Q19: If I do not know how to pronounce an "-ed" ending verb, I will avoid using it. | 2.23 | .94 |
| 3rd year students | 30 | Q26: I evaluate my progress in pronunciation by recording myself and comparing my pronunciation to the pronunciation of native speakers. | 2.20 | .85 |

As can be seen in table 17, the low proficiency group made the least use of the strategy number 19 (M=2.23: SD=.94) whereas the high proficiency one made the least use of the strategy number 26 (M=2.20: SD=.85).

**The Findings from the Interviews**

The following section provides interview information on students' opinions towards English pronunciation, the perception and production performance of the three past tense allomorphs and the pronunciation learning strategies. All twelve participants consisting of six first-year students and six third-year students were purposefully selected according to their scores on the tests which were divided into three main groups (high, medium and low score groups). The informants agreed to attend a face-to-face interview. The results were presented in a descriptive form with illustrative quotes from actual data. All participants were comfortable to have the interview in Thai; therefore, their responses were translated into English by the researcher. All participants' responses were coded as the examples below:

H11 refers to a participant who was the first-year student, the first person who attended the interview, and a high scored student.

M13 refers to a participant who was the first-year student, the third person who attended the interview, and a medium scored student.

L14 refers to a participant who was the first-year student, the fourth person who attended the interview, and a low scored student.

H31 refers to a participant who was the third-year student, the first person who attended the interview, and a high scored student.

**1. Students' Opinions towards English Pronunciation**

**1.1 Opinions towards English Perception Difficulties**

When the participants were questioned on the difficulty of English perception, five of them did not mention their perception difficulty in general. The others responded variously. Two third-year students (M33 and L35) who had medium and low scores and a low scored first-year student (L14) agreed that the unseen or unfamiliar English words are the most troublesome in their English perception. Moreover, a high scored first-year student (H11) stated her perception problem on the stress of English words, whereas another one (M13) replied broadly

that she always has a problem with her listening skill. In addition, the perception difficulty towards the varieties of English accents was elicited from a high scored third-year student (H32). A surprising response was given by a medium scored third-year student (M34). He claimed that perceiving English sounds are not difficult for him in any parts of the word.

> ...I can mostly grasp and identify every pronounced sound in each part of words, and understand the meaning of them. However, when I only focused on the meanings of the word, I sometimes do not notice the pronounced sounds, especially the coda cluster sound.
>
> (M34, a face-to-face interview, November 17, 2017)

Furthermore, strong evidence of the difficulty of coda cluster perception were found when the participants were asked *"Which English sound or which part of a word (initial consonant, vowel or final consonant) is difficult for you to perceive?"*.

**Table 18 Interview responses of the question about the perception difficulty**

| Interview Responses | Respondents | |
|---|---|---|
| | First-year students | Third-year students |
| 1. Coda cluster is the most difficult part of words to perceive. | All students (100%) | H32 / M33 / L35 (50%) |
| 2. Onset cluster is another part that is difficult to perceive. | H11 (17%) | None (0%) |
| 3. Not any parts of word are difficult to perceive. | None (0%) | M34 (17%) |
| 4. No response | None (0%) | H31 / L36 (33%) |

All first-year students (100%) and three third-year students (50%) in each scored group clarified that they did encounter the difficulty of coda cluster perception. A high scored third-year students gave more details in the interview extract below.

> …When I perceive a familiar word with coda cluster ending sounds, I can hear every sound in that part, but if the word is unfamiliar, I will not be able to discriminate each sound in a coda cluster.
>
> (L35, a face-to-face interview, November 15, 2017)

Additionally, a high scored first-year student (17%) added one more aspect about perceiving of consonant clusters. She indicated that she also had a problem on initial consonant cluster perception.

> …Some words with onset cluster confused me when I perceived their initial sounds like the word "bright" or "blind". I cannot distinguish the sound I heard.
>
> (H11, a face-to-face interview, November 17, 2017)

**1.2 Opinions towards English Pronunciation Difficulties**

In response to the first interview question: "*What are your English pronunciation problems?*", two high scored students in both groups (H15 and H32) mentioned that they faced the difficulty to correctly stress a word syllable. Two others (M13 and M33) stated that the confidence to speak English was their major problem. They were afraid of making a mistake in their English pronunciation. Besides, the problem of an unknown word pronunciation also appeared in both first and third-year students (M16 and L35). Furthermore, one remarkable response from a first-year student (L14) mentioned that some English consonant sounds (e.g. /ʃ/, /tʃ/, /θ/, /ð/) which do not exist in Thai consonants are difficult to pronounce.

> …I have a problem to clearly pronounce some English consonants such as sh, ch or th.
>
> (L14, a face-to-face interview, November 15, 2017)

In terms of perception, the results were not much different from the pronunciation problems. As well, the stress of words and the unknown words are the perceptual problem. However, a third-year high scored student added one more interesting problem, mentioning that different English accents are difficult to perceive.

> …English has various accents, so the variety of English accents is the one of the causes of the difficulty in English conversation. For me, I prefer American English accent.
>
> (H32, a face-to-face interview, November 15, 2017)

Additionally, when the participants were asked '*Which English sound or which part of a word (initial consonant, vowel or final consonant) is difficult for you to pronounce?*', the majority commented that the coda cluster is the most difficult part of words to pronounce and perceive while others responded with various answers. To be precise, according to this question, the responses from twelve informants were categorized into three main points. That is to say, nine of the twelve participants (75%) mentioned that coda cluster is the most difficult part of words to pronounce. Four (33%) stated that they always struggle to pronounce vowels and compound vowels. On the other hand, two participants (17%) from both groups claimed that not any parts of a word are difficult for them in English speech production. The three main points are shown in table 19 below.

**Table 19 Interview responses to the question about the production difficulty**

| Interview Responses | Respondents | |
|---|---|---|
| | First-year students | Third-year students |
| 1. Coda cluster is the most difficult part of words to pronounce. | H11/ H15 L12 / L14 (66%) | H31 / H32 / M33 M34 / L35 / L36 (100%) |
| 2. Not any parts of words are difficult to pronounce. | M16 (17%) | None (0%) |

**Responses of the participants who thought coda cluster is the most difficult part of words to pronounce**

The following quotes illustrate the expressions of the respondents who were in agreement on this issue. As M33 stated:

> ...Coda cluster is the most difficult part of words to perceive and pronounce, especially when words end with the suffix '-ed' because to pronounce those words, it depends on the their ending sound which may be voiced or voiceless.
>
> (M33, a face-to-face interview, November 17, 2017)

M33 clarified that general words which end with coda cluster like "*first*" were less difficult to perceive and produce than words ending with '–ed' morpheme. However, she added that although she found difficulties in English pronunciation, she preferred frequently practicing her speaking skill with English native speakers in order to improve her perception and production of English.

M34's response corresponded with M33's claim that pronouncing English words was rather hard for him, particularly words ending with consonant clusters. The reason was he thought that it was because of the difference of language features between Thai and English. As he explained:

> …I think the last part of word is difficult to pronounce. Sometimes, I do not realize to pronounce every sound in an English word, especially the sounds of consonant clusters. When I communicate in English, I only focus on the meaning, not the accuracy of pronunciation. It may be because I am Thai.
>
> (M34, a face-to-face interview, November 17, 2017)

**Response of the participant who thought not any parts of words are difficult to pronounce**

There was only one participant, one medium scored first-year student, who mentioned that every part of words was not difficult to pronounce.

However, it is noted that some participants also responded about the vowels. They said that vowels are the most difficult part to pronounce.

In summary, these findings suggest that in general perceiving and producing English words, cluster consonants are one of the obstacles in English pronunciation by Thai EFL students. Both clusters, particularly coda clusters, pose difficulties for the Thai participants to perceive and produce the sounds. In the next section, perception and production performance of the three past tense allomorphs will be discussed.

**2. Perception and Production Performance of the Three Past Tense Allomorphs**

This section presents the interview responses regarding the '-ed' ending pronunciation methods that the participants employ when they produce the regular past tense verbs in their speech production, the performance in differentiating each '-ed' ending sound, the performance in pronouncing each '-ed' ending sound, and how they identify the numbers of syllables of regular past tense verbs.

**2.1 How to Pronounce the '-ed' Ending Sounds**

In case of the '-ed' ending pronunciation methods used by the participants, four of the six third-year students (66%) indicated that when they pronounced the regular past tense verbs, they concentrated on the final consonant of each word according the regular past phonological rules, while other responses were

also found in the interview. To illustrate the derived information, all data are organized in table 20 below.

**Table 20 Interview Responses Regarding How to Pronounce the Regular Past Tense Allomorphs**

| Interview Responses | Respondents | |
|---|---|---|
| | First-year students | Third-year students |
| 1. Focus on the final consonant of that word | H11/ H15 (33%) | H31 / H32 / M33 /L36 (66%) |
| 2. Remember and compare with similar words | M13 (17%) | None (0%) |
| 3. Do not have any methods | M16 / L12 / L14 (50%) | M34 (17%) |
| 4. No response | None (0%) | L35 (17%) |

As shown in Table 18, six of all participants (50%) confirmed their '-ed' ending pronunciation methods as focusing on the final consonants. Since the answers from the six respondents were quite similar, only some clearly described quotes are provided below. A high scored first-year student (H15) somewhat accurately explained how he pronounces the '-ed' ending in accordance with the regular past phonological rules, as he said:

> … I focus on the consonant preceding the past tense suffix '-ed'. If it is "t" or "d", I pronounce that word with the '-ed' sound. When the consonant preceding a suffix '-ed' is not "t" or "d", the '-ed' sound is not pronounced.
>
> (H15, a face-to-face interview, November 17, 2017)

L36 also gave a description on how she pronounces the '-ed' ending verbs. Her answer supported some parts of H15's explanation. To illustrate this, L36 mentioned as follows:

> ...I concentrate on a consonant preceding '-ed'. If that consonant is "t", a special syllable will be added. If that consonant is not "t", the only undertone [d] will be pronounced, or nothing will be changed in pronunciation.
>
> (L36, a face-to-face interview, November 17, 2017)

However, as in the above excerpt, although both students (H15 and L36) claimed that in the production of '-ed' ending, they focused on the final consonant of words to make a decision to pronounce the '-ed' sound, their understanding regarding the regular past tense phonological rules reflects their poor phonetic competence. That is, H15 misunderstood that words without the final consonant of "t" or "d" will not be pronounced the '-ed' sound. Likewise, L36 comprehended that only the allomorph [d] will be pronounced or the '-ed' sound is not pronounced in some words.

Worse, four of all participants (33%) commented that they do not have any methods to pronounce the '-ed' allomorph. They just pronounce it as they think it should be pronounced. Meanwhile, a medium scored first-year student mentioned that she just draws on her memory of how she used to pronounce that word or compared with a similar word.

### 2.2 The Difficulty in Perceiving the '-ed' Ending Sounds

In respond to the question: "*Which '-ed' ending sound do you think is the easiest and the most difficult for you to perceive?*", over half of the participants indicated that the allomorph [ɪd] is easily perceived whereas others responded in various ways. More information is demonstrated in Table 21 below. It is noted that while the interview was in progress, all interviewees were asked to perceive the '-ed' ending sounds one more time by using some selected words from the perception test. The results revealed whether or not their performances to perceive the '-ed' allomorphs were consistent with the results of the perception test past I.

**Table 21 Interview Responses Regarding the Opinions towards the difficulty in perceiving each '-ed' allomorph**

| Interview Responses | Respondents | |
|---|---|---|
| | First-year students | Third-year students |
| 1. [ɪd] is the easiest allomorph to perceive. | H15 / M16<br>L12 / L14<br>(66%) | M32 / M33<br>L35 / L36<br>(66%) |
| 2. [ɪd] is the most difficult to perceive. | None<br>(0%) | H31 / M34<br>(33%) |
| 3. [t] and [d] are not different, but more difficult than [ɪd]. | H15 / M16 / L12<br>(50%) | M33 / L36<br>(33%) |
| 4. [t] and [d] are a little bit different. | H11<br>(17%) | None<br>(0%) |
| 5. All three of them are not difficult to perceive. | L14<br>(17%) | None<br>(0%) |

In Table 21, eight of all students (66%) from the three scored groups claimed that the allomorph [ɪd] is the easiest allomorph to perceive. Eight of all students (66%) affirmed that the easiest allomorph is the allomorph [ɪd]. On the contrary, two third-year students (33%) who were in high scored and medium scored groups informed that the allomorph [ɪd] is the most difficult allomorph to perceive for them. When the researcher asked H31 to differentiate or identify the '-ed' ending sounds which he had just listened to, he made mistakes in identifying the allomorph [ɪd] though he could correctly identify the other two. Moreover, M34's clarification also supported H31's performance as he said after having the concise perception test:

> ...I think when I perceive the allomorph [ɪd], I was tricked by something.
>
> (M34, a face-to-face interview, November 17, 2017)

Another five students (42%) –three first-year students as well as two third-year students from high, medium and low scored groups— stated that the allomorphs [t] and [d] are not different, but more difficult to perceive than the allomorph [Id]. They could not distinguish the differences between the allomorph [t] and [d]. A low scored first-year student (L12) replied when the researcher asked about the differences of the '-ed' ending pronunciation of the three sets of words she perceived:

> …the '-ed' sounds in the third set of words (words ending with the allomorph [ɪd]) are pronounced as the additional syllable, but I am not sure about the other two ([t] and [d]).
>
> (L12, a face-to-face interview, November 17, 2017)

In accordance with L12's performance, L36 also faced the difficulty in discriminating the differences between the allomorph [t] and [d]. He clearly described his perceptual performance as follows:

> …I think the '-ed' ending sounds of the first (allomorph [t]) and the second sets (allomorph [d]) are not different while the third (allomorph [ɪd]) set is absolutely different from them. The '-ed' ending sound in the third one is pronounced as [ɪd].
>
> (L36, face-to-face interview, November 17, 2017)

Furthermore, a low scored first-year student (L14) replied that the allomorphs [t] and [d] are slightly different, though she cannot clearly explain how each allomorph in the set number one (the allomorph [t]) and two (the allomorph [d]) is different. As she stated:

> … The '-ed' ending of the words in the set number two are pronounced, but the '-ed' ending of the words in the set number one are not pronounced.
>
> (L14, face-to-face interview, November 15, 2017)

However, there was one high scored first-year student (H11) who made an interesting response that all of the three regular past tense allomorphs were not difficult to perceive for her.

**2.3 The Difficulty in Producing the '-ed' Ending Sounds**

The researcher requested the interviewees to produce some selected words from the production test and asked them a question: *"Which '-ed' ending sound do you think it is the easiest and the most difficult for you to pronounce?"* The findings are shown in table 22 below.

**Table 22 Interview Responses Regarding the Opinions towards the difficulty in producing each '-ed' allomorph**

| Interview Responses | Respondents | |
|---|---|---|
| | First-year students | Third-year students |
| 1. [t] is the most difficult allomorph to produce. | H11 (17%) | H32 / L36 (33%) |
| 2. [d] is the most difficult allomorph to produce. | H15 / M13 / M16 (50%) | H31 (17%) |
| 3. [ɪd] is the most difficult allomorph to produce. | None (0%) | M33 / M34 (33%) |
| 4. [t] and [d] are the most difficult allomorphs to produce. | L14 (17%) | None (0%) |
| 5. [t] and [ɪd] are the most difficult allomorphs to produce. | None (0%) | L35 (17%) |
| 6. All allomorphs are difficult to produce. | L12 (17%) | None (0%) |

As can be seen in Table 22, three (H11, H32 and L36) of twelve participants (25%) confirmed that they particularly encountered difficulty with the production of the allomorph [t]. Four (H15, M13, M16 and H31) from all participants (33%) reported the most difficulty in producing the allomorph [d]. Two third-year students (M33 and M34) agreed that the allomorph [ɪd] is the most difficult allomorph

to produce. For instance, from the observation of the researcher while the interview was in progress, M33 had a problem in pronouncing the regular past tense verbs ending with "-t", which employs the allomorph [ɪd]. That is to say, the additional syllable was omitted in her pronunciation of the past tense verbs having "-t" as a final consonant. Only one (L14) of all participants (8%) claimed that the allomorphs [t] and [d] are the most difficult allomorphs to produce. Besides, a low scored third-year student (L35) (8%) informed that she mostly had difficulty in producing the allomorphs [t] and [ɪd]. From the researcher's observation, she performed very well on the allomorph [d] while mostly incorrectly pronouncing the allomorph [ɪd] and [t]. However, there was one student (L12) (8%) who had a problem in pronouncing all allomorphs.

**2.4 How to Identify the Number of Syllables of Regular Past Tense Verbs**

To elicit how the students identify the number of syllables of regular past tense verbs, the question: "*How do you identify the number of syllables of regular past tense verbs?*" was employed. Two students of all (17%) participants applied the regular past phonological rules in order to identify the number of syllables of regular past tense verbs. The majority (58%) agreed that to identify the number of syllables of regular past tense verbs, they try to pronounce each word, and count the number of the sounds they pronounced, whereas the other three participants used other ways.

**Table 23 Interview Responses Regarding How the Students Identify the Number of Syllables of Regular Past Tense Verbs**

| Interview Responses | Respondents | |
|---|---|---|
| | First-year students | Third-year students |
| 1. Apply regular past tense phonological rules | H15 (17%) | H32 (17%) |
| 2. Focus on the modification of spelling | H11 (17%) | None (0%) |

**Table 23 (cont.)**

| Interview Responses | Respondents | |
|---|---|---|
| | **First-year students** | **Third-year students** |
| 3. Try to pronounce and count the numbers of the sound | M13 / M16 / L12 / L14 (66%) | H31/ /M33 M34 (50%) |
| 4. Focus on the number of vowels | None (0%) | L35 / L36 (33%) |

Regarding H15's description, the regular past tense phonological rules made a practical use for identifying the number of syllables. As he informed:

> ...If the consonant "t" or "d" precedes the '-ed' ending, the extra-syllable is added. If the preceding consonant is not "t" or "d", there is no need to add an extra-syllable.
>
> (H15, a face-to-face interview, November 17, 2017)

Similar to H15's claim, without any mention from H32, the researcher observed that she could apply her knowledge of the regular phonological rules for identifying the number of syllables when she was asked about the number of syllables of the provided words.

Another interesting method was found in H11's claim. The high scored first-year student stated that she would notice the spelling of a word for identifying the number of syllables of regular past tense. She exemplified her understanding as follows:

> ...I will notice the change of spelling of the regular past tense verb. For example, the term "study", its spelling will be changed into "studied" when it is used in the sense of past tense in a sentence; therefore, the different spelling implies the different numbers of syllables in the same word.
>
> (H11, a face-to-face interview, November 17, 2017)

The majority of the respondents (58%) including two medium and two low scored first-year students as well as a high and two medium scored third-year students commented that they tried to pronounce and count the number of the sounds which they produced so as to identify the number of syllables of the regular past tense verbs. Noticeably, a medium scored first-year student unclearly exemplified her understanding to identify the numbers of syllables, as she said:

> ...I count the numbers of syllables according to the sound I pronounced. For example, when I pronounce "stopped", I will identify that there are two syllables, and one syllable for the word "passed". However, when I perceived the term "stopped" I think it has three syllables, and the term "passed" has two syllables.
>
> (M16, a face-to-face interview, November 17, 2017)

The remaining two participants (33%) of the third-year students (L35 and L36) were in agreement that the number of vowels appearing in regular past tense verb influence the number of syllables. However, according to the researcher's observation, L35 performed well when the researcher asked her about the number of syllables of the provided words although she obviously seemed to be uncertain how to answer the question.

**3. Pronunciation Learning Strategies Used by the First and the Third-year Students**

When the participants were asked about the strategies which they always employ in order to improve their pronunciation learning, their answers were varied. Table 24 shows the list of the pronunciation learning strategies derived from the interview.

**Table 24 Interview Responses Regarding Pronunciation Learning Strategies**

| Pronunciation Learning Strategies | Respondents | |
|---|---|---|
| | First-year students | Third-year students |
| 1. Listen to songs or watch any kinds of entertainment in English via the radio, TV or the Internet | All students (100%) | All students (100%) |
| 2. Record his/her own voice | H11 / M16 / L14 (50%) | H32 / M33 / L36 (50%) |
| 3. Search on-line dictionary to cope with the pronunciation of an unknown word | All students (100%) | All students (100%) |

Supporting the results of the questionnaire, all students (100%) in both groups mentioned that they always listen to songs or watch any kinds of entertainment in English via the radio, TV or the Internet to develop their English pronunciation. Moreover, some of them added that they sometimes repeat after the original so that they can attempt to achieve native-like proficiency in terms of pronunciation, as H32 claimed:

> …I like to watch BBC news to practice my listening skill. While watching, I repeat after the reporter. As well, I sometimes watch chat shows and imitate their pronunciation.
>
> (H32, face-to-face interview, November 15, 2017)

Apart from watching and listening to various kinds of entertainment, L36 added the interesting strategy that he usually uses to practice his English pronunciation. He also confirmed that he could improve his English pronunciation via this method.

> ...I talk to myself in English when I stay alone in my room. I find my mistakes in pronunciation when I listen to what I had just said.
>
> (L36, face-to-face interview, November 17, 2017)

Furthermore, the responses from six students (50%) (Three from the first-year and three from the third-year students) were compatible with the questionnaire's results in that one of the strategies they used was recording their own voice to evaluate their English pronunciation. In this case, an interesting answer was elicited from a low scored first-year student. She claimed that she recorded her voice when speaking English with a mobile application for pronunciation learning.

> ...I installed an application on my mobile phone which can help me to practice my English pronunciation. The application provides some English conversation for users to repeat after the native speakers while the users' voice is recording, and the users can listen to their recorded voice to compare their pronunciation with the original.
>
> (L14, a face-to-face interview, November 15, 2017)

Nevertheless, another interesting strategy was found in a low scored first-year student's description. She explained that:

> ...I prefer practicing my listening skill and learn how to pronounce an English word by concentrating on the pronunciation of Thai and foreign teachers.
>
> (L12, a face-to-face interview, November 17, 2017)

## English Pronunciation Study Environment

**Table 25 Interview Responses Regarding English Pronunciation Study Environment**

| Interview Responses | Respondents | |
|---|---|---|
| | First-year students | Third-year students |
| 1. Relaxing and creating unpressured English pronunciation class | All students (100%) | All students (100%) |
| 2. Outside class study | H11 / H15 M16 / L12 / L14 (83%) | H31 / M33 M34 / L35 / L36 (83%) |
| 3. In class study | M13 (17%) | None (0%) |
| 4. Thai teacher | H15 / L12 (33%) | None (0%) |
| 5. Foreign teacher | H11 / M13 M16 / L12 / L14 (83%) | All students (100%) |
| 6. Close friends | H15 / M13 L12 / L14 (66%) | H32 (17%) |
| 7. Friends | L35 (17%) | None (0%) |
| 8. Both close friends and friends | H11 / M16 (33%) | H31 / M33 M34 / L36 (66%) |

This section provides the information in response to the question: "*Which environment do you prefer to study English pronunciation (in class study or outside class study, Thai teacher or foreign teacher, close friends or friends)?*" Initially, all students (100%) broadly answered this question in the same direction. According to

the respondents, a relaxing, creative and unpressured English pronunciation class was the most desired class. Six (50%) of them gave additional explanation to this issue by stating that it would be great if they could freely discuss a topic according to their opinions in a pronunciation class or discussion class. Additionally, a low scored third-year student (L36) added interesting information as in the excerpt below.

> …It will be a pleasure and enjoyable studying English pronunciation when everyone in the class has a hand in learning.
>
> (L36, a face-to-face interview, November 17, 2017)

The second issue concerning the types of class which the students preferred to study to improve their English pronunciation is revealed in this part. In accordance with the responses, ten (83%) out of twelve students insisted that the outside class study can better their listening and speaking skills, as a high scored first-year student excitedly described her intention to have a chance to study English in real situations.

> …I very much prefer the outside class study because I rarely have a chance to speak English with native or foreigners in real situations.
>
> (H11, a face-to-face interview, November 17, 2017)

To gain more information, the question regarding the third issue was asked promptly. The question was asked: *"Which teacher do you prefer to study English with (Thai or foreign teacher)?"* All third-year students (100%) agreed that learning English pronunciation with foreign or native English teachers will lead to more positive results. Moreover, most first-year students (83%) also agreed with this point. L14 mentioned the reason why she preferred to study with foreign or native English teachers as follows:

> …I prefer to study English with foreign teacher because he/she speaks with a native accent; thus, I can simultaneously practice native accent.
>
> (L14, a face-to-face interview, November 15, 2017)

On the contrary, only two first-year students (H15 and L14) (33%) informed that learning English with Thai teachers also causes positive effects. That is, Thai teachers can explain more clearly than foreign teachers when they do not understand something in a lesson.

The last issue is related to the preference of the kinds of classmates in a pronunciation class. Five students (four first-year students and one third-year student) (42%) indicated that studying English with close friends was more enjoyable because they felt comfortable to speak; on the other hand, only one of all the participants (L35) (8%) commented that she preferred studying English with friends since she believed that if studying with English major students, she would have a better performance than studying with others from different fields. In addition, half of all students (two first-year students and four third-year students) (50%) clarified that they could study English with both close friends and friends since familiarity was not their focus. They just paid attention to students who can work with them at a high level of fluently, and it was a good chance to make new friends.

As the results above demonstrate, in order to manifest the ability to perceive and produce the English regular past tense allomorphs as well as the ability to identify the number of syllables of the regular past tense verbs, the mean scores of each allomorph from each test were scaled.

First, the accessibility hierarchy scales from the first part of the perception test by the low proficiency group were [ɪd]>[t]>[d], while the high proficiency group were [ɪd]>[d]>[t]. Second, the hierarchy scales of the second part in the perception test by the low proficiency group and the high proficiency group were not different: [t]>[d]>[ɪd]. Third, the productive hierarchy scales by both groups from the first past of the production test were the same: [d]>[t]>[ɪd]. Finally, the performances of both groups showed in hierarchy scales were also similar: [t]>[d]>[ɪd].

Furthermore, the findings from the PLS questionnaire showed the high mean scores on the two groups of PLS strategies: 1) cognitive strategies and 2) affective strategies. As well, the findings from the interview revealed three main topics: 1) the difficulty of perception and production of English, 2) the knowledge of the regular past tense verbs pronunciation rules and the potential perceptual and productive performances, and 3) the pronunciation learning strategies of the regular

past tense morpheme. With a Mixed Methods Explanatory Sequential Design, these three major topics derived from the interview would be used to demonstrate the tests results and to confirm the questionnaire findings in the next chapter.

# CHAPTER V

# DISCUSSION AND CONCLUSIONS

This chapter presents the discussion of the tests' results derived from the tests, the PLS questionnaire and the face-to-face interviews as well as the conclusions of the study. The qualitative data from the interviews are used to describe or support the quantitative data from the tests and the questionnaire. The discussion is presented according to the research questions and the hypotheses. There were two major focuses in this section as follows:

1. Perception and Production of the Regular Past Tense Morpheme
2. Pronunciation Language Learning Strategies

This study investigated how well the Thai EFL learners perceive and produce the English regular past tense allomorphs, and examined the strategies they use for perceiving and producing the regular past tense allomorphs ([t], [d] and [ɪd]). The research questions and the hypotheses are below:

1. To what extent do the first-year and the third-year students perceive and produce the English regular past tense verbs among the three different allomorphs ([t], [d] and [ɪd]) of the regular past '*-ed*' morpheme?

2. What are the strategies that the first-year and the third-year students employ to perceive and produce the three different allomorphs of the regular past '*-ed*' morpheme?

**Hypothesis 1:** The third-year students will perceive and produce the regular past tense verbs with a higher rate of accuracy than the first-year students.

**Hypothesis 2:** The first-year students and the third-year students use different strategies to perceive and produce the three different allomorphs of the regular past tense morpheme.

**Perception and Production of the Regular Past Tense Morpheme**

**1. Discussion of the Results of the Perception Test**

According to the results of the first part of the perception test, hypothesis one (*The third-year students will perceive and produce the regular past tense verbs with a higher rate of accuracy than the first-year students)* was rejected. The analysis of an independent t-test revealed no statistically significant difference between the perceptual performance of the low proficiency group and the high proficiency group. That is, both groups could similarly perceive the regular past tense allomorphs in general.

To answer the first research question (*To what extent do the first-year and the third-year students perceive and produce the English regular past tense verbs among the three different allomorphs ([t], [d] and [ɪd]) of the regular past morpheme?*), when each allomorph was taken into consideration, the low proficiency group could perceive the '–ed' ending sounds as the predicted scale of accessibility: [ɪd]>[t]>[d]. However, the allomorph [d] was conspicuously marked as the second higher score by the high proficiency group; therefore, the scale of accessibility from the high proficiency group was: [ɪd]>[d]>[t]. These accessibility scales from both groups were congruent with the concept of the MDH by Eckman (1977) which was used to measure the relative difficulty of the phonological feature of the three allomorphs in this study. That is, the syllabic allomorph [ɪd] which was considered to be the unmarked phonological feature and the easiest allomorph to perceive by the Thai EFL students had the highest mean scores in both groups. Based on the Markedness Theory, the Thai EFL students were supposed to have a higher performance in the syllabic allomorph [ɪd] since it is the most salient sound when compared to the other two sounds. Hence, the regular past tense verbs ending with the syllabic allomorph [ɪd] were expected to be easy for Thai students to perceive. Furthermore, the accessibility scales of both groups were consistent with the Solt et al. (2004)'s hierarchy scale in the sense that both low proficiency group and high proficiency group were able to perceive the syllabic allomorph [ɪd] more accurately than the non-syllabic allomorphs [t] and [d]. However, the high proficiency group's accessibility hierarchy scale did not fit the theoretical framework in that they perceived the voiced [d] better than the voiceless [t].

In addition, the qualitative data from the interviews supported the accessibility scales of the low and the high proficiency groups in the first part of the perception test. 66% of the interviewees agreed that the allomorph [ɪd] was the easiest allomorph to perceive; thus, the allomorph [ɪd] showed the highest mean scores on the accessibility scales by both groups.

In addition, in the second part of the perception test, the abilities to identify the number of syllables of the regular past tense verbs of both groups were also scaled: ([t]>[d]>[ɪd]). The hierarchy scales of both groups in this part revealed inconsistent results to the hierarchy scales of the first part ([ɪd]>[t]>[d] in the low proficiency group and [ɪd]>[d]>[t] in the high proficiency group). Conversely, the syllabic allomorph [ɪd] was scaled as the lowest mean scores by both groups. That is, both groups considered the allomorph [ɪd] to be the most difficult allomorph to identify the number of its syllables when they took the perception test part 2. Such inconsistent results may indicate that the participants in this study might not precisely know the phonological rules of the regular past tense morpheme, or they might lack English listening practice even though they know the rules.

**2. Discussion of the Results of the Production Test**

The results of the production test part 1 rejected the first hypothesis. There was no statistically significant difference between the overall productive performance of the low proficiency group and the high proficiency group. Both groups produced the regular past tense morpheme with the same rate of accuracy.

To answer the first research question, the productive performance of each regular past tense allomorph of the low proficiency group were scaled as: [d]>[t]>[ɪd]. Similarly, the productive scale of the high proficiency group was also [d]>[t]>[ɪd]. These productive scales from both groups did not support Eckman's (1977) MDH concept. The non-syllabic allomorphs [t] and [d] which were considered to be the marked phonological feature for the Thai EFL students had the higher mean scores than the unmarked feature (the non-syllabic allomorph [ɪd]) in this test. That is to say, the concept of the MDH cannot describe this result. Additionally, the productive scales of both groups ([d]>[t]>[ɪd]) were not totally consistent with Solt et al. (2004)'s hierarchy scale ([ɪd]>[t]>[d]). The allomorph [ɪd], which should be the easiest allomorph to produce according to Solt et al.'s study, resulted in the lowest mean

scores by both groups. Thus, the hierarchy scale of Solt et al. (2004)'s study cannot be applicable to the Thai EFL learners in terms of production of the regular past forms. However, the findings from the interview may account for this result, as some of the interviewees reported in the interview that they had learned the rules, but they forgot them, or they could not apply the rules accurately when they had to immediately pronounce a regular past tense verb. This may indicate that: 1) the low proficiency group was lacking in understanding of the regular past tense phonological rules, and 2) the high proficiency group was lacking in pronunciation practice even though they know the rules. Hence, they could not accurately apply the rules into their pronunciation of regular past tense verbs.

The qualitative data derived from the interviews regarding the opinions towards the difficulty of producing each '-ed' allomorph revealed inconsistent results from the productive scales of the production test part 1 ([d]>[t]>[ɪd]). That is, the qualitative data manifested that only two participants considered the syllabic allomorph [ɪd] to be the most difficult allomorph to pronounce, whereas the majority of the participants considered the non-syllabic allomorphs [t] and [d] as the most difficult allomorphs to pronounce. Thus, according to the qualitative data, the allomorph [ɪd] should have the highest mean scores on the productive scales by both groups. However, as the result of the production test part 1 reveal, the allomorph [ɪd] showed the lowest mean scores.

In addition, the abilities to identify the number of syllables of the regular past tense verbs by the students in both groups were similar in the production test part 2. The performance of the low proficiency group and the performance of the high proficiency one were similarly scaled as: [t]>[d]>[ɪd]. The scales were rather consistent with the productive scales of the production test part 1 in the sense that they performed the higher mean scores on the non-syllabic allomorphs [t] and [d] than the syllabic allomorph [ɪd], which should the most comprehensible feature for Thai EFL students. In other words, both low and high proficiency groups had the worst performance on the syllable identification of the unmarked allomorph [ɪd], which should be the easiest allomorph for identifying the number of syllables by Thai EFL students. To find the causes of this case, the interview question was purposively asked, and the observation by the researcher was included while interviewing them. Some

students in both groups informed that they were not sure whether adding the suffix '-ed' had an influence on the number of syllables or not; hence, they decided to avoid pronouncing the '-ed' ending in some words (mostly in the allomorph [ɪd]). The more supportive evidence from the interview by a low scored third-year student (L35) may also be able to describe this result. She clarified her understanding to count the number of syllables when she perceived a regular past tense verb, and she would notice the number of vowels in that word. However, from the researcher's observation during the interview, when the researcher asked her to pronounce a set of the regular past tense verbs again and asked about the number of syllables of those words, she totally pronounced the regular past tense verbs incorrectly with the allomorph [ɪd]. That is to say, she hesitated to pronounce and identify the number of syllables of the provided words ending with the allomorph [ɪd]. Then she pronounced them without any extra syllable. As a result, this may manifest that most students misunderstood how to count the number of syllables of the '-ed' ending verbs and did not completely know the phonological rules of the regular past tense morpheme. That is to say, they had a lack of English regular past tense verbs pronunciation comprehension.

**Pronunciation Learning Strategies**

Regarding the questionnaire results to the second hypothesis: *"The first-year students and the third-year students use different strategies to perceive the three different allomorphs of the regular past tense morpheme"*, the hypothesis was rejected. The statistical findings show that there was no statistically significant difference between the two groups. The first and the third-year students mostly used the same strategies to perceive and produce the three different allomorphs of the regular past tense morpheme.

To answer the second research question: *"What are the strategies that the first-year and the third-year students employ to perceive and produce the three different allomorphs of the regular past tense morpheme?"*, similar strategies were found in both groups. In response to the questionnaire results, the most employed and the least employed strategies found in this study were divided into two main categories, direct strategies and indirect strategies. The indirect strategies were considered to be mostly used to help the students to improve their pronunciation of

regular past tense verbs by both groups. The most frequent employed strategies were the affective strategies, (M=3.69: SD=.51 in the low proficiency group and M=3.55: SD=.64 in the high proficiency group). As one of the affective strategies (Q29), an encouragement to work on pronunciation was marked as the highest mean scores by the low proficiency group (M=4.27: SD=.87). That means that they encouraged themselves to work on pronunciation even when they thought that something was too difficult for them or when they did not feel like learning. In the same way, the high proficiency group also employed the similar strategy (Q28) belonging to the affective strategies as the third highest mean scores. They claimed that they encouraged themselves to speak English even when they were afraid that their pronunciation was not good (M=4.03: SD=.85). Relating these findings to the qualitative data derived from the interview, a medium scored third-year student firmly stated that she usually emboldens herself to speak English, and asks an English native speaker to correct her mistakes when speaking. She explained that *"even if I am not confident to speak English because I'm afraid of making some mistakes, I pronounce it just like what I think it should be."* This interview participant usually encouraged herself to speak English though she was afraid that she might make some mistakes. Consequently, these strategies were supposed to be beneficial to the students to help them accurately perceive and produce the '–ed' ending sounds since they can manage their attitudes about their pronunciation learning.

The second most frequently used strategies by both groups appeared in the cognitive strategies. The first and the third-year students usually listen to songs or watch various kinds of entertainment in English via the radio, TV or the Internet (M=4.27: SD=.88 in the low proficiency group and M=4.37: SD=.67 in the high proficiency group). The strong supportive evidence was found in the qualitative data derived from the interview. As a part of the cognitive strategies, this strategy was the most frequently employed strategy which the students in both groups when they wanted to practice their listening and speaking skills. For example, a high scored third-year student clarified that *"I often watch sound-track movies with Thai sub-titles in order to understand the movie story, and then I will watch that movie again with English sub-titles so that I can learn English vocabulary from the movies."* Some of the interviewees added that repeating and imitating the English pronunciation of the

dialogues in the movies or song lyrics also helped them to practice their listening and speaking skills. These quantitative and qualitative data were congruent with the study's results of Szyszka (2015). That is, the L2 learners most frequently employed this strategy to acquire L2 pronunciation. However, it is possible that this strategy may be not appropriate to directly improve their ability to perceive and produce the regular past tense allomorphs, owing to, in general, while watching English entertainment or listening to English songs, Thai EFL students do not pay attention to the pronunciation of each word. They just concentrate on the meaning of the movies' or the songs' contents in order to understand the story.

The researcher found that two strategies from the meta-cognitive strategies were also marked as the high mean scores and frequently mentioned in the interview. First, the low proficiency group also highly rated the strategy number 23: *"I notice the pronunciation when teacher or speaker speaks English and compare to myself in order to improve my pronunciation."* As well, the interview provided a consistent qualitative data to this issue. A low scored first-year student declared that imitating Thai and foreign teachers when they were speaking in class can help her develop her listening and speaking skills. *"I prefer practicing my listening skill and learn how to pronounce an English word via concentrating on the pronunciation of Thai and foreign teachers."* It is possible that this strategy can add support to the pronunciation practice of the students in order to help them improve their perception and production of the regular past tense verbs. Second, the high proficiency group correspondingly highly rated the strategy number 22: *"When I am preparing a talk in English, I always look up the pronunciation of new words in a dictionary and practice their pronunciation."* Supporting this finding, the interviews provided a greatly convincing qualitative data for this case. All twelve interview participants confirmed that they always find out how to pronounce an English word by searching through on-line dictionaries with phonetic symbols and text-to-speech. In terms of practical perspective, it seems that this strategy is very useful to accurately acquire the regular past tense verbs pronunciation.

Regarding the least strategies used by both groups, the two strategies emerged in both direct and indirect strategies. In relation to the compensation strategies, the low proficiency group rated the lowest mean scores on the strategy number 19: *"If I do not*

*know how to pronounce an '-ed' ending verb, I will avoid using it."* That means there were only a few of them who employed this strategy. This implies that the majority of them found a solution for their pronunciation problems. In addition, in relation to metacognitive strategies, the high proficiency students claimed that the evaluation of their pronunciation by recording and comparing their pronunciation to native speakers is the strategy they employed least. However, the interview results go against this. Half of the interviewees in high proficiency group employed this strategy to improve their pronunciation.

It is interesting to note that, the strategies found from the questionnaire and the interviews seem to be useful in the sense of English regular past tense morphemes pronunciation improvement. The major focuses of these strategies are how to know the pronunciation of the word which they cannot pronounce and the English pronunciation practicing. That is to say, the students who employed these strategies are able to encourage themselves to cope with their pronunciation problems. Additionally, the strategies mentioned above are directly conducive to the practicing of perception and production of regular past tense morphemes.

**Conclusion**

The findings of this study demonstrate that the language proficiency level of learners, the phonological feature differences between Thai and English, the duration of practice, the opportunity for exposure to English regular morphemes in speech contexts and the PLS strategies influenced the perception and production accuracy of the low and the high proficiency students. The inconsistency among the test results together with the findings from the questionnaire and the interview may imply that the students are lacking in pronunciation practice even they know the pronunciation rules. As well, their pronunciation learning strategies may be not appropriate and not efficient enough to comprehend the regular past tense phonological and morphological knowledge.

For further studies, a longitudinal study on perception and production of the regular past allomorphs by Thai EFL students should be conducted. Pre-test and post-test should be employed in order to deeply investigate the ability development (perceptual and productive abilities). Furthermore, further studies may consider using

all voiced and voiceless codas of regular past tense verbs to thoroughly investigate the perception and production abilities of the EFL learners since all voiced and voiceless codas were not been included in the tests due to the inherent limitations of the study. Only verbs that end with codas /-p, k, f, s, ʃ, v, ð, l, dʒ, t, d/ and vowel sounds were chosen. Moreover, the more specific or individual pronunciation learning strategies in perceiving and producing the '-ed' ending sounds should be examined.

The results of this study found that the high proficiency students performed poorer than the low proficiency students in the syllabic allomorph [Id], which was considered to be the easiest allomorph to pronounce for Thai EFL students although they had already taken the required course "English Phonetics and Phonology". This result indicates that English teachers in Thailand should place more emphasis on the phonological rules of the regular past tense morphemes and the frequency of practice. As the results of the study demonstrate, the students had better performance in the perception test than the production test, and the findings from the interviews show that some of them knew the regular past tense pronunciation rules. That is to say, even though the students know the voiced changing rules, their pronunciation practice of the regular morphemes is insufficient. Therefore, teachers should encourage students to practice more frequently not only in class but also outside class. Self-study can be integrated in this sense. The teachers should inspire the students to do self-practice by suggesting some expedient links from Youtube such as https://www.youtube.com/watch?v=A7hi-ipU2n0 by native speakers. For students who had low performance on English perception, a link lecturing by Thai teachers such as https://www.youtube.com/watch?v=273fUh7UbbU&t=301s should be provided. These links provide not only the principles but also the guidelines on how to pronounce the regular past tense morphemes. Furthermore, teachers should frequently raise students' awareness of L2 learning that to succeed in studying a second language, students should repeatedly and continually practice since L2 learning cannot be an overnight success. It is a long-term learning which requires time, patience, and a great deal of consistent practice.

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# APPENDIXES

## APPENDIX A PERCEPTION TEST (Part 1)

Direction: Listen carefully and then circle a word you hear. (35 words)

Noted: Some words may not appear in Standard English

ฟังการออกเสียงคำต่อไปนี้ จากนั้นให้วงกลมคำที่ได้ยิน โดยใส่เครื่องหมายวงกลมที่ตัวอักษร A B C หรือ D (35 คำ)

หมายเหตุ คำศัพท์บางคำอาจจะไม่ปรากฏอยู่ในคำศัพท์ภาษาอังกฤษที่ใช้อยู่ทั่วไป

| | | | |
|---|---|---|---|
| 1. (A) friend | B. refrain | C. French | D. fender |
| 2. A. plastic | (B) passive | C. pathetic | D. passenger |
| 3. (A) beach | B. beat | C. breeze | D. bidet |
| 4. A. britches | B. bride | C. brick | (D) bridge |
| 5. (A) compact | B. complaint | C. compass | D. complex |
| 6. (A) stopped | B. stop | C. stope | D. stove |
| 7. A. faunted | B. froze | C. fault | (D) forthed |
| 8. A. worsed | B. worth | (C) worked | D. word |
| 9. A. ran | (B) ranned | C. rancid | D. rank |
| 10. A. needle | B. needn't | (C) needed | D. neat |
| 11. (A) debted | B. date | C. deft | D. depth |
| 12. A. study | B. studded | C. studding | (D) studied |
| 13. A. leg | (B) regged | C. reggae | D. recked |
| 14. A. loft | (B) laughed | C. loved | D. laugh |
| 15. A. muched | B. mugged | C. muddle | (D) mudded |
| 16. A. moussed | B. mooted | (C) moved | D. movie |
| 17. (A) taughed | B. taught | C. taugh | D. touch |
| 18. A. paste | B. pass | C. part | (D) passed |
| 19. A. pent-up | B. paint | C. plant | (D) plented |
| 20. A. sound | B. sounding | (C) sounded | D. saunded |
| 21. (A) indeeded | B. indeed | C. indeeder | D. inneed |
| 22. A. raunchy | B. launch | (C) runched | D. lunch |
| 23. A. breeded | (B) breathed | C. breached | D. beated |
| 24. (A) linged | B. wring | C. ring | D. lingo |
| 25. A. callied | (B) called | C. caller | (D) call |

| | | | |
|---|---|---|---|
| 26. A. gother | B. grot | C. grothe | D. grosed |
| 27. A. and | B. an | Ⓒ anded | D. anted |
| 28. A. in vain | Ⓑ invented | C. invent | D. inventive |
| 29. A. trush | B. trust | Ⓒ trushed | D. trashed |
| 30. A. chanted | B. chain | Ⓒ changed | D. chanced |
| 31. Ⓐ skumed | B. skum | C. skim | D. skump |
| 32. A. stared | B. start | Ⓒ started | D. starter |
| 33. A. transmit | B. transmits | C. transitted | Ⓓ transmitted |
| 34. Ⓐ ried | B. rile | C. ride | D. rye |
| 35. A. phoenix | Ⓑ finished | C. Phillip | D. finish |

**APPENDIX B PERCEPTION TEST (Part 2)**

**Direction: Listen carefully and identify how many syllables you hear for each word. (Perception test: Part 2)**

คำสั่ง ฟังการออกเสียงคำต่อไปนี้ และให้นิสิตระบุจำนวนพยางค์คำที่ได้ยินว่ามีกี่พยางค์ โดยเขียนจำนวนเป็นตัวเลข

| No. | Number of Syllable | No. | Number of Syllable |
|---|---|---|---|
| 1. | 1 | 19. | 2 |
| 2. | 2 | 20. | 2 |
| 3. | 1 | 21. | 3 |
| 4. | 1 | 22. | 1 |
| 5. | 2 | 23. | 1 |
| 6. | 1 | 24. | 1 |
| 7. | 1 | 25. | 1 |
| 8. | 1 | 26. | 1 |
| 9. | 1 | 27. | 2 |
| 10. | 2 | 28. | 3 |
| 11. | 2 | 29. | 1 |
| 12. | 2 | 30. | 1 |
| 13. | 1 | 31. | 1 |
| 14. | 1 | 32. | 2 |
| 15. | 2 | 33. | 3 |
| 16. | 1 | 34. | 1 |
| 17. | 1 | 35. | 2 |
| 18. | 1 | | |

**APPENDIX C PRODUCTION TEST (Part 1)**

**Direction: Pronounce the given words out loud. (35 words) (Production Test: Part 1)**

<u>คำสั่ง</u> ให้นิสิตอ่านออกเสียงคำที่กำหนดให้ต่อไปนี้ (35 คำ)

| No. | Words | | No. | Words | |
|---|---|---|---|---|---|
| 1. | friend | /frend/ | 19. | plented | /plentɪd/ |
| 2. | passive | /ˈpæs.ɪv/ | 20. | sounded | /saʊndɪd/ |
| 3. | beach | /biːtʃ/ | 21. | indeeded | /ɪnˈdiːdɪd/ |
| 4. | bridge | /brɪdʒ/ | 22. | runched | /rʌntʃt/ |
| 5. | compact | /kəmˈpækt/ | 23. | breathed | /briːðd/ |
| 6. | stopped | /stɑːpt/ | 24. | linged | /lɪŋd/ |
| 7. | frothed | /fɔːrθt/ | 25. | called | /kɑːld/ |
| 8. | worked | /wɝːkt/ | 26. | grosed | /groʊst/ |
| 9. | ranned | /rænd/ | 27. | anded | /ændɪd/ |
| 10. | needed | /niːdɪd/ | 28. | invented | /ɪnˈventɪd/ |
| 11. | debted | /detɪd/ | 29. | trushed | /trʌʃt/ |
| 12. | studied | /ˈstʌdid/ | 30. | changed | /tʃeɪndʒd/ |
| 13. | regged | /regd/ | 31. | skumed | /skʌmd/ |
| 14. | laughed | /læft/ | 32. | started | /stɑːrtɪd/ |
| 15. | mudded | /mʌdɪd/ | 33. | transmitted | /trænsˈmɪtɪd/ |
| 16. | moved | /muːvd/ | 34. | ried | /raɪd/ |
| 17. | taughed | /tæft/ | 35. | finished | /ˈfɪn.ɪʃt/ |
| 18. | passed | /pæst/ | | | |

**APPENDIX D PRODUCTION TEST (Part 2)**

**Direction: Identify how many syllables of the words you pronounce.**

คำสั่ง ให้นิสิตระบุจำนวนพยางค์จากคำที่นิสิตได้ออกเสียงไปแล้ว โดยเขียนจำนวนเป็นตัวเลข

| No. | Words | Number of Syllable | No. | Words | Number of Syllable |
|---|---|---|---|---|---|
| 1. | friend | 1 | 19. | plented | 2 |
| 2. | passive | 2 | 20. | sounded | 2 |
| 3. | beached | 1 | 21. | indeeded | 3 |
| 4. | bridge | 1 | 22. | runched | 1 |
| 5. | compact | 2 | 23. | breathed | 1 |
| 6. | stopped | 1 | 24. | linged | 1 |
| 7. | ropped | 1 | 25. | called | 1 |
| 8. | worked | 1 | 26. | grosed | 1 |
| 9. | ranned | 1 | 27. | anded | 2 |
| 10. | needed | 2 | 28. | invented | 3 |
| 11. | debted | 2 | 29. | trushed | 1 |
| 12. | studied | 2 | 30. | changed | 1 |
| 13. | regged | 1 | 31. | skumed | 1 |
| 14. | laughed | 1 | 32. | started | 2 |
| 15. | mudded | 2 | 33. | transmitted | 3 |
| 16. | moved | 1 | 34. | ried | 1 |
| 17. | taughed | 1 | 35. | finished | 2 |
| 18. | passed | 1 | | | |

**APPENDIX E QUESTIONNAIRE**

**The PLS questionnaire (Rokoszewska, 2012)**

**แบบสำรวจเกี่ยวกับการใช้กลยุทธ์ในการรับรู้และออกเสียงคำกริยาภาษาอังกฤษในรูปอดีตกาลของผู้เรียนชาวไทยที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ**

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**<u>ส่วนที่ 1</u> ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม**

1. เพศ ☐ ชาย ☐ หญิง

2. อายุ .....ปี

3. นิสิตชั้นปีที่ .....สาขาวิชา ..... คณะ .....

4. ท่านเคยมีประสบการณ์ในการศึกษาต่างประเทศหรือไม่ (เช่น นักเรียนแลกเปลี่ยน หรือ เรียนภาษาช่วงหยุดภาคเรียน)

☐ เคย ☐ ไม่เคย

4.1 หากท่านเคยไป ท่านเคยไปประเทศใด (หากไม่เคย ให้ข้ามไปทำข้อ 5)

.....

5. ครอบครัวของท่านเคยรับอุปการะนักเรียนหรือชาวต่างประเทศหรือไม่ (ถ้าเคยกรุณาระบุสัญชาติของชาวต่างชาติที่ท่านรับอุปการะ)

☐ เคย สัญชาติ ..... ☐ ไม่เคย

6. ท่านมีคู่สนทนาภาษาอังกฤษที่เป็นชาวต่างชาติในชีวิตประจำวันหรือไม่

☐ มี ☐ ไม่มี

7. ท่านฟังภาษาอังกฤษผ่านสื่อต่างๆ เช่น โทรทัศน์ วิทยุ หรือ สื่อออนไลน์ต่างๆ โดยเฉลี่ยประมาณสัปดาห์ละกี่ชั่วโมง

.....

.....

<u>ส่วนที่ 2</u> ความคิดเห็นเกี่ยวกับการใช้กลยุทธ์ในการรับรู้และออกเสียงคำกริยาภาษาอังกฤษในรูปอดีตกาล ("-ed" ending verbs) กรุณาทำเครื่องหมาย √ ในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุด

| Ways of Learning English Pronunciation<br>**วิธีการเรียนรู้การออกเสียง**<br>ภาษาอังกฤษ | 1<br>never<br>ไม่เคย | 2<br>hardly<br>แทบจะไม่ | 3<br>sometimes<br>บางครั้ง | 4<br>often<br>บ่อยๆ | 5<br>always<br>สม่ำเสมอ |
|---|---|---|---|---|---|
| Part A<br>Memory Strategies<br>(กลยุทธ์ในการจำ) | | | | | |
| 1. In order to memorize the pronunciation of an '-ed' ending verb I try to associate it with the pronunciation of a different word (in another language I know). ฉันพยายามที่จะเชื่อมโยงการออกเสียงคำกริยาที่ลงท้ายด้วย '-ed' กับคำอื่นๆ (คำที่อยู่ในภาษาอื่นที่ฉันรู้) เพื่อที่จะจดจำการออกเสียงคำนั้นๆ | | | | | |
| 2. I group words that sound similar in order to memorize the pronunciation of '-ed' ending verbs. ฉันจัดกลุ่มคำที่ออกเสียงเหมือน หรือคล้ายกัน เพื่อที่จะจดจำการออกเสียงคำกริยาที่ลงท้ายด้วย '-ed' | | | | | |
| 3. In order to memorize the pronunciation of an '-ed' ending verb I use phonetic symbols or my own code to write down its pronunciation. ฉันใช้สัญลักษณ์ที่ใช้ในการถอด | | | | | |

| Ways of Learning English Pronunciation<br>**วิธีการเรียนรู้การออกเสียงภาษาอังกฤษ** | 1<br>never<br>**ไม่เคย** | 2<br>hardly<br>**แทบจะไม่** | 3<br>sometimes<br>**บางครั้ง** | 4<br>often<br>**บ่อย ๆ** | 5<br>always<br>**สม่ำเสมอ** |
|---|---|---|---|---|---|
| เสียง (สัทอักษร) หรือเขียนสัญลักษณ์ของฉันเองเพื่อที่จะจดจำการออกเสียงคำกริยาที่ลงท้ายด้วย '-ed' | | | | | |
| 4. I memorize the pronunciation of an '-ed' ending verb by visualizing its transcription. ฉันจดจำการออกเสียงคำกริยาที่ลงท้ายด้วย '-ed' โดยนึกภาพของสัญลักษณ์ (สัทอักษร) ที่ใช้ในการถอดเสียงคำนั้นๆ | | | | | |
| 5. I memorize the pronunciation of new words by associating them with a situation in which I have heard them. ฉันจดจำการออกเสียงคำใหม่ๆ ได้โดยฉันเชื่อมโยงมันกับสถานการณ์ที่ฉันได้ยินคำเหล่านั้น | | | | | |
| 6. I record words whose pronunciation I want to memorize and listen to the recording several times. ฉันจะอัด (บันทึก) การออกเสียงคำของคนที่ฉันต้องการจะจำ และฟังเสียงนั้นหลายๆ ครั้ง | | | | | |
| 7. I review the pronunciation of recently learnt words regularly. ฉันทบทวนการออกเสียงคำที่พึ่งจะได้เรียนไปเป็นประจำ | | | | | |

| Ways of Learning English Pronunciation<br>วิธีการเรียนรู้การออกเสียงภาษาอังกฤษ | 1<br>never<br>ไม่เคย | 2<br>hardly<br>แทบจะไม่ | 3<br>sometimes<br>บางครั้ง | 4<br>often<br>บ่อย ๆ | 5<br>always<br>สม่ำเสมอ |
|---|---|---|---|---|---|
| Part B<br>Cognitive Strategies<br>(กลยุทธ์ในกระบวนการรับรู้) | | | | | |
| 8. I repeat sounds, words, sentences, etc., after English speakers to practice and remember how to pronounce each word. ฉันพูดตามเจ้าของภาษาทั้งในระดับเสียง คำ และประโยคเพื่อฝึกฝนและจดจำการออกเสียงของคำแต่ละคำ | | | | | |
| 9. I listen to a song or watch any kinds of entertainment in English via the radio, TV or the Internet. ฉันฟังเพลงหรือดูรายการบันเทิงอื่นๆ เป็นภาษาอังกฤษผ่านสื่อวิทยุโทรทัศน์ และสื่ออนไลน์ต่างๆ | | | | | |
| 10. I observe the movements of articulators when an English native speaker speaking. ฉันสังเกตการณ์เคลื่อนไหวของอวัยวะที่ใช้ในการออกเสียง เมื่อเจ้าของภาษากำลังพูดภาษาอังกฤษ | | | | | |
| 11. Before I say something aloud, I practice saying a given word, sentence, etc., in my mind. ก่อนที่ฉันจะพูดคำหรือประโยคที่กำหนดให้ออกไป ฉันจะ | | | | | |

| Ways of Learning English Pronunciation<br>วิธีการเรียนรู้การออกเสียงภาษาอังกฤษ | 1<br>never<br>ไม่เคย | 2<br>hardly<br>แทบจะไม่ | 3<br>sometimes<br>บางครั้ง | 4<br>often<br>บ่อย ๆ | 5<br>always<br>สม่ำเสมอ |
|---|---|---|---|---|---|
| ฝึกพูดในใจก่อน | | | | | |
| 12. I practice my pronunciation by speaking to myself in English. ฉันฝึกการออกเสียงของฉัน โดยการพูดกับตัวเองเป็นภาษาอังกฤษ | | | | | |
| 13. I look up the pronunciation of unknown words in a dictionary. ฉันค้นหาวิธีการออกเสียงคำที่ฉันไม่รู้จักในพจนานุกรม | | | | | |
| 14. I try to identify and use '-ed' ending verbs' pronunciation rules. ฉันพยายามจะออกเสียงตามกฎของคำกริยาที่ลงท้ายด้วย '-ed' | | | | | |
| 15. I practice reading aloud, paying particular attention to my pronunciation. ฉันฝึกอ่านเสียงดัง โดยมุ่งความสนใจไปที่การออกเสียงของฉัน | | | | | |
| 16. I analyze the differences between English pronunciation and the pronunciation of other languages. ฉันวิเคราะห์ความแตกต่างระหว่างการออกเสียงภาษาอังกฤษกับการออกเสียงของภาษาอื่นๆ | | | | | |
| 17. I listen to recordings several times in order to learn or copy the pronunciation of | | | | | |

| Ways of Learning English Pronunciation<br>วิธีการเรียนรู้การออกเสียงภาษาอังกฤษ | 1<br>never<br>ไม่เคย | 2<br>hardly<br>แทบจะไม่ | 3<br>sometimes<br>บางครั้ง | 4<br>often<br>บ่อย ๆ | 5<br>always<br>สม่ำเสมอ |
|---|---|---|---|---|---|
| unknown words. ฉันฟังเสียงบันทึกหลายครั้ง เพื่อที่จะเรียนรู้หรือเลียนแบบการออกเสียงคำที่ฉันไม่เคยรู้จัก | | | | | |
| Part C<br>Compensation Strategies<br>(กลยุทธ์ในกระบวนการปรับตัว) | | | | | |
| 18. If I do not know how to pronounce an '-ed' ending verb, I guess its pronunciation. ถ้าฉันไม่รู้วิธีการออกเสียงคำกริยาที่ลงท้ายด้วย '-ed' ฉันจะเดาการออกเสียงของมัน | | | | | |
| 19. If I do not know how to pronounce an '-ed' ending verb, I will avoid using it. ถ้าฉันไม่รู้วิธีการออกเสียงคำกริยาที่ลงท้ายด้วย '-ed' ฉันจะหลีกเลี่ยงที่จะใช้มัน | | | | | |
| 20. If I do not know how to pronounce an '-ed' ending verb, I transcribe it into Thai pronunciation hoping that I will be understood. ถ้าฉันไม่รู้วิธีการออกเสียงคำกริยาที่ลงท้ายด้วย '-ed' ฉันจะเทียบเคียงออกมาเป็นการออกเสียงแบบภาษาไทยเพื่อให้เข้าใจการออกเสียงนั้นๆ ได้ | | | | | |
| 21. If I cannot produce an '-ed' | | | | | |

| Ways of Learning English Pronunciation<br>**วิธีการเรียนรู้การออกเสียงภาษาอังกฤษ** | 1<br>never<br>**ไม่เคย** | 2<br>hardly<br>**แทบจะไม่** | 3<br>sometimes<br>**บางครั้ง** | 4<br>often<br>**บ่อย ๆ** | 5<br>always<br>**สม่ำเสมอ** |
|---|---|---|---|---|---|
| ending verb, I produce a sound as similar to it as possible. ถ้าฉันไม่สามารถออกเสียงคำกริยาที่ลงท้ายด้วย '-ed' ได้ ฉันจะพยายามออกเสียงให้ใกล้เคียงมากที่สุด | | | | | |
| Part D<br>Metacognitive Strategies<br>**(กลยุทธ์ในกระบวนการเข้าใจความคิดของตนเอง)** | | | | | |
| 22. When I prepare a talk in English, I look up the pronunciation of new words in a dictionary and practice their pronunciation. เมื่อฉันต้องเตรียมพูดภาษาอังกฤษ ฉันจะค้นหาการออกเสียงคำใหม่ๆ ในพจนานุกรมและฝึกออกเสียงคำนั้นๆ | | | | | |
| 23. I notice the pronunciation when teacher or speaker speaking English and compare to me in order to improve my pronunciation. ฉันจะสังเกตการออกเสียงของครู หรือผู้พูดที่กำลังพูดภาษาอังกฤษแล้วเปรียบเทียบกับตัวฉัน เพื่อที่จะนำมาปรับปรุงการออกเสียงของฉัน | | | | | |
| 24. I plan pronunciation learning – I set the time of learning, select materials, strategies, etc. | | | | | |

| Ways of Learning English Pronunciation<br>วิธีการเรียนรู้การออกเสียงภาษาอังกฤษ | 1<br>never<br>ไม่เคย | 2<br>hardly<br>แทบจะไม่ | 3<br>sometimes<br>บางครั้ง | 4<br>often<br>บ่อย ๆ | 5<br>always<br>สม่ำเสมอ |
|---|---|---|---|---|---|
| ฉันวางแผนการเรียนการออกเสียงโดยกำหนดเวลาในการเรียน เลือกสื่อการเรียน และกลยุทธ์ (วิธีการ) ในการเรียนต่างๆ | | | | | |
| 25. I have clear goals for improving my pronunciation. ฉันมีเป้าหมายที่ชัดเจนในการทำให้การออกเสียงของฉันดีขึ้น | | | | | |
| 26. I evaluate my progress in pronunciation by recording myself and comparing my pronunciation to the pronunciation of native speakers. ฉันประเมินการออกเสียงของฉันโดยการบันทึกเสียงของตัวเอง แล้วนำไปเปรียบเทียบกับเสียงของเจ้าของภาษา | | | | | |
| Part E<br>Affective Strategies<br>(กลยุทธ์ทางด้านอารมณ์) | | | | | |
| 27. I try to relax whenever I feel afraid of reading aloud or speaking in English. ฉันพยายามที่จะผ่อนคลายเมื่อฉันรู้สึกกลัว เมื่อต้องอ่านออกเสียง หรือพูดเป็นภาษาอังกฤษ | | | | | |
| 28. I encourage myself to speak English even when I am afraid that my pronunciation is not good. ฉันให้กำลังใจตัวเอง | | | | | |

| Ways of Learning English Pronunciation<br>**วิธีการเรียนรู้การออกเสียงภาษาอังกฤษ** | 1<br>never<br>**ไม่เคย** | 2<br>hardly<br>**แทบจะไม่** | 3<br>sometimes<br>**บางครั้ง** | 4<br>often<br>**บ่อย ๆ** | 5<br>always<br>**สม่ำเสมอ** |
|---|---|---|---|---|---|
| ในการพูดภาษาอังกฤษ ถึงแม้การออกเสียงของฉันจะไม่ดีก็ตาม | | | | | |
| 29. I encourage myself to work on pronunciation even when I think that something is too difficult for me or when I do not feel like learning. ฉันให้กำลังใจตัวเองในการเรียนรู้การออกเสียง แม้ฉันจะคิดว่าบางสิ่งมันยากเกินไปสำหรับฉัน หรือเมื่อฉันรู้สึกไม่อยากเรียนก็ตาม | | | | | |
| 30. I use a sense of humor about my mispronunciations. ฉันจะหัวเราะหรือใช้อารมณ์ขันเมื่อฉันออกเสียงไม่ถูกต้อง | | | | | |
| 31. I talk to someone else about how I feel when I am learning pronunciation. ฉันมักจะระบายหรือพูดกับใครซักคนหนึ่งเกี่ยวกับความรู้สึกของฉันเวลาเรียนการออกเสียง | | | | | |
| **Part F**<br>**Social Strategies**<br>**(กลยุทธ์ทางด้านสังคม)** | | | | | |
| 32. I ask English speakers to correct my pronunciation when I speak. ฉันจะถามเจ้าของภาษาเพื่อที่จะตรวจสอบความถูกต้องในการออกเสียงของฉันเมื่อฉันพูดภาษาอังกฤษ | | | | | |

| Ways of Learning English Pronunciation<br>**วิธีการเรียนรู้การออกเสียงภาษาอังกฤษ** | 1<br>never<br>**ไม่เคย** | 2<br>hardly<br>**แทบจะไม่** | 3<br>sometimes<br>**บางครั้ง** | 4<br>often<br>**บ่อย ๆ** | 5<br>always<br>**สม่ำเสมอ** |
|---|---|---|---|---|---|
| 33. I ask others for help if I do not know how to pronounce an "-ed" ending verb.**ฉันจะขอความช่วยเหลือจากผู้อื่น ถ้าฉันไม่รู้วิธีการออกเสียงคำกริยาที่ลงท้ายด้วย "-ed"** | | | | | |
| 34. I prefer to learn pronunciation with my friends or other students. **ฉันชอบที่จะเรียนการออกเสียงกับเพื่อนๆ หรือนักเรียนคนอื่นๆ** | | | | | |
| 35. I help others in learning pronunciation. **ฉันช่วยคนอื่นๆ ในการเรียนการออกเสียง** | | | | | |

## APPENDIX F INTERVIEW QUESTIONS

Interview Questions

Research Question 2: What are the strategies that the first-year and the third-year students employ to perceive and produce the three different allomorphs of the regular past tense morpheme?

1. What are your English pronunciation problems? Do you think it is difficult to pronounce English words? Which English sound or which part of word is difficult for you to pronounce?

ในการออกเสียงคำในภาษาอังกฤษท่านเจอปัญหาอะไรบ้าง ในการออกเสียงคำภาษาอังกฤษท่านคิดว่ายากหรือไม่ แล้วการออกเสียงไหน หรือส่วนไหนของคำที่ท่านคิดว่ายาก

2. What are your English perception problems? Do you think it is difficult to perceive English words? Which English sound or which part of word is difficult for you to perceive?

ในการฟังเสียงคำภาษาอังกฤษท่านเจอปัญหาอะไรบ้าง ท่านคิดว่าการฟังภาษาอังกฤษนั้นยากหรือไม่ ส่วนไหนของคำที่ท่านคิดว่าฟังยากสำหรับท่าน

3. What are the methods you used to pronounce each '–ed' ending sound? (Give the details) ท่านมีวิธีการออกเสียงคำกริยาปกติที่อยู่ในรูปอดีตกาล อย่างไร (ขอให้ผู้สัมภาษณ์อธิบายถึงวิธีการตามที่ผู้ถูกสัมภาษณ์เข้าใจ)

3.1 Which '-ed' ending sound do you think it is the easiest and the most difficult for you to pronounce?

เสียงใดที่ท่านคิดว่าออกเสียงได้ง่ายที่สุด และเสียงใดยากที่สุด

3.2 Which '-ed' ending sound do you think it is the easiest and the most difficult for you to perceive?

เสียงใดที่ท่านคิดว่าท่านรับรู้ได้ง่ายที่สุด และเสียงใดยากที่สุด

4. How do you identify the number of syllable of regular past tense verbs? (Provided words were chosen from the tests with the highest and lowest scores.)

ท่านมีวิธีการระบุพยางค์ของคำกริยาปกติที่อยู่ในรูปอดีตกาล อย่างไร (ยกตัวอย่างคำให้ผู้ถูกสัมภาษณ์ดู และให้ผู้ถูกสัมภาษณ์อธิบายวิธีการระบุพยางค์ โดยจะเลือกคำที่มีคะแนน

สูงที่สุด และคำที่มีคะแนนต่ำที่สุด รวมถึงคำที่มีแนวโน้มว่าจะเข้าใจผิด เช่น stopped, regged, debted)

5. What are your strategies to practice your English perception and production?

ท่านมีวิธีการฝึกหรือพัฒนาการฟัง และการออกเสียงภาษาอังกฤษอย่างไร (ให้อธิบาย)

5.1 Have you ever recorded your voice or VDO clip in English? If yes, do you think whether it helps you improve your English perception and production? If not, have you ever considered doing it? Why?

ท่านเคยอัดเสียงหรือทำคลิปวิดีโอตัวเองพูดภาษาอังกฤษหรือไม่ ถ้าเคย... คิดว่ามันเป็นวิธีการช่วยพัฒนาทักษะการฟัง และการออกเสียงภาษาอังกฤษของท่านหรือไม่ เพราะอะไร / ถ้าไม่เคย... เคยคิดจะทำไหม เพราะอะไร

6. How do you cope with the pronunciation of a word which you have never seen before?

หากท่านพบคำที่ไม่รู้จัก หรือไม่เคยเห็นมาก่อน ท่านจะทำอย่างไรเพื่อให้ทราบวิธีการออกเสียงคำนั้น

6.1 If the pronunciation of that word is too difficult for you, how will you do?

ท่านจะทำอย่างไรถ้าการฟัง และการออกเสียงคำภาษาอังกฤษมันยากเกินไปสำหรับท่าน

7. Which environment do you prefer to study English pronunciation (indoor or outdoor class, Thai teacher or foreign teacher, close friends or friends)?

ท่านจะรู้สึกสบายใจ หรือสนุกกับการเรียนรู้การออกเสียงภาษาอังกฤษ ในสภาพแวดล้อมแบบไหน และกับใคร (เช่น เรียนในห้องเรียน หรือเรียนจากเหตุการณ์ในชีวิตประจำวัน / เรียนกับอาจารย์ไทย หรืออาจารย์ต่างชาติ / เรียนกับเพื่อน หรือเรียนกับคนที่เราไม่คุ้นเคย)

## APPENDIX G INDEX OF ITEM OBJECTIVE CONGRUENCE (IOC)

### CHECK OF QUESTIONNAIRE ITEMS

| No | Question items | Experts' opinion | | | | | | | | | Total | $\bar{x}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Appropriate +1 | | | Not sure 0 | | | Inappropriate -1 | | | | |
| | | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | | |
| 1 | In order to memorize the pronunciation of an "-ed" ending verb I try to associate it with the pronunciation of a different word (in another language I know). | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 2 | I group words that sound similar in order to memorize the pronunciation of "-ed" ending verbs. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 3 | In order to memorize the pronunciation of an "-ed" ending verb I use phonetic symbols or my own code to write down its pronunciation. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 4 | I memorize the pronunciation of an "-ed" ending verb by visualizing its transcription. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |

| No | Question items | Experts' opinion | | | | | | | | | Total | $\bar{x}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Appropriate +1 | | | Not sure 0 | | | Inappropriate -1 | | | | |
| | | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | | |
| 5 | I memorize the pronunciation of new words by associating them with a situation in which I have heard them. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 6 | I record words whose pronunciation I want to memorize and listen to the recording several times. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 7 | I review the pronunciation of recently learnt words regularly. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 8 | I repeat sounds, words, sentences, etc., after English speakers to practice and remember how to pronounce each word. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 9 | I listen to a song or watch any kinds of entertainment in English via the radio, TV or the Internet. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 10 | I observe the | 1 | 1 | 1 | | | | | | | 3 | 1.0 |

| No | Question items | Experts' opinion | | | | | | | | | Total | $\bar{x}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Appropriate +1 | | | Not sure 0 | | | Inappropriate -1 | | | | |
| | | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | | |
| | movements of articulators when an English native speaker speaking. | | | | | | | | | | | |
| 11 | Before I say something aloud, I practice saying a given word, sentence, etc., in my mind. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 12 | I practice my pronunciation by speaking to myself in English. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 13 | I look up the pronunciation of unknown words in a dictionary. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 14 | I try to identify and use "-ed" ending verbs' pronunciation rules. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 15 | I practice reading aloud, paying particular attention to my pronunciation. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 16 | I analyze the differences between English pronunciation and the pronunciation of other languages. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |

| No | Question items | Experts' opinion | | | | | | | | | Total | $\bar{x}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Appropriate +1 | | | Not sure 0 | | | Inappropriate -1 | | | | |
| | | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | | |
| 17 | I listen to recordings several times in order to learn or copy the pronunciation of unknown words. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 18 | If I do not know how to pronounce an "-ed" ending verb, I guess its pronunciation. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 19 | If I do not know how to pronounce an "-ed" ending verb, I will avoid using it. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 20 | If I do not know how to pronounce an "-ed" ending verb, I transcribe it into Thai pronunciation hoping that I will be understood. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 21 | If I cannot produce an "-ed" ending verb, I produce a sound as similar to it as possible. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 22 | When I prepare a talk in English, I look up the pronunciation of | 1 | 1 | 1 | | | | | | | 3 | 1.0 |

| No | Question items | Experts' opinion | | | | | | | | | Total | $\bar{x}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Appropriate +1 | | | Not sure 0 | | | Inappropriate -1 | | | | |
| | | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | | |
| | new words in a dictionary and practice their pronunciation. | | | | | | | | | | | |
| 23 | I notice the pronunciation when teacher or speaker speaking English and compare to me in order to improve my pronunciation. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 24 | I plan pronunciation learning – I set the time of learning, select materials, strategies, etc. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 25 | I have clear goals for improving my pronunciation. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 26 | I evaluate my progress in pronunciation by recording myself and comparing my pronunciation to the pronunciation of native speakers. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 27 | I try to relax whenever I feel afraid of reading | 1 | 1 | 1 | | | | | | | 3 | 1.0 |

| No | Question items | Experts' opinion | | | | | | | | | Total | $\bar{x}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Appropriate +1 | | | Not sure 0 | | | Inappropriate -1 | | | | |
| | | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | | |
| | aloud or speaking in English. | | | | | | | | | | | |
| 28 | I encourage myself to speak English even when I am afraid that my pronunciation is not good. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 29 | I encourage myself to work on pronunciation even when I think that something is too difficult for me or when I do not feel like learning. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 30 | I use a sense of humor about my mispronunciations. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 31 | I talk to someone else about how I feel when I am learning pronunciation. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 32 | I ask English speakers to correct my pronunciation when I speak. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 33 | I ask others for help if I do not know how to pronounce an "- | 1 | 1 | 1 | | | | | | | 3 | 1.0 |

| No | Question items | Experts' opinion | | | | | | | | | Total | $\bar{x}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Appropriate +1 | | | Not sure 0 | | | Inappropriate -1 | | | | |
| | | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | | |
| | ed" ending verb. | | | | | | | | | | | |
| 34 | I prefer to learn pronunciation with my friends or other students. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 35 | I help others in learning pronunciation. | 1 | 1 | 1 | | | | | | | 3 | 1.0 |

# CHECK OF WORDS USED IN PERCEPTION AND PRODUCTION TESTS

| No | Word items | Experts' opinion | | | | | | | | | Total | $\bar{x}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Appropriate +1 | | | Not sure 0 | | | Inappropriate -1 | | | | |
| | | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | | |
| **Distracters** | | | | | | | | | | | | |
| 1 | friend | | | | | | | | | | | |
| 2 | passive | | | | | | | | | | | |
| 3 | beached | | | | | | | | | | | |
| 4 | bridge | | | | | | | | | | | |
| 5 | compact | | | | | | | | | | | |
| **Real words** | | | | | | | | | | | | |
| 6 | stopped | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 7 | worked | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 8 | needed | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 9 | studied | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 10 | laughed | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 11 | moved | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 12 | passed | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 13 | sounded | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 14 | breathed | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 15 | called | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 16 | invented | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 17 | changed | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 18 | started | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 19 | transmitted | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 20 | finished | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| **Pseudo words** | | | | | | | | | | | | |
| 21 | forthed | 1 | 1 | 1 | | | | | | | 3 | 1.0 |

| No | Word items | Experts' opinion | | | | | | | | | Total | $\bar{x}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Appropriate +1 | | | Not sure 0 | | | Inappropriate -1 | | | | |
| | | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | Ex1 | Ex2 | Ex3 | | |
| 22 | ranned | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 23 | debted | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 24 | regged | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 25 | mudded | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 26 | taughed | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 27 | plented | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 28 | indeeded | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 29 | runched | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 30 | linged | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 31 | grosed | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 32 | anded | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 33 | trushed | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 34 | skumed | 1 | 1 | 1 | | | | | | | 3 | 1.0 |
| 35 | ried | 1 | 1 | 1 | | | | | | | 3 | 1.0 |

## APPENDIX H PERCEPTION TEST STATISCTICS (PART 1)

**Group Statistics (Perception Test Part 1)**

| | Years | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Total | 1st year students | 30 | 18.5333 | 1.19578 | .21832 |
| | 3rd year students | 30 | 19.4667 | 2.37419 | .43347 |
| Sum [t] | 1st year students | 30 | 5.5333 | .97320 | .17768 |
| | 3rd year students | 30 | 5.4667 | 1.33218 | .24322 |
| Sum [d] | 1st year students | 30 | 5.3333 | 1.18419 | .21620 |
| | 3rd year students | 30 | 6.3333 | 1.44636 | .26407 |
| Sum [ ɪd] | 1st year students | 30 | 7.6667 | 1.12444 | .20529 |
| | 3rd year students | 30 | 7.6667 | .99424 | .18152 |

**Independent Samples Test (Perception Test Part 1)**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| **TOTAL** | Equal variances assumed | 13.614 | .000 | -1.923 | 58 | .059 | -.93333 | .48534 | -1.90485 | .03818 |
| | Equal variances not assumed | | | -1.923 | 42.823 | .061 | -.93333 | .48534 | -1.91223 | .04557 |
| **sum [t]** | Equal variances assumed | 3.340 | .073 | .221 | 58 | .826 | .06667 | .30121 | -.53627 | .66961 |
| | Equal variances not assumed | | | .221 | 53.092 | .826 | .06667 | .30121 | -.53746 | .67079 |
| **sum [d]** | Equal variances assumed | .573 | .452 | -2.930 | 58 | .005 | -1.00000 | .34128 | -1.68316 | -.31684 |
| | Equal variances not assumed | | | -2.930 | 55.825 | .005 | -1.00000 | .34128 | -1.68372 | -.31628 |
| **sum [ıd]** | Equal variances assumed | .386 | .537 | .000 | 58 | 1.000 | .00000 | .27404 | -.54854 | .54854 |
| | Equal variances not assumed | | | .000 | 57.143 | 1.000 | .00000 | .27404 | -.54872 | .54872 |

## APPENDIX I PERCEPTION TEST STATISCTICS (PART 2)

| Group Statistics (Perception Test Part 2) (syllable identification) | | | | | |
|---|---|---|---|---|---|
| | **Years** | **N** | **Mean** | **Std. Deviation** | **Std. Error Mean** |
| Total | 1st year students | 30 | 23.5667 | 2.66113 | .48585 |
| | 3rd year students | 30 | 25.0333 | 3.29559 | .60169 |
| Sum [t] | 1st year students | 30 | 8.9333 | .78492 | .14331 |
| | 3rd year students | 30 | 8.8000 | 1.62735 | .29711 |
| Sum [d] | 1st year students | 30 | 8.3667 | .96431 | .17606 |
| | 3rd year students | 30 | 8.3000 | 1.68462 | .30757 |
| Sum [ɪd] | 1st year students | 30 | 6.2667 | 2.63836 | .48170 |
| | 3rd year students | 30 | 7.9333 | 2.69013 | .49115 |

**Independent Samples Test (Perception Test Part 2) (Syllable Identification)**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| **TOTAL** | Equal variances assumed | .879 | .352 | -1.896 | 58 | .063 | -1.46667 | .77336 | -3.01471 | .08138 |
| | Equal variances not assumed | | | -1.896 | 55.536 | .063 | -1.46667 | .77336 | -3.01618 | .08284 |
| **sum [t]** | Equal variances assumed | 8.468 | .005 | .404 | 58 | .688 | .13333 | .32987 | -.52697 | .79363 |
| | Equal variances not assumed | | | .404 | 41.800 | .688 | .13333 | .32987 | -.53246 | .79913 |
| **sum [d]** | Equal variances assumed | 7.213 | .009 | .188 | 58 | .851 | .06667 | .35439 | -.64273 | .77606 |
| | Equal variances not assumed | | | .188 | 46.162 | .852 | .06667 | .35439 | -.64662 | .77995 |
| **sum [ɪd]** | Equal variances assumed | .877 | .353 | -2.423 | 58 | .019 | -1.66667 | .68794 | -3.04372 | -.28961 |
| | Equal variances not assumed | | | -2.423 | 57.978 | .019 | -1.66667 | .68794 | -3.04373 | -.28960 |

## APPENDIX J PRODUCTION TEST STATISCTICS (PART 1)

| Group Statistics (Production Test Part 1) | | | | | |
|---|---|---|---|---|---|
| | **Years** | **N** | **Mean** | **Std. Deviation** | **Std. Error Mean** |
| TOTAL | 1st year students | 30 | 22.6667 | 4.20454 | .76764 |
| | 3rd year students | 30 | 23.3000 | 3.16391 | .57765 |
| Sum [t] | 1st year students | 30 | 7.4000 | 2.63400 | .48090 |
| | 3rd year students | 30 | 8.6333 | 1.54213 | .28155 |
| Sum [d] | 1st year students | 30 | 7.9333 | 1.94641 | .35536 |
| | 3rd year students | 30 | 9.1667 | 1.05318 | .19228 |
| Sum [ɪd] | 1st year students | 30 | 7.3333 | 2.03983 | .37242 |
| | 3rd year students | 30 | 5.5000 | 3.03713 | .55450 |

## Independent Samples Test (Production Test Part 1)

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| TOTAL | Equal variances assumed | 3.991 | .050 | -.659 | 58 | .512 | -.63333 | .96070 | -2.55639 | 1.28972 |
| | Equal variances not assumed | | | -.659 | 53.869 | .513 | -.63333 | .96070 | -2.55953 | 1.29287 |
| sum [t] | Equal variances assumed | 10.167 | .002 | -2.213 | 58 | .031 | -1.23333 | .55726 | -2.34881 | -.11786 |
| | Equal variances not assumed | | | -2.213 | 46.791 | .032 | -1.23333 | .55726 | -2.35452 | -.11214 |
| sum [d] | Equal variances assumed | 8.454 | .005 | -3.052 | 58 | .003 | -1.23333 | .40405 | -2.04213 | -.42454 |
| | Equal variances not assumed | | | -3.052 | 44.640 | .004 | -1.23333 | .40405 | -2.04731 | -.41935 |
| sum [ıd] | Equal variances assumed | 6.574 | .013 | 2.745 | 58 | .008 | 1.83333 | .66796 | .49627 | 3.17040 |
| | Equal variances not assumed | | | 2.745 | 50.740 | .008 | 1.83333 | .66796 | .49218 | 3.17448 |

## APPENDIX K PRODUCTION TEST STATISCTICS (PART 2)

| Group Statistics (Production Test Part 2) (Syllable Identification) | | | | | |
|---|---|---|---|---|---|
| | **Years** | **N** | **Mean** | **Std. Deviation** | **Std. Error Mean** |
| TOTAL | 1st year students | 30 | 20.0667 | 3.52267 | .64315 |
| | 3rd year students | 30 | 19.1333 | 4.79032 | .87459 |
| Sum [t] | 1st year students | 30 | 7.4000 | 2.62087 | .47850 |
| | 3rd year students | 30 | 6.7333 | 3.31073 | .60445 |
| Sum [d] | 1st year students | 30 | 6.9000 | 2.27959 | .41620 |
| | 3rd year students | 30 | 6.6333 | 2.61934 | .47822 |
| Sum [ɪd] | 1st year students | 30 | 5.7667 | 2.97905 | .54390 |
| | 3rd year students | 30 | 5.7667 | 2.92060 | .53323 |

## Independent Samples Test (Production Test Part 2)

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| TOTAL | Equal variances assumed | 2.093 | .153 | .860 | 58 | .393 | .93333 | 1.08561 | -1.23975 | 3.10641 |
| | Equal variances not assumed | | | .860 | 53.268 | .394 | .93333 | 1.08561 | -1.24386 | 3.11053 |
| sum [t] | Equal variances assumed | 1.248 | .269 | .865 | 58 | .391 | .66667 | .77093 | -.87651 | 2.20985 |
| | Equal variances not assumed | | | .865 | 55.098 | .391 | .66667 | .77093 | -.87825 | 2.21158 |
| sum [d] | Equal variances assumed | .000 | 1.000 | .421 | 58 | .676 | .26667 | .63397 | -1.00236 | 1.53569 |
| | Equal variances not assumed | | | .421 | 56.916 | .676 | .26667 | .63397 | -1.00287 | 1.53621 |
| sum [ɪd] | Equal variances assumed | .028 | .868 | .000 | 58 | 1.000 | .00000 | .76168 | -1.52466 | 1.52466 |
| | Equal variances not assumed | | | .000 | 57.977 | 1.000 | .00000 | .76168 | -1.52468 | 1.52468 |