國立政治大學英國語文學系碩士在職專班碩士論文

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# 韻尾類比訓練對國小六年級學生英文讀字能力之成效研究

# The Effects of Rime Analogy Training on Word Reading for EFL Sixth Graders

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# The Effects of Rime Analogy Training on Word Reading for EFL Sixth Graders


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To Yuen-mei Yin

獻給我的恩師殷允美教授

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碩士論文提要

論文名稱：韻尾類比訓練對國小六年級學生英文讀字能力之成效研究

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論文提要內容：

本研究旨在探討韻尾類比訓練對國小六年級學生英文讀字能力、讀字態度之影響及其學習困難。研究分兩階段進行：第一階段為小規模之預試研究，第二階段則為正式實驗。預試研究後，研究者在教法、試題做修正改進，並經由了解學生之思考過程及學習困難後，再進一步設計更完整之訪談。

在正式實驗中，對象為桃園縣某國小二個六年級班級，並從二班各挑出 25 人做為實驗組及對照組。實驗組施以韻尾類比策略訓練，教材來源為學生二至五年級之教科書字彙以做為類比策略運用之基礎。對照組雖使用相同之教材，但教法則僅限於字母與音的對應關係。實驗時間為每週 20 分鐘(每週兩節英語之前 10 分鐘)，持續十週。兩組學生在教學前後各施以讀字測驗及唸讀英文字態度問卷調查，訓練後則二組各選 6 名做為訪談對象以進一步了解他們的學習困難。

結果發現，二組學生在讀字能力上並無顯著差別，但在讀字態度上只有實驗組有顯著正向改變。比較二組學習困難則發現對照組之困難較為複雜。此外，實驗組之低程度學生在接受類比訓練後，在讀字能力及讀字態度上相較於對照組之低程度學生有非常明顯之進步。

以上研究結果顯示，韻尾類比策略訓練可以提升國小六年級學生英文認字能力亦能正向改變學生之讀字態度，尤其對低程度學生更為有效。最後根據本研究之結果及學生之學習困難提出教學建議，供未來國小英語教師英文讀字教學時之參考。

關鍵詞：韻尾類比；類比法；字母拼讀；提示字；韻尾識覺；解碼技巧；解碼策略；讀字；低程度學生；學習態度; 字母與音的對應關係

# ABSTRACT

The purpose of this study is to explore the effects of rime analogy training on sixth graders with respect to their decoding skills, attitudinal changes towards reading English words, and perceived difficulties with word reading. The present study comprised 2 phases: the first being a small-scale pilot study, the second a formal study. The pilot functioned as a preparatory work for the formal study. In the pilot, the testing materials, instruments, and activities of the training were tested and revised to be more suitable for the formal study. From the students' responses, the researcher obtained some insights about their thinking process and learning difficulties and this allowed for designing a more complete interview for the formal study.

In the formal study, there was an experimental group and a control group, each comprised of 25 sixth graders from two classes in one elementary school in Tao Yuan county. The experimental group received rime analogy training. The teaching materials were selected from the participants' textbooks word bank, from the second grade to the fifth grade, as a basis for making analogy. The control group was taught with the same materials but received phonics instruction that focused only on grapheme-phoneme correspondences rules. Both groups received two 10-minute training sessions a week for 10 weeks, and were administered the same pre-and post-test (generalization test) to assess decoding skills, and a pre-and post-training questionnaire on attitudes toward reading English words. After the training, six participants from each group were further interviewed to understand their thinking process and perceived difficulties.

The findings are as follows. In terms of the decoding skills, the post generalization test showed that no significant statistical difference was found between the two groups. In light of the attitudinal changes, only within-group comparisons of the experimental group were significantly different. In view of perceived difficulties, the interviews revealed that the difficulties in the control group were more complicated than those in the experimental group. The most noteworthy finding is that the lowest-proficiency participants in the experimental group not only outperformed their counterparts in the control group in decoding skills, but also demonstrated far

more positive attitudinal changes after the training.

The findings provide supporting evidence for the value of rime analogy training in promoting students' decoding abilities and positively changing students' learning attitudes. The nature of students' perceived difficulties is also discussed, in respect of which several pedagogical implications and suggestions for future studies are outlined.

*Key Words:* rime analogy, analogy, phonics, clue words, rime awareness, decoding skills, decoding strategies, word reading, low proficiency students, learning attitudes, grapheme-phoneme correspondences

# CHAPTER 1

# INTRODUCTION

## Background and Motivation

Over the past ten years, English education has gained more and more importance in Taiwan. Since the year 2001, English teaching has been formally included in the elementary school curriculum (MOE, 2001). In 2006, the Ministry of Education (MOE) further stipulated that elementary school graduates should at least be able to use 300 words orally and spell 180 English words to communicate (MOE, 2006). To facilitate students reading aloud, phonics, instruction to teach sound-spelling relationships to decode words, was included in the elementary school curriculum by MOE (2006).

However, phonics instruction, which focuses more on small unit grapheme-phoneme correspondences (i.e., spelling-to-sound correspondences, e.g., t-/t/) at the elementary school level in Taiwan seems to confront two obstacles. One is that elementary school students were found to have difficulties learning grapheme-phoneme correspondence rules, and some even did not know the letters representing the sounds (Lin, 1999). Furthermore, some students felt bored after repetitive practice of the rules (Lin, 2000). Another is that readers were prone to form the habit of paying attention to every grapheme in the word (e.g., “c”, “oa”, “t” in *coat*) under the instruction that emphasized

on small units (Christensen & Bowey, 2005). Therefore, when a student does not know the sound of any small unit in a word, he or she might lose interest in sounding out the word, or even give up.[1] Gradually, the more words they can not read out, the more likely it is their confidence is lowered. In the long run, students will lose their willingness to learn English (Chang &Wu, 2008).

To overcome the above limitations of phonics instruction, rime analogy (RA) which centers on larger units (e.g., *eak* in *beak*) can supplement phonics instruction in Taiwan for two reasons. First, instead of tackling sound-spelling correspondences rules, rime analogy is used to generalize the pronunciation of a new word from a known word (Goswami & Bryant, 1990). To illustrate, the new word *dish* is learned based on the familiar word *fish* which shares the same rime: *ish*. As long as learners know *d* is pronounced /d/, they can easily draw an analogy from *fish* to pronounce *dish*. Second, the pronunciations of rimes in RA are quite predictable (Adam, 1990). In other words, the rules of rimes are simple and clear to learn.[2]

## Purpose of the Study

The purpose of the study was developed based on the theoretical frameworks and the researcher's own personal teaching experience.

[1] It is noted that for EFL students, learning phonics is harder than English-speaking students, so the result of losing interest or giving up on sounding out the word is expected, based on Christensen and Bowey's (2005) findings and the researchers' teaching experience.

[2] I am grateful to Prof. Yin for pointing out another point that the learning of RA is much easier than the learning of grapheme-sound correspondences which are more abstract and difficult to acquire.

In theory, evidence supporting the use of RA can be found in studies which looked into the effects of RA on native English-speaking children (Bruck & Treiman, 1992; Goswami, 1999, Walton & Walton, 2002; Wang & Gaffney, 1998). However, most studies have researched short-term "individual" training in RA so the long term effects are still worth exploring.

In Taiwan, related studies (Chang & Wu, 2008; Chen, 2004; Ma, 2007) have also examined the effects of rime analogy in word reading. But the role of RA in helping Taiwanese elementary school students' word reading is not fully clear because findings in attitudinal changes and learning difficulties were only focused on students who received RA training. Since phonics instruction is the proposed word reading instruction by MOE in Taiwan, it is also important that comparing the effects of the RA and phonics approaches as part of the investigation.

In practice, the researcher has taught sixth graders the use of analogy for 3 years. When teaching phonics, the researcher often found that many students, after encountering some difficulties in reading words, would become so frustrated that they even wanted to give up. But with the help of rime analogy in class, their attitudes would improve and their word reading problem would be solved when guided by RA strategy.

In brief, the purpose of the present study was to explore the effects of rime analogy training on sixth graders' word reading skills (i.e., decoding skills). Furthermore,

participants will be divided into two groups: one group receiving RA training while the other, phonics training, to compare the effects of the two approaches and to provide English teachers with a more comprehensive view of RA training in Taiwan. For these two aims, two research questions are addressed as follows.

1. Is rime analogy training effective in promoting EFL sixth graders' decoding skills?

2. After the instruction, are there any differences between the two groups' attitudes toward reading English words and perceived difficulties?

Based on the a number of research on RA (Bruck & Treiman, 1992; Farrington-Flint & Wood, 2007; Goswami, 1995; Savage, 1997; Wang & Gaffney, 1998; Wood, 2002) and related studies in Taiwan (Chang & Wu, 2008; Chen, 2004; Ma, 2007), two hypotheses were examined in answering the two questions. Firstly, after receiving RA training, students will be able to read English words more effectively than students receiving only phonics training. Secondly and moreover, students' attitudes to reading words will change positively and their perceived difficulties could be identified after the RA training. An experimental study was conducted to examine these hypotheses.

## Definitions of Terms

Some important terms appearing in the paper are defined as follows.

### *Phonics Instruction*

Phonics instruction involves spelling and sound correspondences (Blevins, 1998).

In phonics instruction, there are two major approaches, the synthetic and the analytic approaches (Blevins, 1998). In 1999, Cunningham proposed a third approach, the analogic approach (cited in Hsu, 2004). In the synthetic approach, children learn by identifying letters, blending words, and reading context. In the analytic approach, children are taught to deduce sound-symbol relationships from known words to learn new words. The third approach, the analogic approach, requires children to identify the rime patterns from words they have learned, to apply to new words. The present study takes a narrow definition of phonics instruction, referring to grapheme-phoneme correspondences rules only.

### *Decoding Skills*

Decoding skills are the ability to map spelling onto sounds (Blevins, 1998). Studies indicate that decoding skills can foster learners' word recognition skills and reading comprehension (Blevins, 1998). Decoding skills in this present study mean the ability to sound out English words and are measured by reading out nonwords in the test, without reference to the meaning.

### *Clue Words*

In this present study, clue words refer to analogous words that share rime units with training words and test words (e.g., *beak-peak*). The purpose of using clue words is to help readers to associate the identical rime with novel words. Plenty of studies have

shown that clue words play a crucial role in applying analogy (Bruck & Treiman, 1992; Farrington-Flint & Wood, 2007; Goswami, 1995; Savage, 1997; Wang & Gaffney, 1998; Wood, 2002). In this present study, clue words are defined as words participants have been taught in school. All of the clue words were vocabulary in their current or previous textbooks.

### *Rime Analogy*

Rime analogy refers to a reading strategy utilizing a known rime unit to generalize the pronunciation to a new word sharing the same spelling pattern (Wood, 2002). For example, a new word *moat* can be pronounced by relating the familiar word *boat* that has the same rime *oat*. In the present study, the rime analogy approach is adapted from the clue word technique developed by Goswami (1986, 1988, cited in Goswami & Bryant, 1990).

## Organization of the Thesis

The structure of the present study is as follows. The thesis comprises five chapters. The first chapter describes the motivation, purpose of the study, research questions, and definitions of some key terms of the thesis. In chapter 2, the effects of rime analogy and related studies in Taiwan will be reviewed. Chapter 3 elaborates the research design, including the pilot study, the formal study, participants' selection, instrumental tools of testing and teaching materials, and data analysis. Chapter 4 illustrates the results in

terms of participants' decoding abilities, attitudinal changes and perceived difficulties after the training. Lastly, chapter 5 presents the main findings, followed by pedagogical implications, limitations, and suggestions for the future studies.

# CHAPTER 2

# LITERATURE REVIEW

In chapter 2, theoretical accounts and related studies about rime analogy are reviewed in four sections. An overview of the relationship between analogy and the natural speech unit, rime, is provided first. The following two sections continue the review of related research on the rime unit and the analogy respectively. Namely, section 2 discusses onset and rime: onset–rime awareness and its relation with reading strategies. Section 3 focuses on rime analogy: clue words in rime analogy, importance of rime analogy, and reading levels with rime analogy. The fourth part summarizes related studies in a Taiwanese context and reviews studies on attitudinal changes toward English or word reading. At the end of this chapter, concluding remarks will outline the need of the present study.



## The Relation Between Analogy and Rime

Many researchers have been interested in knowing what processes beginning readers might undergo to identify words when they learn to read (Brown & Deavers, 1999; Bruck & Treiman, 1992; Ehri & Robins, 1992; Savage, 1997). In one of these studies, Bruck and Treiman (1992) pointed out that there are at least three ways in which children might read a new word. One is to take contextual guesses. Another is to read by applying

grapheme-phoneme correspondence rules, similarly to the phonics approach (Savage, 1997). The last way is to read by analogy. For a given CVC pattern (consonant-vowel-consonant), analogies can be made in three ways: VC (i.e. rime */-ot / in goat-coat)*, CV (i.e., */go-/ in goat-goes*) or V (i.e., /-o-/ in *goat-loan*). Among the three, rime (VC) analogy was found to be more effective than the other two types of analogy (Goswami, 1999). Thus, the following section focuses on a review of VC (rime) unit and related concepts.

**Onset and Rime**

Onset and rime are two parts that make up one syllable. A rime is the vowel and everything succeeding it, whereas the onset is the consonant, consonant blend, or digraph that precedes the rime (Blevins, 1998). The importance of onset and rime has been addressed in studies showing that onset-rime division is easier (Kirtley, Bryant, MacLean & Bradley, 1989) and more distinguishable than other units (Trieman, 1985, cited in Ehri & Robbins, 1992). Moreover, it was found that rimes were the basis for reading and spelling by analogy (Johnston, 1999).

Phonologically speaking, onset and rime are larger phonological units, as opposed to the smaller units, which are referred to as phonemes in one syllable. Take the word *flat* for instance. The onset of *flat* is *fl* and the rime is *at*. In two-syllable words such as *pancake* the onsets are *p* and *c*, and the rimes are *an* and *ake*. To illustrate further,

Figure 2.1 provides an example underlying the phonological segments at the syllabic, onset-rime, and phonemes levels (taken from Goswami, 1995).

| | | | | | |
|---|---|---|---|---|---|
| Spoken word: | | | "valentine" | | |
| *Phonological segments*: | | | | | |
| 1. Syllabic | (val) | + | (en) | + | (tine) |
| 2. Onset-rime | (v + al) | + | (en) | + | (t + ine) |
| 3. Phonemes | (v) + (a) + (l) + (e) + (n) + (t) + (*i*) + (n) | | | | |

*Figure 2.1* Phonological Segments

*Onset-rime Awareness*

Onset-rime awareness is grouped under the broader term, phonological awareness. Hence, in this section, the term phonological awareness is introduced first, followed by a review of two important awarenesses (i.e., onset-rime awareness and phonemic awareness) in phonological awareness.

Phonological awareness refers to one's ability to be consciously aware of, recognize or manipulate phonological units (Chard & Dickson, 1999). According to Walton (1995), within words, there are at least four sound units related to phonological awareness: syllables, onsets, rimes, and phonemes. In other words, phonological awareness can take different forms: syllable awareness, phonemic awareness, and onset-rime awareness. Phonological awareness has been shown to play an important role in reading development (Adams, 1990; Goswami & Bryant, 1990; Muter, Hulme, Snowling, & Taylor, 1997) and

can serve to discriminate good readers from poor readers.

Onset-rime awareness is the ability to judge that, in a single syllable, there are two intra-syllabic units: onset and rime (Goswami & Bryant, 1990). For example, the word *cash* can be identified as /k/-/æʃ/, two different segments. Measures of such awareness were oddity task (Bradley & Bryant, 1983, cited in Goswami & Bryant, 1990), and rhyme detection (Hulme, Snowling, & Taylor, 1997).

Phonemic awareness is defined as a reader's ability to be aware of the smallest units, phonemes, in spoken words (Chard & Dickson, 1999). For instance, the word *cash* can be identified as /k/-/æ/-/ʃ/: three different phonemes. Phonemic awareness is usually assessed by five levels: rhyme, oddity tasks, oral blending, oral segmentation, and phonemic manipulation (Blevins, 1998).

Taken together, from a developmental perspective, phonological awareness is a continuum from simple to complex (Chard & Dickson, 1999). As illustrated in Figure. 2.2, the abilities to blend and segment onset-rime units (onset-rime awareness) emerge later in a child's phonological development. In comparison, the ability to manipulate phonemes (phonemic awareness) develops even later and involves the most complex skills.

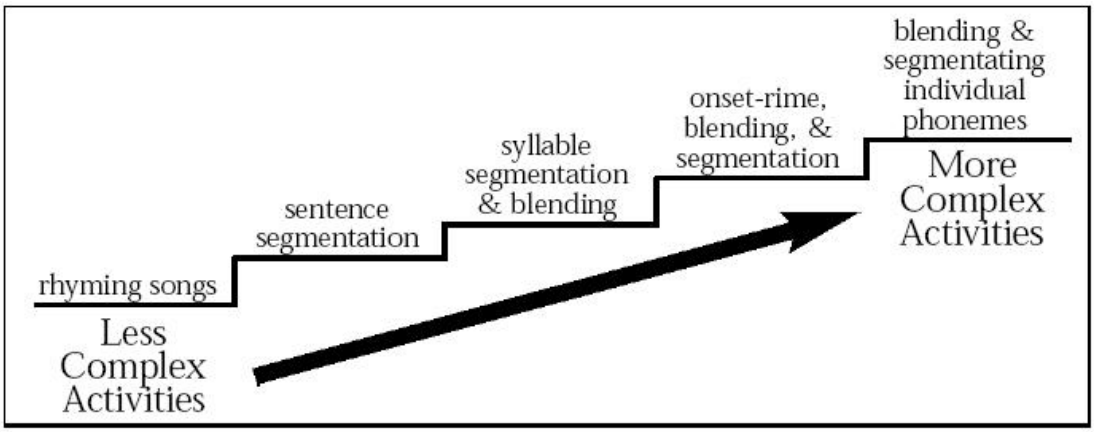


*Figure. 2.2* A Continuum of Complexity of Phonological Awareness (taken from Chard & Dickson, 1999)

*Importance of Onset-rime Awareness*

The importance of onset-rime awareness for reading development in English was first supported by Bradley and Bryant (1978, 1983, cited in Goswami, 1999), showing onset-rime awareness plays a crucial part in children's later reading progress in reading. Especially, a closer examination on onset-rime awareness and analogy in reading was conducted by Goswami & Mead (1992). Their hypothesis was that onset-rime awareness would have a stronger link with analogy than other factors of syllable awareness and phonological awareness. By conducting on forty-four 6 to 7 year-old English-speaking children in a series of analogy sessions and phonological sessions, their hypothesis was supported. That is, children's division of words at onset-rime level was connected to their awareness of rime spelling patterns, hence fostered the development of reading.

Studies also show that onset-rime awareness not only benefited the development of phonemic awareness (Goswami, 1999), but also has direct contribution to reading when associating the same end spelling pattern with new words (i.e., the use of analogy) (Bryant, MacLean, Bradley, & Crossland, 1990; Wood, 2000). To illustrate, Figure 2.3 (taken from Goswami, 1999) shows the relationship between rhyme, phonemes, and reading.

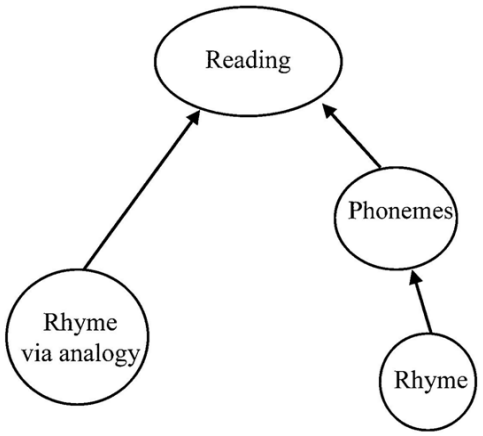


*Figure 2.3* Rhyme and Reading



As shown in the figure, Goswami (1999) asserted that the awareness of rhyme contributes to reading in two ways: the left route indicates that rhyme awareness could encourage the use of analogy strategy while the right one showed that onset-rime awareness would aid oneself to develop better phonemic awareness. In brief, in either path, rhyme awareness has positive impacts on reading development. Therefore, the following offers the review of relationship between onset-rime awareness and reading

strategies.

*Onset-rime Awareness and Reading Strategies*

In the research field of early reading development, plenty of studies have examined the relationship between phonological skills and the use of reading strategies (Christensen & Bowey, 2005; Deavers, Solity, & Kerfoot, 2000; Farrington-Flint & Wood, 2007; Roberts & McDougall, 2003; Walton, Walton, & Felton, 2001). Among them, two major reading strategies in early reading development are usually discussed: rime analogy, as proposed by Goswami (1999) and Ehri's (1998) letter recoding.[3] The two strategies are not independent of each other, and there are similarities and dissimilarities between them. A clear illustration of the two reading strategies and the reading skills required are presented in Figure 2.4 (taken from Walton & Walton, 2002).

| Reading strategy | Prereading skills |
|---|---|
| Rime analogy | Initial phonemes |
| ( f at), (m at), (mat) | Rhyming |
| | Letter-sounds |
| Letter recoding | Initial phonemes |
| (f a t), (fat) | Medial phonemes |
| | Final phonemes |
| | Letter-sounds |

*Figure 2.4* Two Reading Strategies and Prereading Skills

[3] Ehri and Robbins state, "Beginning readers might phonologically recode words by translating letters into sounds and blending the sounds. This is also referred to as decoding words." (Ehri & Robbins, 1992, p. 13)

The first strategy, rime analogy, involves larger phonological units, onset and rime (e.g., *m* and *at* in *mat*). Children need to know the sounds of onset and rime (i.e., onset-rime awareness), and letter sounds, rhyming skills to read out words. The second strategy, letter recoding strategy, requires children to identify the letter sound of each phoneme (i.e., phonemic awareness). In Taiwan, phonics sections in the textbooks usually start with learning the letter name and sound, which corresponds to learning the individual phoneme in the letter recoding strategy. Hence, this strategy is more similar to beginning phonics instruction in Taiwan at the elementary level.

Comparing the two strategies, the letter recoding strategy seemed to be more complicated, because a reader needs to know each phoneme and also to blend and segment the phonemes to sound out a word. Thus, researchers like Goswami and Bryant (1990) proposed the use of rime analogy to help children in reading.

## Rime Analogy

Reading by rime analogy (RA) refers to a reading strategy generalizing the pronunciation of a known rime to the pronunciation of a new word sharing the same spelling segment (Wood, 2002). For example, a new word *coat* can be pronounced by relating the familiar word *goat* that has the same rime *oat*.

### *Clue Words in Rime Analogy*

As shown in the example, the crucial factor governing the application of analogy

hinges on relational knowledge, referred to as “clue words”. A series of studies have been developed by Goswami using the “clue word task” on 5-7 year old children in England (Goswami, 1999). The task was held individually to test whether the child could use analogies spontaneously. In this task, the child was given two words. One was the clue word (e.g., *goat*) and the other was the test word (e.g., *coat*). Then, the child was encouraged to use the clue word to help him or her read the test word. Results showed that children benefited from this strategy in reading English words.

In another study of the clue word task, Bruck and Treiman (1992) proposed a more detailed one-on-one clue word training and analogy training. Their study aimed to find out the relationship of different spelling units (i.e., CV, V and VC in CVC structure) in the same analogy training of 39 Canadian first graders. The procedure started with clue word training, immediately followed by analogy training where the child was asked to read aloud the target word (e.g., *lid*) with the clue word (e.g., *hid*) in sight. Next, with the absence of the clue words, the child was given a retention test of the target words and a generalization test of 20 nonwords derived from the clue words. Results demonstrated that the VC group learned faster than the VC and V groups.

*Importance of Rime Analogy in Reading*

A body of research supports the use of rime analogy in reading (Bruck & Treiman, 1992; Ehri & Robbins, 1992; Gaskins, Gaskins & Gaskins, 1991; Goswami, 1999;

Savage, 1997; Walton & Walton, 2002; Wang & Gaffney, 1998). Particularly, the importance of rime analogy can be specifically discussed in terms of the big unit: rime.

To begin with, the pronunciations of rimes are more stable and predictable compared with the pronunciation rules of small units (Adam, 1990). In other words, the rules of rimes are simpler and clearer to learn (Chang &Wu, 2008; Su, 2004). For instance, all of the 90 words that end with *ight* have the same pronunciation of /ɑɪt/ (Goswami, 2005). Moreover, rime in RA has utility and generality in learning words: RA is applicable to many words of common rime spelling patterns (e.g., *goat-coat, boat, moat*) and a large number of words can be generated from a relatively small number of rimes (Adams, 1990). It was also noted that by using rime analogy, readers only need to replace the onset of the new words to read words out, which will not take the reader a lot of effort (Wang & Gaffney, 1998). Further, readers may avoid converting every letter to its sound (i.e., grapheme-phoneme correspondence), which sometimes involves a lot of effort (Ehri, 1991, Frith, 1985; cited in Ma, 2007).

*Rime Analogy and Reading Levels*

Another aspect that intrigued researchers in the field of reading development is the appropriate reading level a reader must have to be capable of drawing analogies. Different viewpoints on the availability of rime analogy are presented as follows.

Some researchers, like Ehri & Robbins (1992), assert that some decoding skills (e.g.,

letter name and letter sound knowledge) are pre-requisite for making analogies. In their study, they hypothesize that knowledge of sound-symbol association would help link the connection between the familiar print word and the sound of the word in memory. After a series of procedures (i.e., pre-tests, a word training task, transfer task, and spelling task) were administered to English-speaking kindergartners and the first graders, the results indicated that beginners could read by analogy, but they were also required to have some phonological decoding abilities.

Others (Walton, 1995; Goswami, 1990) claimed that children, aged around 5-7, could make analogies when analogous clue words were offered. Walton (1995) conducted an experiment on 66 English-speaking prereaders (averagely aged 5 years 8 months) to see if young readers could read by analogy. After two to four 5-minute training sessions for two days, statistical evidence showed that children were ready to read by analogy, regardless of the fact that they were only at a prereading stage.

Still others (Bowey & Hansen, 1994; Bowey & Underwood, 1996; Coltheart & Leahy, 1992) highlighted their findings on the relation of vocabulary size to analogy making. In one of these studies, Bowey and Underwood (1996) investigated the effects of orthographic rime usage in nonword reading with different levels by conducting Experiment 1 on second to fourth graders and Experiment 2 on second graders in Brisbane, Australia. They concluded that one's ability to make analogy depends on

one's vocabulary size.

To summarize the availability of rime analogy with different reading levels, some researchers support that children, aged 5-7, can utilize analogy and some found that rime analogy making was related to one's vocabulary size. Therefore, it is worthwhile to explore if participants in the present study, aged around 12, could benefit from rime analogy.

**Related Studies in a Taiwanese EFL Context**

In Taiwan, various studies have been conducted to explore the effects of rime analogy training from different angles. For example, some studies examined the appropriate units (i.e., CV, V, or VC) and reading levels in RA for EFL children. Some studies investigated the effects of RA in remedial programs. Others conducted experiments to see if the design of the training was effective in promoting Taiwanese students' word reading skills or attitudes. In the first part of this section, several related studies are revealed, coupled with their findings or suggestions. In the second part of this section, studies that looked into the relationship of analogy and attitudinal changes are presented.

Su (2004) investigated the effects of onset-rime based phonics instruction on phonemic awareness and oral reading in an elementary school. Participants consisted of four classes of fourth graders as the experimental group and two classes of fourth graders

as the control group. The experimental group was taught by onset-rime based phonics instruction with phonemic awareness activities, while the control group was only taught with phonics in their textbooks. After a series of two 15-20 mini-lessons a week, for 17 weeks, phonemic awareness post-tests and oral reading post-tests revealed that onset-rime based phonics instruction was more effective.

Lee (2004) conducted a study of onset and rime phonics instruction on EFL beginners' oral reading and spelling. EFL beginners were defined as second graders who had just begun learning English for the first year of study. There was an experimental group and a control group, each made up of two classes. The control group received phoneme-based instruction. In the experimental group, participants were taught with onset-rime based instruction (e.g., blending the rimes with different onsets like h-it, s-it). The result showed that the experimental group did not outperform the control group. Due to this finding, she pointed out that EFL beginning readers need a bigger word bank to utilize onset-rime analogy.

Ma (2007) reinvestigated the effects of different types of analogy based on Bruck and Treiman's (1992) experiment and looked into whether different reading levels affected their word reading performance. Ninety-four fourth grade EFL learners, aged around 10, were divided into three groups (i.e., CV, V and VC groups) and were further matched for high and low reading levels in each group. All of the participants received

the same training procedure: clue word training, analogy training, a retention test, and a generalization test, but the target words used for analogy training were different in the three groups. The training and testing were conducted one-on-one. The whole experiment took around a month to finish. The results showed that the three groups had similar performance in the generalization test. Furthermore, no significant effect was found in different reading levels. From these results, she suggested that students' rhyming skills could be enhanced by adding more tasks or activities such as nursery rhyme teaching, because EFL children seemed to exhibit weaker onset-rime awareness than English-speaking children.

In another study, Kuo (2007) designed an orthographic analogy program to examine the effects of the program for seventh grade underachievers on English word recognition. A total of 26 students from a junior high school in Taiwan were equally divided into an experimental group and a control group. In the experimental group, 22 sets of phonograms (i.e., word families such as *cat*, *hat*, and *fat*) were taught in the 40-minute period for 15 times while in the control group, those words were taught with phonics rules (i.e., letter sound and name, correspondence and the rule of silent "e"). Results indicated that the experimental group outperformed the control group.

### *Rime Analogy and Attitudes*

In addition to the above studies that focused on the effects of onset-rime based

instruction or analogy training in word reading, there were a number of Taiwanese studies focused on word recognition training and attitudes toward learning English, and more specifically, studies on attitudinal change towards word reading.

Chen (2003) examined the effects of phonological decoding training on English word recognition skills and confidence for 22 fifth graders in Taiwan. Those students were assigned equally to an experimental group and a control group. The former group received a 15-20 minute training in phonemes, blending, and segmentation twice a week, for 8 weeks. The results found that this group outperformed the control group, which received only vocabulary and conversation instruction with no phonics. The experimental group's confidence on word recognition, measured by a questionnaire based on the Reader Self-Perception Scale (Henk & Melnick, 1995), was also higher after the instruction.

Hsu (2003) examined the effectiveness of 3 different instructions for 25 sessions (two 15-minute sessions a week). The study aimed to improve fifth graders' English learning attitudes, and foster their abilities in phonemic awareness, word recognition, and spelling. There were 3 groups that separately received the instruction in phonics, K. K. phonetic symbols, and instructions combining the two. In Hsu's study, the interview was designed to further understand participants' thoughts and perceived difficulties that were not revealed from the questionnaire. All the test and questionnaire results showed

no significant difference among the three groups. However, some interviewees reflected that the teacher taught too fast and that it was too confusing, which was interpreted by Hsu as a result of whole class teaching. Hsu suggested extending the training duration and reviewing the teaching materials with students more frequently.

Chen (2004) conducted action research on 10 second-grade junior high school underachievers to look into their decoding performance and attitudinal changes towards learning English and English words. The remedial plan involved instruction in onset-rime analogy and phonemic awareness. The results revealed that onset-rime analogy not only enhanced participants' decoding skills, but also positively promoted participants' motivation, confidence, and fondness for learning English.

Chang and Wu (2008) investigated the effect of an analogy-based phonics approach on participants' decoding abilities and their attitudes towards the phonics approach, for 10 weeks. There were two classes of sixth graders participating in the study. One was the experimental group (i.e., analogy-based phonics group) taught by the researcher with the help of clue words and a word wall. The other group (i.e., the phonics group) was the control group, taught by the participants' English teacher. The results of the questionnaire and interview were positive, but the study only focused on the experimental group's attitudinal changes.

To sum up the studies reviewed in this chapter, although there is a considerable

amount of research investigating English-speaking children's use of RA in word reading, comparatively little research has been done to examine if RA is still effective for students' decoding abilities in an EFL context, and the attitudinal changes of students toward word reading. Based on the previous research, some insights and directions for improvement are as follows.

Firstly, although a number of related studies on RA obtained participants' responses one-on-one and immediately, no long term effects of RA were confirmed (Bruck & Treiman, 1992; Deavers & Kerfoot, 2000; Ma, 2007).

Secondly, the findings based on individual training may not apply to whole-class training. That is, the effects of RA training on a whole class remain to be tested. Especially in a Taiwanese context, mixed levels of student ability in one class have long been a challenge for school teachers (Wu, 2007). Therefore, caution should be taken in designing whole-class training.

In the meantime, it is equally important to know individuals' perceived difficulties. However, the previous studies did not focus on comparing rime analogy training with phonics training to provide the whole picture of the role of RA, especially in the Taiwanese context, where phonics instruction is the decoding strategy officially proposed by MOE. To fill the gap, the present study obtains a more comprehensive perspective by obtaining information not only from the participants receiving analogy training but

also from participants receiving phonics training.

Thirdly, studies on native English-speaking children aged 5-7 were reported to have benefited from rime analogy. In comparison, second and fourth graders, aged 8-10, in Lee's (2004) and Ma's (2007) studies, were indicated as too young to make rime analogy. Sixth graders[4] might be a more appropriate grade level in a Taiwanese context for analogy training.

In conclusion, it is worthwhile to explore whether studies of native English readers can be generalized to readers in a Taiwanese context, with consideration to the findings and suggestions from related studies in Taiwan. Consequently, the present study was designed to evaluate the effects of a 10-week rime analogy training in English word reading for EFL 6th graders in Taiwan.



[4] Note that although Chang and Wu (2008) have also experimented on analogy-based phonics approach for Taiwanese sixth graders, their experimental design (e.g., instruments and training procedure) was different from the present study.

# CHAPTER 3

# METHODOLOGY

This chapter presents the methodology adopted in treating the research questions. Four sections are included. Section 1 illustrates the research design, inclusive of the pilot study and the formal study. Then, section 2 characterizes the participants and sampling techniques. Section 3 describes the instruments of testing and teaching materials respectively and the final section outlines the methods of data analysis.

## Research Design

The present study comprised 2 phases: a small-scale pilot study held in March in 2009 to test the feasibility of the training, and a formal study carried out during the fall semester of 2009. These are discussed in the following sections.

### *The Pilot Study*

The pilot study served two purposes. The first purpose was to test the feasibility of rime analogy training for sixth graders. During the process, the testing materials, instruments, and activities of the training were examined and adjusted, based on the test results and participants' responses. Secondly, the researcher attempted to evaluate the effects of the training on the English word reading ability of the students and the effects on their learning attitudes.

In March 2009, eight sixth graders from an elementary school in Tao Yuan County were selected, based on their past English examination scores and their class rank.[5] The 8 participants were further assigned to a rime analogy group and a phonics group by their class rank (see Table 3.1). The pilot study was conducted individually and lasted about 45 minutes on each participant. The procedure began with a 10-nonword test (generalization test) as the pre-test. The 10 nonwords consisted of 8 mono-syllablic words and 2 multi-syllablic words. Then, the participants received an approximately 15-minute training[6], which was based on Bruck & Treiman's (1992) and Ma's (2007) experimental work. After the training, the same 10-nonword test was given as a post-test, followed by an interview to probe their thinking process on the erroneous responses in the nonword test. Finally, both groups were asked to fill out a questionnaire about English learning. The preliminary results were as follows.

Firstly, since there were only 8 participants in the pilot study, the data collected from the generalization pre- and post-test was analyzed descriptively. Improvements after the training were shown but were not distinctive between the rime analogy group and the phonics group.

[5] The pilot study primarily looked into the effects of rime analogy on underachievers. According to the Hand in Hand project of the MOE, criteria for students in a remedial program are the lowest-ranked 35% in rural schools. Since the participants were from one rural school in Tao Yuan County, the researcher thus selected participants below 33%.

[6] Both groups received clue word training and a training-transfer task. In the formal training, the meaning and sounds of the clue words were offered only if the participants forgot. In the latter task, the procedure was similar to the one in the formal study (see step 2 in the presentation and practice part of Appendix H-1and H-2), except that both groups in the pilot were only taught with one practice word for each clue word trained.

*Table 3.1* Descriptive Statistics on the Generalization Pre-and Post-test

| Ss | Class rank in English/Total | Group | Pre-test score | Post-test score | Gains |
|---|---|---|---|---|---|
| 1 | 22/33 | RA | 6 | 9.67 | 3.67 |
| 2 | 23/33 | RA | 5.33 | 8.00 | 2.67 |
| 3 | 28/33 | RA | 5.00 | 7.33 | 2.33 |
| 4 | 29/33 | RA | 6.67 | 7.67 | 1.00 |
| 5 | 20/33 | P | 4.67 | 6.67 | 2.00 |
| 6 | 25/33 | P | 3.33 | 6.67 | 3.33 |
| 7 | 27/33 | P | 2.00 | 7.00 | 5.00 |
| 8 | 30/33 | P | 2.00 | 4.33 | 2.33 |

*Note*. 1. Full score =10

2. RA=rime analogy group; P=phonics group

Secondly, the questionnaire inquiring into students' attitudes towards English learning revealed that they knew more about the strategy after the training, and would try to use it in the future. Thirdly, the interview surveyed participants' thinking processes on the erroneous responses in each group, which helped to form the questions in examining participants' learning difficulties in the formal study.

*The Revision*

Although the test results and participants' responses were positive, the pilot study still left some room for improvement. To begin with, the participants in the pilot study demonstrated that they could apply the strategy during the training. However, whether children could still utilize the strategy after the training remained to be tested.[7] One

[7] I'm grateful to Dr. Sheu, P. H. for pointing out the importance of looking into long term effects, rather

study reported that most studies so far revealed only short term effects, and it was possible that children might not benefit from this strategy in the long term (Deavers & Kerfoot, 2000). As a result, the researcher prolonged the training span from 45 minutes to a 10-minute training for 20 sessions over a total of 10 weeks. Accordingly, more practice with different clue words was added, from the original 10 clue words to 20 clue words. Additionally, since it was hoped that the whole class could also benefit from the training in the long term, the researcher expanded the size of participants from the lower 33% to a whole class.

In terms of the instrument, since the training time in the pilot was short, and since most participants had difficulty with reading out the multi-syllabic words in the generalization test, only monosyllabic words were adopted in the formal study. For the questionnaire part, the original focus of the questionnaire on English learning was found to be too broad and general. As a consequence, the formal study focused only on the learning of English words. In the interview part, besides investigating participants' thinking process, the interview in the formal study also looked into participants' learning difficulties and perceptions.[8]

In view of the training design, since the training in the pilot was administered

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than short-term effects as in the 45-minute training and testing of the pilot study.

[8] The researcher would like to thank one proposal reviewer for the suggestion of looking into participants' thinking processes and perceptions to raise the significance of the present study.

individually, the meaning and pronunciation of the clue words were provided[9] by the researcher if the participants forgot. But in the formal study, all the meanings and pronunciations of the clue words were refreshed by showing the whole class the source of the clue words from the textbooks. The complete modifications of the research design are illustrated in Table 3.2.



[9] All of the participants' clue word memories were efficiently brought back by providing them with the clue words from the textbooks in their previous or current grades. A few of them could even be refreshed with the clue words at the sight of the cover of the textbooks. Moreover, after the pilot, the researcher informally tested all the 8 participants on the clue words and found that they could still remember some of the sounds or meanings of the clue words within two weeks. Therefore, the clue word training method, with the aid of showing students their source, was maintained in the formal study. The researcher learned this effective training from a pre-pilot, held in February, 2009. The procedure of the pre-pilot was similar to the pilot, but the clue word training and test word design were improved after the pre-pilot.

*Table 3.2* Modifications of the Research Design

| | Pilot study (Mar, 2009) | Main study (fall semester, 2009) |
|---|---|---|
| Research design | 1. one on one<br>2. immediate training and testing (45 min per person) | 1. whole class<br>2. 10-min training for 20 sessions (10 weeks)<br>3. testing afterwards |
| Participants | 8 sixth-grade low achievers | 2 classes of sixth graders (25 participants in each group) |
| Instruments | 1. 10-nonword generalization pre-and post-test (8 mono-syllable and 2 multi-syllable words )<br>2. post training questionnaire on English learning<br>3. interview: To know participants' thinking process. | 1. 25-nonword generalization pre-and post-test (all mono-syllable words)<br>2. pre- and post-training questionnaires on learning of English words<br>3. interview: To know participants' learning difficulties and perceptions. |
| Clue word training | Meaning and pronunciation of the clue words were provided only if the participant forgot. | All the meanings and pronunciations of the clue words were taught. |

*The Formal Study*

The procedure of the formal study was divided into four stages—participants selection and pre-training assessment; training; assessing participants' decoding skills, attitudinal changes and perceived difficulties; data analysis. The participants were two sixth grade classes from a public elementary school in Tao Yuan County. At first, participants were administered a standardized English word recognition test (p. 36) and their scores were computed by independent-samples t-test to make sure the two group were homogeneous in overall English proficiency level. To further ensure the two groups were at the same level in decoding abilities before training, a nonword reading test was administered (i.e., generalization pre-test, p.37, see also Appendix A), and an independent-samples t-test was executed to check homogeneity of the two groups. After this process, the two classes were randomly assigned into the control or the experimental groups. Then, both groups were asked to fill out the questionnaires (p.39, see also Appendix B). Letter of approval for parents were given at the end of this stage (Appendix C). In the second stage, 10 weeks of training was conducted for both groups: the experimental group receiving rime analogy training while the control group receiving phonics training. In the third stage, after the completion of the training, the generalization post-test and questionnaire were implemented again for both groups, followed by interviews for some participants in both groups. Finally, data from the

generalization test, the questionnaire and interviews were analyzed. The procedure is presented in Figure 3.1.

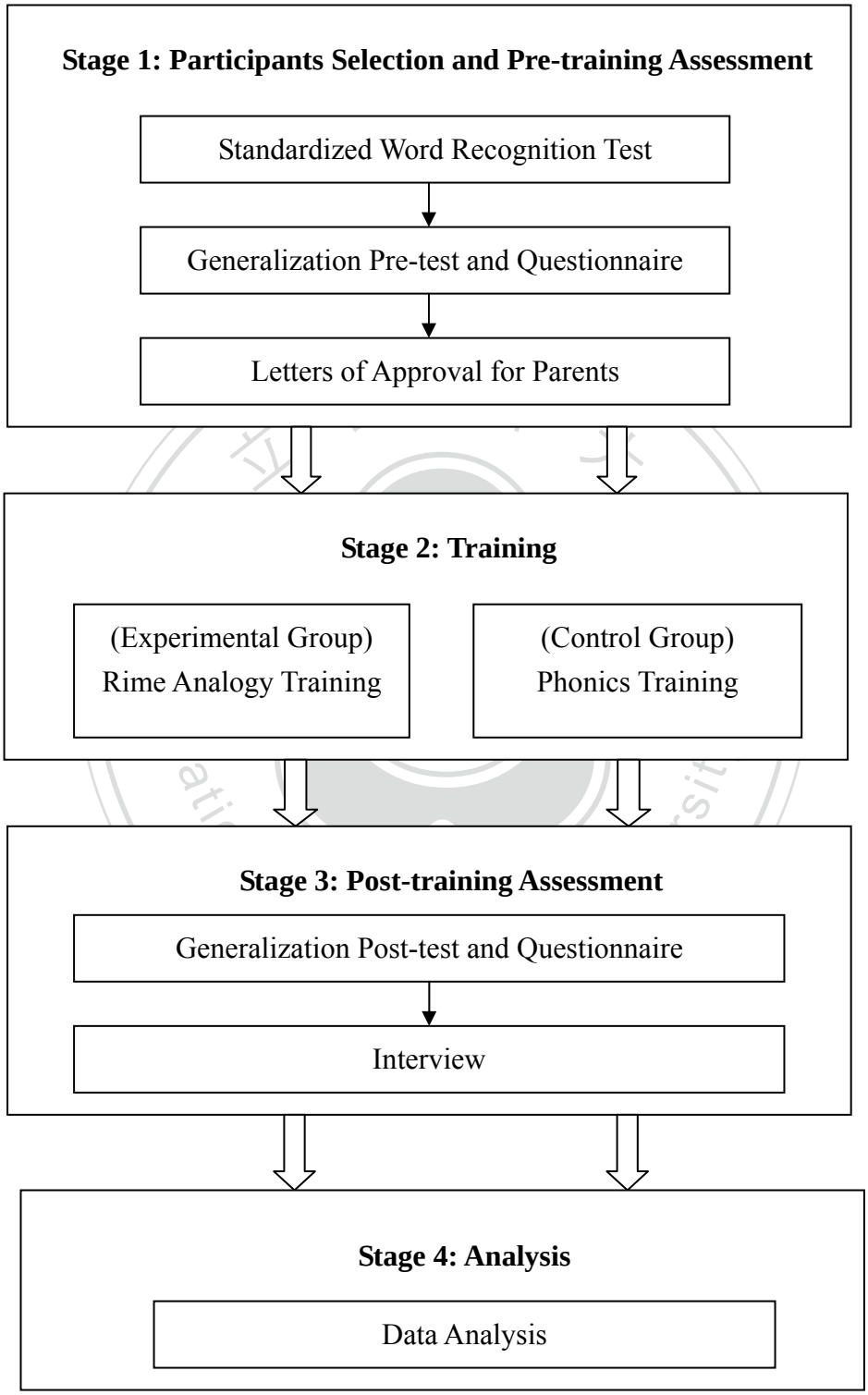


*Figure 3.1* The Procedure for Conducting the Formal Study

## Participants

Participants in the main study were two[10] classes, each composed of approximately thirty sixth graders, aged around 12, in a public elementary school in Tao Yuan County. They had taken formal English classes once a week from the second grade to the fourth grade, and twice a week in fifth grade. The rules of digraphs, long vowels and consonant blends had not been formally introduced in the phonics section of their textbooks by the end of the fifth grade.

To ensure the two classes were of the same overall English proficiency level, a standardized English word recognition test[11] was administered one on one by the researcher and two other English teachers of the participants' school before the formal study.[12] The test scores of the two classes are listed in Appendixes D-1 and D-2. The statistical results summarized in Table 3.3 indicate that the proficiency levels of the two classes could be considered similar ($t = 0.094$, $p > .05$).



[10] The researcher only taught three classes of sixth graders. Based on the three classes' past overall English performances (i.e., listening, reading, and writing abilities) in school, two similar classes were selected as participants.

[11] Although the test mainly assesses examinee's reading and speaking skills, to assess their overall proficiency level, other language skills were checked earlier by their overall English performances in school (see the previous footnote).

[12] To make sure there was no learning effect during the screening process, the process was completed within two weeks. I'm indebted to Wu, Y. C. (2007) for calling to my attention that administering the test after school might raise a safety problem. Considering the feasibility of conducting the test at school, the researcher asked two colleagues (English teachers) for assistance to speed up the process. I'm grateful for their generous help.

*Table 3.3* Results of the Standardized English Word Recognition Test Between Groups

| Group | Mean | SD | t | p |
|---|---|---|---|---|
| Class A (N=29) | 47.10 | 55.56 | 0.094 | 0.925 |
| Class B (N=30) | 45.87 | 45.10 | | |

*Note*. Total scores =200

Next, the two classes were given the one-on-one generalization pre-test. To avoid ceiling or flooring effects, 4 students from class A and 5 students from class B were excluded from the study based on their generalization pre-test scores. Moreover, statistical results revealed the two classes were at the same level of decoding abilities ($t$ = -0.273, $p > .05$) (see Table 3.4).

*Table 3.4* Results of the Generalization Pre-test Between Groups

| Group (N =25/group) | Mean | SD | t | p |
|---|---|---|---|---|
| Experimental | 29.16 | 23.45 | -0.273 | 0.786 |
| Control | 30.92 | 22.03 | | |

*Note*. Total score =75

Finally, the two groups were randomly assigned to an experimental (RA) group and a control (phonics) group. The numbers of males and females are basically equally distributed (see Table 3.5).

*Table 3.5* Gender and Number of Students in Both Groups

| Group | Male | Female | Total |
|---|---|---|---|
| Experimental | 12 | 13 | 25 |
| Control | 12 | 13 | 25 |

## Instruments

### *Testing Materials*

*Standardized English Word Recognition Test*

A standardized English word recognition test, designed for Taiwanese children from the third grade to the ninth grade, was implemented one-on-one to examine children's English word recognition ability (Hong et al. 2006). The purpose of this test was to measure participants' English proficiency level only.

According to the instruction manual (Hong et al. 2006), one hundred words were chosen based on the 2000 words in the Grade 1-9 Curriculum promulgated by the MOE, a word list from Cobuild English Dictionary for Advanced Learners (CEDAL), and a word list from the Brown Corpus word bank. The examinees were asked to read each word out and give a meaning for each word. All of the responses were tape-recorded for later scoring purposes. Each item received 2 points, one for pronunciation and the other for meaning. Maximum scores for pronunciation and meaning were 100 points each. The reliability and validity were treated.[13] The administration time of the test varied a lot

[13] According to the instruction manual for the standardized English word recognition test, the reliability of

from student to student; it ranged from less than one minute for those who completely gave up to those high proficiency students who finished in around 10 minutes for the 200 items (100 for meaning; 100 for pronunciation). The test scores are listed in Appendix D-1 and D-2.

*Generalization Test*

The generalization test was a modification of the generalization test from Bruck and Treiman's (1992) experiment. Pre- and post-tests of the generalization test were the same, but with different purposes. The pre-test was used to ascertain whether the two groups were homogeneous in decoding abilities before training, while the post-test was an instrument used to assess students' progress in the two groups.

The test items were 25[14] nonwords derived from the clue words (see Appendix E), which were words from their current or previous textbooks.[15] The reason for the use of nonwords as test words is that nonword reading is usually used for looking into learners' decoding abilities (Chu, 2002) and the researcher could ensure that students did not learn the nonwords on their own time other than during the training period. Care was taken in

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this test was .994 in a sample of 464 students of the 5th and 6th grades. To raise the face validity, the test items were reviewed by English teaching experts, experienced English teachers from elementary school or junior high school teachers, and experts in test developing.

[14] All the test words were derived from the clue word list, corresponding one to one. There were 20 clue words taught in the present study, but it was hoped that both groups could apply the training strategies to untrained words, too. Therefore, 5 untrained clue words were added. Accordingly, 5 test words were generated. In addition, all the words in the test were examined by a professor in phonology, and an English teacher from the participants' school. The reliability (Cronbach's $\alpha$) was 0.965.

[15] The textbooks participants used are: *Wonderland (Red)*: Kid Castle Internet Technologies Ltd.; *Welcome 1*: Pearson Education Taiwan Ltd.; *Melody Smart* 2,3,4: Melody Publishing Co., Ltd; *English 6 HERE WE GO*: Pearson Education Taiwan Ltd.

constructing the 25 nonwords so that these words were not biased towards either group. That is to say, these words could be decoded by either phonics rules or rime analogy. In creating the nonwords, the researcher selected the graphemes carefully. To begin with, not all single consonants were adopted.[16] Then, the consonant digraphs and vowel digraphs were chosen, based on their textbooks. Phonemes included in the test are displayed in Table 3.6.

*Table 3.6* Graphemes Included in the Nonwords

| | |
|---|---|
| Single consonant | b, d, f, g, h, k, l, m, n, p, s, t, x |
| Consonant digraphs | ch, ck, ng, sh, th |
| Single vowel letters | a, e, i, o, u |
| Vowel digraphs | ai, ea, ee, oa |

All the test words were printed out on A4-sized paper. At the beginning of the test, each participant was given instruction in Chinese and required to read aloud the test words one by one (see Appendix A). Their answers were recorded for later scoring. The scoring criterion followed[17] that of nonsense word fluency scoring in DIBELS (Dynamic Indicators of Basic Early Literacy Skills) to count every correct phoneme (e.g.,

[16] The rest of the consonants not appearing in the nonwords are c, j, q, r, v, w, y and z. It was found in the pre-pilot that students were able to utilize the strategy but mispronounced the words or even gave up reading the words because they were hampered by blending more difficult phonemes such as v, w and z with rimes. In light of this, to focus on whether participants could use the strategy, not all single consonants were chosen. Confined to those easier consonant sounds listed in Table 3.6, only 11 real nonwords were made up in the end. The remaining 14 words were low frequency real words or archaic words from the *Oxford English Dictionary* (OED, 1989) (see Appendix E).

[17] I am grateful to Wu, Y. C. for calling my attention to counting every phoneme in the verbal production of students and graciously suggesting following the DIBELS scoring, as she did in Wu (2007).

/k/, /o/, /t/ in “coat”) articulated as 1 point (Good & Kaminski, 2002). For each CVC item, a participant was given 3 points for pronouncing all 3 phonemes correctly. The maximum score on the 25 items was 75. The time participants took for taking the test ranged from 46 seconds to 3’35’’ for the pre-test and 50 seconds to 6’27’’ for the post-test.

*Questionnaire on Attitudes toward Reading English Words*

Another interest of the present study was to see whether rime analogy training could positively change participants’ English word reading attitudes. A questionnaire measuring participants’ attitudes toward reading English words was administered before and after the training for both the experimental and the control group (see Appendix B). This questionnaire was modified from the Reader Self-Perception Scale (Henk & Melnick, 1995) and Chen’s (2003) questionnaire of students’ English word recognition confidence. The 11 items represented subscales of progress, observational comparison, social feedback, and physiological states (see Table 3.7).[18] Each item was rated by 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). Total scores of the questionnaire were obtained by adding up the scores on the 11 items.

[18] Originally, 14 questions were piloted on the 29 students of the third class. The figure suggested that 3 items whose correlations were below 0.1 should be deleted to raise the overall reliability (Cronbach’s $\alpha$) to 0.853. The 3 questions are: Q5 (PR): When I read English words, I need to consult with others. Q7 (SF): I feel that my classmates love listening to me reading English words. Q8 (PR): It takes me a lot of efforts to read out English words.

*Table 3.7* Subscales of the Questionnaire

| Subscales | Questions |
|---|---|
| PR (Progress) | Q3 I know how to read out English words. |
| | Q8 My English word reading speed is fast. |
| | Q10 My English word reading ability is good. |
| OC (Observational Comparison) | Q2 I find that my English word reading accuracy is better than my classmates'. |
| | Q4 I am able to read out more English words than my classmates. |
| | Q6 Reading out English words helps me learn new words faster than my classmates. |
| SF (Social Feedback) | Q11 My teacher thinks my English word reading ability is good. |
| PS (Physiological States) | Q1 I think reading out English words is interesting. |
| | Q5 I enjoy reading aloud English words. |
| | Q7 I love trying to read out English words. |
| | Q9 Reading out English words is easy for me. |

*Interview*

The interview was designed to probe deeply into the thinking process and learning difficulties of the participants in both groups.[19] Therefore, following Chang's (2009) interviewee selection, interviewees were participants either showing positive attitudes but not performing very well comparatively on the generalization post-test, or regressing on attitudes after the training. The questions asked in the interview are presented and discussed in Table 3.8.

[19] I'm grateful to Prof. Yu's suggestion of including the control group as interviewees to compare with the experimental group.

*Table 3.8.* Design of the Interview Questions

| Questions | Purposes |
|---|---|
| Q1. You pronounced "XXX" on the test. Did you try using the teacher's method? | To know participants' thinking process. |
| Q2. You did not say the word last time. Why not? | To know participants' thinking process. (Optional, asked only if the student failed to pronounce the word.) |
| Q3. Do you think the twenty-session training is enough? | To know whether difficulties result from lack of practice. |
| Q4. What do you think of the teacher's teaching method? Options are provided below if participants have no response or the response is vague.<br>1) clear<br>2) easy to remember<br>3) interesting<br>4) confusing<br>5) difficult<br>6) terrible | To know whether participants understand the teacher's training. |

Q1 and Q2 were designed based on the assumption that even though clue word prompts are found to play a crucial facilitative role in the pronunciation of target words (Savage, 1997), participants in this study as EFL learners might still have difficulties retrieving clue words on their own. The researcher used each interviewee's 3 to 5 incorrect answers in the generalization post-test as examples to probe participants'

thinking process and learning difficulties.

Q3 and 4 were developed based on Hsu's (2003) study, which aimed to promote elementary school students' English learning attitudes, ability in phonemic awareness, word recognition, and spelling. In Hsu's study, most interviewees reflected that they felt the teacher taught too fast, too much, and that it was confusing; and the researcher Hsu pointed out that the training duration was not enough for some students. These two problems were inevitable in whole class teaching because the teaching is usually more suitable for the mid-level students; however, it is still worth exploring individual perceptions, especially in those ones who were detected to have learning difficulties.

The wording of the interview generally followed Chang's interview design (2009), but was modified according to students' responses in the pilot study.

### *Teaching Materials and Training*

#### *Teaching Materials*

The teaching materials, 100 English words[20], for both groups were identical but some of them were taught in different sequences throughout the 20 training sessions. The teaching materials were comprised of two parts. One was the clue words and the other was the training words. The clue words were the same for both groups and were ordered from simple to complex (see Appendix F-1, F-2). However, the training words were

[20]The teaching materials were matched as closely with the clue words as possible, leaving 9 of the 100 words to be nonwords but rhymed with the clue words.

different for the 2 groups: in the experimental group, all the training words shared the same rime with the clue word, whereas the training words were randomly arranged in the control group. To be more specific, for the experimental group, the teaching materials were 20[21] sets of phonograms (i.e., word families). In each session, one set of phonograms, including 1 clue word (e.g., *king*) and four rhyming words (e.g., *bing, ding, sing, ring*) was taught (Appendix F-1). The rhyming words functioned as practice words, since it was found that vocabulary size was related to the use of orthographic rime correspondences (Bowey & Underwood, 1996). However, Taiwanese elementary school students might not have a large vocabulary size and by the researcher's teaching experience, the practice of rhyming words can reinforce the use of analogy. Therefore, 4 rhyming words were added. For the control group in each session, though the same clue word (e.g., *king*) was taught as in the experimental group, 4 different words bearing no orthographic similarities (e.g, *set, dub, lash, moat)* were used as training words.

The structure of all the words was in CVC patterns.[22] Half of the 100 words contained digraphs, on the grounds that digraphs also frequently appeared in the participants' textbooks. Table 3.9 depicts the digraphs used in the 50 words.

[21] The 20 rime patterns were chosen either from the participants' textbook word bank or from the 2000 word list recommended by MOE (2006), with an aim that, in the future, participants could learn new words from the 2000 word list more easily using the rime analogy strategy (see Appendix G).

[22] According to Morris (2008), the most fundamental one-syllable pattern is the short vowel pattern, a short vowel preceded and succeeded by consonants. The CVC pattern in the present study refers to simple CVC words (e.g., cat) and more complex variations of the CVC pattern containing vowel or consonant digraphs (e.g., goat, beach).

*Table 3.9* Digraphs Included in the Teaching Materials

| | |
|---|---|
| Consonant digraphs | ck, sh, th, ng, ch |
| Vowel digraphs | ea, oa, ai |

*Training*

Both groups received 10 minutes of training for each session, 2 sessions a week. In other words, the total training time was 200 minutes in both groups. The training took place in the first 10 minutes in the participants' regular English classes of 40 minutes. The difference in training of the 2 groups was in teaching the 4 training words in the presentation and practice part. The following are examples from one teaching process (e.g., the 15th session, see Appendix H-1, H-2).

In the experimental group, there were 3 teaching procedures: warm-up, presentation and practice, and production. The warm-up stage[23] was a quick review of the 5 words taught from the last session. Next, in the presentation and practice section, the teacher started by refreshing students with the clue word *king* by showing them the page containing *king* in their previous textbook and then putting on the board two flash cards, one with the word and the other with the picture of a *king*. Subsequently, the teacher elicited the participants to read out the new word *bing* using rime analogy strategy by placing the flash card of *bing* under the flash card of *king*. In the same way, practices

[23] Although session one had no warm up stage for reviewing words from a previous time, the researcher spent a similar amount of time explaining the up-coming procedure for the first time. So the total training time of the present study was still considered 200 minutes.

were carried out for the remaining 3 pairs (*king-ding, king-sing, king-ring).* To reinforce the participants' familiarity with RA, the teacher went over the same practice to teach participants the 4 practice words again. Lastly, in the production section, the teacher had students copy the rime of the 4 pairs (i.e., *king-bing, king-ding, king-sing, king-ring)* on their worksheets.[24] Five group leaders[25] read the four pairs to the teacher first and then went back to their groups to check if the other members in his or her group could do the same practices. If the students could not say the pairs correctly, their group leader modeled it for them and asked them to repeat. The practice was completed by ticking a checklist (see appendix H-1, H-2) for the group members.

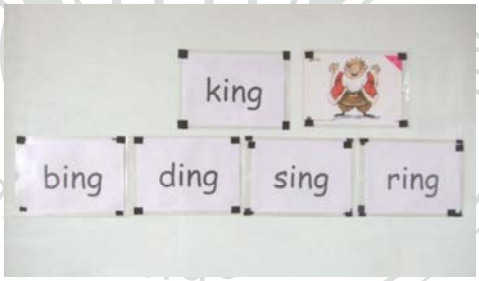


*Figure3.2* Teaching Setting for the Experimental Group (Rime Analogy Group*)*

Likewise, in the control group, the same procedure was carried out but this group differed in the approach to teach the 4 training words in the presentation and practice

[24] The format of the worksheet is shown in the production procedure in each session (see Appendix H-1, H-2). Every participant was given one worksheet from the researcher and asked to keep it in the file folder so the researcher could check their records at the completion of the present study.
[25] The five group leaders were selected from each class based on their final exam scores in fifth grade and their good personalities: being willing to help others.

section.[26] To illustrate, the teacher showed participants the word *set,* and placed the strip highlighting the segmentation and blending of the word *set*. Then, the teacher taught them the segmentation and blending of the word *set* twice, so that the participants knew how to read out the word on their own by phonics rules. After the fourth training word was taught, the same practice was carried out one more time. Figure 3.3 below shows the teaching settings of the control group.

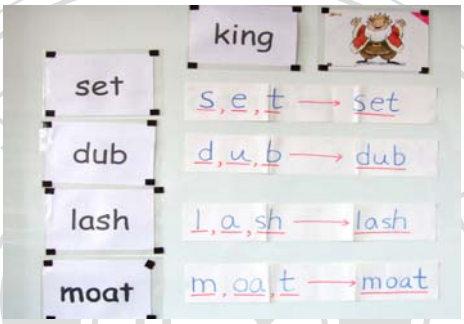


*Figure3.3 Teaching Setting for the Control Group (Phonics Group)*

**Data Analysis**

The Statistical Package for the Social Sciences (SPSS) version 12.0 was utilized to perform quantitative analyses of data collected from participants' decoding skills and changed attitudes in the pre-and post- tests. In answering research question one, independent-samples t-tests were computed on the generalization post-test to measure the effectiveness of rime analogy and phonics training. For the second research question, given that the questions aimed to see attitudinal changes and participants' perceived difficulties, data analysis was carried out in two ways: quantitatively for the questionnaire

[26] At the beginning of the presentation and practice, the introduction of clue words was the same as for the experimental group.

part and qualitatively in the interview part.

For the questionnaire part, English word reading attitudes were measured by scores of the questionnaires based on 4-point Likert scale. Independent-samples t-tests were first computed on the scores to detect if both groups were similar before training. Then, paired-samples t-tests were carried out for both groups separately, to see within-group changes.

For the interview part, data were transcribed and further analyzed by questions. As mentioned earlier, interview questions were developed based on related findings about learning difficulties in rime analogy and phonics in theories. Therefore, interviewee's transcriptions were classified according to the questions. In particular, in Q1 and Q2, data were further analyzed in terms of three types of difficulties for both groups. By the same token, for Q3 and Q4, which looked into the participants' perceptions of duration and teacher's teaching method, the data was also analyzed in table form in-depth.

In this chapter, the researcher has presented the research design, profiles and selection of the participants, instrumental tools, and data analysis methods. In the following chapter, the results collected from research instruments are analyzed and discussed in response to the two research questions.

# CHAPTER 4

# RESULTS AND DISCUSSION

In this chapter, the findings of the research study are presented and discussed. Results of the data for the two research questions are investigated in three parts. The first part focuses on the participants' decoding abilities of the two groups after the training. The second part analyzes and describes the changes of the participants in their attitudes to English word reading. Participants' learning difficulties and perceptions of the training are then examined in the third part.

## Decoding Skills

In order to answer the first research question—"Is rime analogy training effective in promoting EFL sixth graders' decoding skills?", the participants' English nonword reading scores[27] after the training were examined in both groups. Independent-samples t-tests were used to compare the between-group performance on the generalization post-tests, followed by the researcher's analysis and discussion.

### *Comparisons Between the Two Groups*

Prior to the training, both groups took the generalization test and the data was computed by independent-samples t-tests. As displayed in Table 3.4 in Chapter 3 (p.35),

[27] Participants' scores of the generalization pre-test and post-test of both groups are shown in Appendixes I-1 and I-2.

no significant difference was found, meaning that the two groups were confirmed to be homogeneous before training.

After the 10-week training, independent-samples t-tests were again computed to see the post-test performance between groups (see Table 4.1). Both pre- and post- tests were graded by the researcher and another English teacher in the participants' school, by the same scoring criteria stated in Chapter 3 (p.38).

*Table 4.1* Between-group Results of the Generalization Post-test

| Group (N =25/group) | Mean | SD | t | p |
|---|---|---|---|---|
| Experimental | 51.16 | 19.69 | -0.098 | 0.922 |
| Control | 51.72 | 20.53 | | |

*Note*. Total score =75

The results revealed no statistical significant difference between the two groups ($t$ = -0.098, $p$ >.05). Figure 4.1 further graphs the developmental curves of the two groups in the generalization test from the pre-test to the post-test.

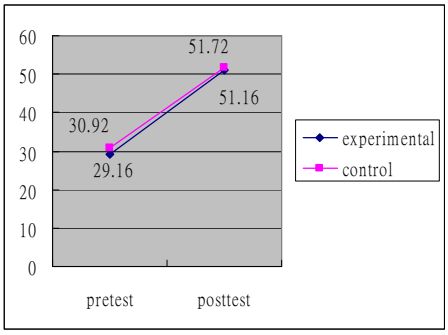


*Figure 4.1* Developmental Curves of the Two Groups' Generalization Tests

As is shown in the figure, the curves of the two groups reflect an identical pattern, implying that the two groups on average made almost the same progress. This is similar to an earlier study (Lee, 2004). One reason would be that both trainings are effective, resulting in no significant difference in scores between groups but effective within groups. Another possible explanation concerns a factor overlooked in the administration of the test: time control.[28] For example, in a well-established system in DIBELS (Dynamic Indicators of Basic Early Literacy Skills) (Good & Kaminski, 2002), the directions for administration of the test specify that the maximum answering time for each test item is 3 seconds. However, the participants in the present study were not given such information about their answering time for each item. Some participants in the RA group might have been nervous about the test and rushed themselves through the test. Due to time pressure in reading out the test words, these participants in the RA group might not be able to refer back to clue words on their own within seconds, while the control group did not require the retrieving process.[29] Therefore, the RA group did not outperform the experimental group as expected.

However, the finding of the within-group improvement of the experimental group is consistent with that of the previous studies (Goswami, 1991, 1999), which supported the use of rime analogy. Despite the similar performance on the generalization test from

[28] I would like to thank Dr. Yeh for calling my attention to this variable, which might be one factor affecting the results.
[29] I'm grateful to Prof. Yin for pointing out this possibility in the administration of the test.

both groups, a more observable difference can be found in the distribution of the scores. Figure 4.2 and Figure 4.3 portray the improvement shift in different score ranges of the two groups.

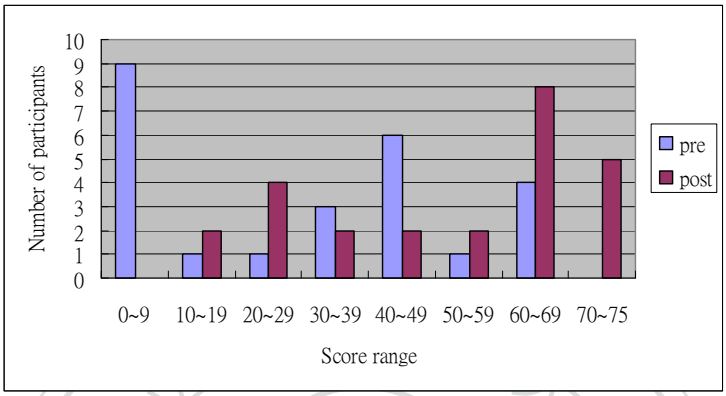


*Figure 4.2* Bar Graph of the Experimental Group's Generalization Pre-and Post- tests

*Note*. Total score =75

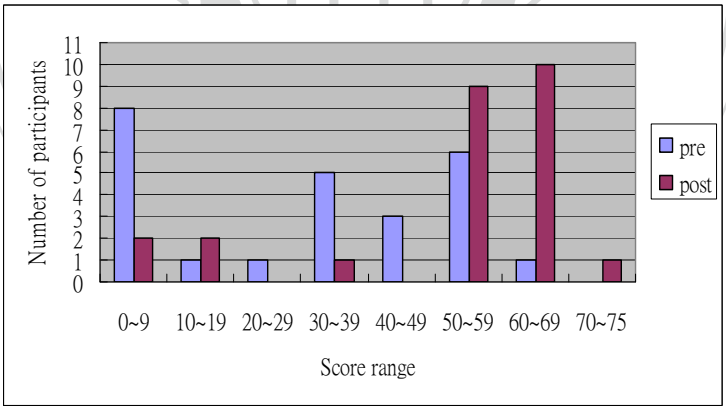


*Figure 4.3* Bar Graph of the Control Group's Generalization Pre-and Post- tests

*Note*. Total score =75

Clearly, when comparing the two groups, the distribution of the scores showed different patterns. A closer look reveals that a notable contrast can be found in the

performance of the bottom three participants of the two groups. As summarized in Table 4.2, the pre-and post- test scores of the 6 participants are quite different.

*Table 4.2* Descriptive Statistics on the Generalization Test of the Bottom Three Participants in Both Groups

| Group | Ss | Generalization pre-test | Generalization post-test | Gains |
|---|---|---|---|---|
| experimental | S14 | 0 | 29 | 29 |
| | S22 | 0 | 34 | 34 |
| | S23 | 0 | 18 | 18 |
| control | S10 | 0 | 15 | 15 |
| | S22 | 0 | 1 | 1 |
| | S23 | 0 | 1 | 1 |

*Note*. 1. Total score =75

2. The bottom three participants in both groups were those who scored zero on the generalization pre-test.

The table shows that even though the 6 participants in the 2 groups scored zero in the generalization pre-test, they performed differently after the training. The ones in the experimental group made greater improvements than those in the control group: the total increase of the former was 81, as opposed to 17. The data support the findings of Wu's (2007), Kuo's (2007) and Chen's (2004) studies. In their separate studies, low achievers were found to show more observable progress after instruction that focused on onset and rime units. One possible reason for low achievers' improvements may be that rime units are easier to learn. In Wu's study (2007), she found that students are more sensitive to

rime than phonemes which are the most challenging skills developed in phonological awareness. The same findings could be found in Kuo's (2007) study that instruction focusing on rime units would avoid inconsistent pronunciation in vowels and easier for students to learn.

## Questionnaire on Attitudes Toward Reading English Words

In response to the first part of the second research question—"After the instruction, are there any differences between the two groups' attitudes toward reading English words and perceived difficulties?", the researcher administered pre- and post- training questionnaires to see if their word reading attitudes changed. The analyses of the questionnaire findings are divided into two sections. The first section analyzes the between-group comparisons by independent-samples t-tests. The second section investigates the within-group comparisons by paired-samples t-tests.

### *Comparisons Between the Two Groups*

Before and after the training, both groups were asked to fill out the same questionnaire to assess their attitudinal differences. They responded to the 11 items on a Likert scale from "strongly disagree", "disagree", "agree" to "strongly agree", corresponding to 1, 2, 3, and 4 points respectively. The score of each questionnaire was obtained by summing up the total points of the 11 items. A calculation of the pre-training questionnaire scores ( see Appendix J-1 and J-2) using independent-samples

t-tests indicated there were no significant difference for participants in both groups before the training ($t$ = 0.141, p >.05) (see Table 4.3).

*Table 4.3* Between-groups Results of Pre-training Questionnaire on Attitudes Toward Reading English Words

| Group (N =25/group) | Mean | SD | t | p |
|---|---|---|---|---|
| Experimental | 25.60 | 6.70 | 0.141 | 0.888 |
| Control | 25.32 | 7.31 | | |

*Note*. Total scores=44

After the 10-week training, scores (Appendix J-1 and J-2) of the same questionnaire were also computed by independent-samples t-tests to see whether the two groups had different attitudes towards English word reading. The result was not statistically significant ($t$ =1.271, $p$ > .05) (see Table 4.4).

*Table 4.4* Between-groups Results of Post-training Questionnaire on Attitudes Toward Reading English Words

| Group (N =25/group) | Mean | SD | t | p |
|---|---|---|---|---|
| Experimental | 29.68 | 7.55 | 1.271 | 0.210 |
| Control | 27.00 | 7.35 | | |

*Note*. Total scores=44

However, the attitudinal changes of the bottom three participants from the two groups demonstrated a sharp contrast, as is displayed in Table 4.5.

*Table 4.5* Descriptive Statistics on the Attitudinal Changes of the Bottom Three Participants in Both Groups

| Group | Ss | Pre-training attitudes | Post-training attitudes | Attitude changes (Post-Pre) |
|---|---|---|---|---|
| experimental | S14 | 26 | 39 | 13 |
| | S22 | 14 | 16 | 2 |
| | S23 | 12 | 25 | 13 |
| control | S10 | 25 | 17 | -8 |
| | S22 | 20 | 17 | -3 |
| | S23 | 28 | 24 | -4 |

*Note*. Total score =44

Table 4.5 depicts that all of the bottom three participants in the experimental group had positive attitude changes while the three participants in the control group all evidently demonstrated negative attitudinal changes. The positive attitude changes in the experimental group were in accordance with Chen's (2004) finding that 90% of the underachievers in onset-rime analogy action research felt that onset and rime training was helpful, and confidence and motivation in learning new words were also increased after the instruction. Conversely, the bottom three participants in the control group all showed regression on the attitudinal changes. This may suggest that they may have encountered difficulties. A deeper investigation into their difficulties was thus carried out in the interview section.

### *Comparisons Within Each Group*

Although the between-group attitudinal differences did not achieve a significant

level, it is still worthwhile to see the changes within each group. The following tables offer within-group comparisons of the experimental group as well as the control group.

*Table 4.6* Results of the Experimental Group's Attitudes Toward Reading English Words

| Group (N =25/group) | Mean | SD | t | p |
|---|---|---|---|---|
| Pre-training | 25.60 | 6.70 | -3.206 | 0.004** |
| Post-training | 29.68 | 7.55 | | |
| Gains (Post-Pre) | 4.08 | | | |

*Note*. 1. Total scores =44
2. *p<.05, **p<.01

*Table 4.7* Result of Control Group's Attitudes Toward Reading English Words

| Group (N =25/group) | Mean | SD | t | p |
|---|---|---|---|---|
| Pre-training | 25.32 | 7.31 | -1.340 | 0.193 |
| Post-training | 27.00 | 7.35 | | |
| Gains (Post-Pre) | 1.68 | | | |

*Note*. Total scores =44

Evidently, positive attitude change was significant only in the experimental group, even at the p <.01 level. The result is in line with earlier finding that onset-rime analogy instruction (Chen, 2004) could help students with pronunciation of words and raise students' confidence.

Due to the fact that within-group significant difference was found only in the experimental group, a further examination was conducted in this group to see which subcomponents were more attributable to the significantly different result. To begin

with, the researcher analyzed the scores of the questionnaire, both before and after the training, by the four subscales (see Chapter 3, p.40). Table 4.8 summarizes the result.

*Table 4.8* Results of the Experimental Group's Attitudes Toward Reading English Words by 4 Subscales

| | SF (max=4) | OC (max=12) | PR (max=12) | PS (max=16) |
|---|---|---|---|---|
| Pre-training | | | | |
| Mean | 2.08 | 7.28 | 6.56 | 9.68 |
| SD | 0.86 | 2.13 | 1.87 | 2.64 |
| Post-training | | | | |
| Mean | 2.52 | 8.48 | 7.80 | 10.88 |
| SD | 0.92 | 2.24 | 2.40 | 3.05 |
| t | -2.529* | -3.133** | -2.790** | -2.268* |

*Note*. 1. *p<.05,**p<.01
2. SF: Social Feedback, OC: Observational Comparison, PR: Progress, PS: Physiological States, Max=Maximum scores

As summarized in Table 4.8, all of the four subscales reached significant difference after the training, suggesting that the four subscales all accounted for attitudinal changes. The finding supports the statement that the 4 categories are related (Henk & Melnick, 1995). As one example provided in Reader Self-Perception Scale (RSPS), how children feel themselves about their progress in reading (PR) will partially based on comparing with others (OC) and receiving positive feedback from society (SF), and their physiological states(PS). Moreover, since research question one was concerned with the effectiveness of the training, it was worthwhile to investigate the subcomponents of

progress (PR). That is, Q3, Q8, and Q10 were focused using paired-samples t-tests (see Table 4.9).

*Table 4.9* Results of the Experimental Group's Attitudes Toward Reading English Words by Q 3,8,10 of Subscale PR

| Questions | | M | SD | t | p |
|---|---|---|---|---|---|
| Q3 I know how to read out English words. | Pre-training | 2.44 | .77 | -2.753 | 0.011* |
| | Post-training | 2.92 | .86 | | |
| Q8 My English word reading speed is fast. | Pre-training | 2.00 | .87 | -2.000 | 0.057 |
| | Post-training | 2.40 | .91 | | |
| Q10 My English word reading ability is good. | Pre-training | 2.12 | .67 | -1.984 | 0.059 |
| | Post-training | 2.48 | 1.00 | | |

As the table indicates, only Q3 — "I know how to read out English words" — shows significant difference after the training. This implies that participants knew more about rime analogy strategy after the training. This is in accordance with Chang and Wu's (2008) finding that analogy-based phonics could help their students feel proud of themselves and gain interests in English because they could solve the word reading problems on their own. Moreover, considering the fact that the participants' generalization scores showed improvements in the post-test, the researcher infers that the training facilitated participants employing rime analogy strategy to read out English words after the training.

To sum up, with regard to within-group attitude changes, only the experimental

group yielded a significant differential effect.

## Interview

In order to answer the second part of the second research question—"After the instruction, are there any differences between the two groups' attitudes toward reading English words and perceived difficulties?", the researcher conducted interviews on participants from both groups to probe more deeply into participants' learning difficulties. As a consequence, six participants from each group either showed comparatively less progress on the word reading performance (e.g., S23 in Appendix I-1) or regressed on attitude (e.g., S2 in Appendix J-1) after the training were selected. The samples of interviews are shown in Appendixes K-1 and K-2. According to the interview design in chapter 3 (p. 39), participants' thinking processes and perceived difficulties were probed by 4 questions in 3 directions. Namely, Q1 and Q2 were designed to know interviewees' thinking process in word reading, Q3 was designed to obtain their perceptions of training duration, and Q4 was asked to know how they felt about the teacher's teaching method. These factors are discussed one by one in the following section.

### *Difficulties*

In this section, by asking Q1 and Q2 in Table 3.8 (p. 41), participants' difficulties in sounding out the test words were classified as follows.

*Table 4.10* Difficulties of the Six Participants in the Experimental Group

| Subjects | Difficulty in Recalling or Reading Clue Words | Difficulty in Identifying Rime Units | Difficulty in Making Analogy when Clue Word in Sight |
|---|---|---|---|
| S2 | V | V | |
| S3 | V | V | V |
| S13 | V | V | |
| S17 | V | V | V |
| S23 | V | V | V |
| S25 | V | V | |

*Note*. "V" means they experienced difficulty.

Apparently, all the participants in the experimental group expressed that they were unable to associate with the clue words or were not familiar with the rimes on their erroneous responses in the generalization post-tests. However, in most cases, they could read the clue words when clue words were given during the interview and were able to make analogies when guided by "This is [clue word], so this is [test word]." It seems that, from their wrong answers, rime analogy might not be a favored strategy in no-clue-word prompt conditions (Savage, 1997). In addition, since participants could respond well when guided instantly, only the short term benefits of rime analogy are confirmed. But without accessibility to the clue words, it appeared harder for the participants to employ rime analogy strategies on their own in those erroneous responses.

On the other hand, participants in the control group faced different problems. Table

4.11 categorizes their difficulties.

*Table 4.11* Difficulties of the Six Participants in the Control Group

| Subjects | Difficulty in Grapheme-phoneme Correspondences Rules | Difficulty in Phoneme Segmentation | Difficulty in Phoneme Blending |
|---|---|---|---|
| S10 | V | V | |
| S15 | V | V | V |
| S17 | V | | V |
| S21 | V | V | |
| S22 | V | V | V |
| S23 | V | V | |

*Note*. "V" means they experienced difficulty.

Responses from the interviewees of the control group revealed that they generally lacked phoneme-grapheme knowledge and tended to segment the test words incorrectly (eg., *teep* into *te* and *ep*). But when prompted by correct phonemes of a test word, they were able to blend them and pronounce them correctly. This is similar to Lin's (2000) statement that one crucial factor for students in giving up English was that they did not know the relationship between the letter sound and letter name.

When comparing the two groups, it becomes evident that difficulties in the experimental group mostly resulted from participants' weakness in associating the clue words or correct rime units, whereas in the control groups, insufficient knowledge of segmentation, blending, or phoneme-grapheme correspondence rules led participants to

give up or mispronounce words. Furthermore, in view of the interview time, participants in the control group spent more time than the experimental group in expressing their difficulties. The average interview time for 1 participant in the experimental group was around 3'45'', while it was around 4'22'' in the control group. The researcher inferred that the onset-rime training may be easier for some students than phonics instruction which requires students to remember the individual grapheme-phoneme relationships to sound out a word (Gaskins, Ehri, Cress, O' Hara, & Donnelly, 1997, cited in Su, 2004).

### *Perceptions of Training Duration*

As described in chapter 3, the lack of practice might be one source of difficulty. The following table presents the responses of the two groups to Q3, to see if training length affected the results of training.

*Table 4.12* Participants' Perceptions of Training Duration

| | Experimental | Control |
|---|---|---|
| Enough | 3 | 5 |
| Not Enough | 3 | 1 |
| Total (each group) | 6 | 6 |

The table indicates that more than half (8 out of 12) of all the interviewees felt they had sufficient practices, even though their performances on the decoding skills may

suggest that more training time is needed.

### *Perceptions of Teacher's Teaching Method*

As discussed in Chapter 3, Hsu (2003) found that one of her interviewees' difficulties came from the teacher's teaching method. For this reason, Q4──"What do you think of teacher's teaching method?" was asked. The results are summarized in Table 4.13.

*Table 4.13* Participants' Perceptions of Teacher's Teaching Method

| | Experimental | Control |
|---|---|---|
| Clear | 1 | 1 |
| Easy to remember | 2 | 2 |
| Interesting | 2 | 2 |
| Confusing | 1 | 0 |
| Difficult | 1 | 1 |
| Terrible | 0 | 0 |
| Others | 1 (I don't know.) | 3 (Fairly good. O.K.) |

*Note*. Some respondents had more than one opinion. Each response has been recorded.

As indicated in Table 4.13, both groups had similar positive perceptions toward teacher's method and not too many negative expressions were reported.

When re-examining the design of Q3 and Q4 from Hsu's study (2003) (p.22), the researcher found two points worth discussing. One is that participants' difficulties did

not come from their feeling of lack of practice due to the training length, nor from not understanding the teacher's teaching method, as in Hsu's study. Another is that generally speaking, whole-class teaching was considered more suitable for mid-level students in the class, as in her study. But from the post-test scores of the present study, it was found that rime analogy better assisted the participants in the low and high levels.

To conclude, for the first research question── "Is rime analogy training effective in promoting EFL sixth graders' decoding skills?", both groups have improved on their decoding skills measured by the generalization post-test, but the score gains of the two groups did not yield significant effect. Nonetheless, a notable contrast is shown in the top and bottom participants' decoding abilities. In fact, the bottom three participants in the experimental group all showed more obvious development in the decoding skills than the ones in the control group.

In answering the second research question── "After the instruction, are there any differences between the two groups' attitudes toward reading English words and perceived difficulties?", only the experimental group showed significant attitudinal changes after the training. Moreover, the lower-proficiency participants in this group also demonstrated quite distinctive positive attitude changes, unlike the lower-proficiency participants in the control group. As for the participants' perceived difficulties, most of the interviewees in both groups acknowledged that they had no

trouble understanding the teaching method and that they did not feel they lacked practice. The main cause of the difficulties in the experimental group appeared to be their inability to relate the clue words or correct rimes to help them read out the new words. On the other hand, the lack of phonemic awareness was found to be the control group's source of difficulties.

In this chapter, the results of the generalization test, questionnaires, and interviews have been provided and discussed. Based on these findings, the next chapter conclude this present study and offers pedagogical implications, limitations of the study, and suggestions for future research.

# CHAPTER 5

# CONCLUSIONS

In this chapter, the main findings in response to the two research questions are summarized. Based on the results, some pedagogical implications are drawn in the second part. Limitations of the present study, coupled with subsequent recommendations for future research, are provided in the last section.

## Main Findings

As presented in chapter 1, phonics instruction has some limitations at the elementary school level in Taiwan, on the grounds that it focuses more on small units (grapheme-phoneme correspondence, e.g., t-/t/). Students might pay too much attention to each small unit, which would lead them to give up reading a word if any of the phonemes in that word were unknown to them. Moreover, students might feel bored with solely practicing grapheme-phoneme correspondence rules. To overcome these limitations of phonics instruction and to help students in reading English words, a rime analogy approach that focuses on larger units (e.g., *eak* in *beak*) was proposed, based on previous research and the researcher's teaching experience. The participants in the study were assigned into two groups: one group receiving RA training while the other, phonics training, to compare the effects of the two approaches and to provide English

teachers with a comprehensive view of RA training in Taiwan. In order to examine the effects of rime analogy training, two research questions were presented as follows.

1. Is rime analogy training effective in promoting EFL sixth graders' decoding skills?

2. After the instruction, are there any differences between the two groups' attitudes toward reading English words and perceived difficulties?

According to the research questions, two hypotheses were established. The first one supported the usage of rime analogy in developing students' decoding abilities. The second one assumed that after the rime analogy training, students could have positive attitudinal changes and that their difficulties could be identified. However, the hypotheses were not all supported by the results. The data analysis of the first question indicated that both groups had developed their decoding abilities, but the between-group comparison after the training was not significantly different.

The second research question comprised two parts: attitudinal changes and perceived difficulties. For the attitude changes, only the experimental group's within-group comparison reached significance, as measured by t-test. As for the perceived difficulties of the two groups, most of the interviewees reflected their difficulties were neither from the lack of practice nor lack of understanding the teacher's teaching method. For the experimental group, the core problem was in retrieving the clue words or relating correct rimes to the test words, while in the control group, interviewees were observed to lack

grapheme-phoneme correspondence knowledge, to segment words wrongly, or to blend phonemes incorrectly.

Lastly, the performances of the lowest-proficiency participants of the two groups were found to be quite distinctive. In fact, the bottom three participants in the experimental group drastically outperformed the bottom participants of the control group, not only in their decoding abilities but also in their attitudinal changes.

## Pedagogical Implications

Following the main findings listed from above, this section provides three major pedagogical implications from the present study.

***Firstly, onset-rime awareness is easy to acquire and should be reinforced in the use of analogy to learn new words.***

From participants' responses during the 20 training sessions, the researcher found that almost every participant could distinguish the rime segment and apply a rime analogy strategy instantly when guided. This implies participants in the present study, aged around 12, have onset-rime awareness and this ability could help them read out new words by analogy. The result is consistent with the findings that rhyming skills directly contribute to the use of analogy (Bryant, MacLean, Bradley, & Crossland, 1990; Wood, 2000).

In view of this, after students have acquired basic letter name and letter sound

knowledge, it is suggested that teachers put more emphasis on large unit (rime) teaching using the RA approach when students experience difficulties in small units (i.e., identifying, blending, or segmenting phonemes). It is expected that the learning of larger units could assist them to develop their phonemic awareness, as supported by research (Goswami, 1999; see chapter 2).

***Secondly, rime analogy training should include word family practice, accompanied by clue word training.***

As revealed in the interviews, whether participants in the experimental group could read out the test words depended critically on their familiarity with the clue words and rime units. This reflected the importance of clue word training and the need for more analogy practices to master the analogy strategy. But due to the fact that students' word banks are very limited[30] at the elementary school level in Taiwan, word family training (i.e., practice words in RA training) could foster the learning of clue words so that Taiwanese elementary school students could still utilize a rime analogy strategy.

Furthermore, textbooks serve as useful sources for clue words and word family in helping students learn new words. The researcher recommends English teachers fully utilize students' learning material (i.e., textbooks) so that their vocabulary learning is connected and built on learned words. To illustrate, English teachers could make use of

[30] MOE (2006) suggests that elementary school graduates should at least be able to orally use 300 and spell 180 English words to communicate.

students' current textbook as the clue word or phonogram source, and add more phonograms to create a training word family, as in the present study. Then, students would practice in class or even have practice as homework[31] when new vocabulary is being taught.

***Thirdly, rime analogy training could be utilized to positively change students' word reading attitudes and create a meaningful learning environment.***

According to the suggested teaching method in the Grade 1-9 Curriculum Guidelines, MOE advises that teaching should be meaningfully constructed, and provide phonics to help students spell and recognize words. However, the present study found that a rime analogy approach could build a more meaningful construct than the phonics approach, based on the researcher's interaction with the rime analogy group and the phonics group during the training. The researcher found that the former group demonstrated more interest in learning because they utilized their prior knowledge (i.e., clue words) to help them learn new words. In comparison, the latter group usually just followed the repetitive phonics rules, and no greater preference for the phonics approach was observed.

[31]The researcher recommends English teachers further extend this teaching point into homework, as the researcher did. For instance, to teach students *stick* in *chopsticks*, the teacher could search the pages that have the words containing *ick* or *ck* in the textbook and provide other word families of *ick* in advance. Then, have students look up and write down the target words containing *ick* or *ck* from their textbook by the page number clues and their meanings or pictures offered by the teacher. The homework is complete when all the *ick* family (some sources from the textbook and some from the teacher) have been written out in a list. It is hoped that through the thinking and searching process in the homework, students could build their problem solving abilities on their own, as well as with their classmates, in reading English words.

Therefore, it is suggested that English teachers add more variety in teaching students reading words, so that they will not be bored by the repetitive practice of grapheme-phoneme correspondences rules in the phonics section. For example, English teachers can offer students, or hint at, meaningful clues, such as learned words to build their confidence and interests.

**Limitations of the Study and Suggestions for Future Research**

The researcher acknowledges several limitations of the study and provides suggestions for future research as follows.

The first flaw of the present study is related to the use of the two tests: the standardized English word recognition test and the generalization test. The former standardized test only served the purpose to assess the participants' speaking abilities to help ensure their overall English proficiency level from the onset (i.e., before the training). The researcher overlooked the fact that the test could have been utilized after the training to see the relationship between word recognition levels and decoding skills. For the generalization test, the time control in the administration of the test was another area that needs to be improved. As pointed out in chapter 4, the answering time of the test might be one variable affecting the results. But in the present study, the variable was not controlled. Future studies are suggested to follow the design of DIBELS (Dynamic Indicators of Basic Early Literacy Skills) (Good & Kaminski, 2002) or other studies and

specify the maximum answering time for each test item and when to present the next word.

Another drawback of the present study was the participant selection procedure. Given the fact that the researcher only taught three classes of six graders, only two similar classes were selected to measure their English abilities using standardized word recognition test before the training. Consequently, the results of the present study may not be generalizable to a different context. Considering the sample size, the variable of whether the participants go to intensive learning classes after school was not controlled. Future studies could consider developing a test to shorten the screening phase, but also with good validity and reliability, like the standardized test in the present study. In this way, more students or classes could take the screening test so that the future researcher can select larger sample size from a pool of students and the variable of extra learning outside the classroom might be easier to control. Furthermore, although the lower-ability students in the experimental study demonstrated distinctively better performance than the ones in the control group, the researcher recommends conducting an experiment on a larger number of such students to manifest the effects of rime analogy, such as in a remedial program. From the evidence of related studies (Kuo, 2007; Wu, 2007), the researcher expects the underachievers would raise their confidence in word reading first and develop their decoding abilities.

A third weakness is that not all the clue words in the present study may be applicable to sixth graders elsewhere, because the clue words were only drawn from the textbooks of the participants. In other words, different textbook selection leads to a different pool of clue words. Nonetheless, the design of the clue word list is still suggestive for teachers in creating their own clue word lists. In addition, although the textbooks are students' main source of learning materials in school, they are also taught with classroom English (e.g, No talking. Spell the word. Listen and check.) and extra materials (e.g., song teaching) supplemented by their English teachers. Therefore, English teachers can adopt students' familiar words in extension to the textbooks, to enrich the clue word options and teach them any time when needed.

The fourth limitation and direction for further investigation concerns the syllable structure. In the present study, all the words were in a monosyllabic CVC pattern. In addition, to avoid complicating participants' abilities to utilize rime analogy, only simple onsets were adopted. That is, the present study presumed that the participants have no difficulties identifying and blending the onset segment by including a limited selection of onsets in the training and in the test. Future study might involve all consonants as onsets, and onset clusters like z , w, dr, bl, gr, sn, etc. In this way, future study could avoid creating low-frequency real words or archaic words as nonwords, as in the present study. Another aspect about the syllable structure is that the researcher found rime analogy

training is helpful in teaching students multi-syllabic words, to avoid laboriously decoding a word (e.g., playground) phoneme by phoneme. Additionally, as students enter junior high school, more multi-syllable words will be taught in junior high school (Chang, 2009). As a consequence, future studies are suggested to include multi-syllable words to prepare students for junior high school.

Lastly, the training duration is suggested to be prolonged, to test for a possibly longer effect. Although more than half of the interviewees revealed they had enough training, their difficulties indicated that more practice should be added. Moreover, as previously stated, it is suggested that more consonants be included. Hence, with reference to the phonogram word lists in Phonics from A to Z (Blevins, 1998) and the 2000 word list by MOE, there are approximately twelve[32] more clue words in addition to the 25 clue words (20 trained and 5 untrained) used in the present study. Therefore, considering the balance training across the 5 vowels, the total training span could extend to at least 30 sessions, rather than the 20 sessions in the present study.

In conclusion, despite the limitations mentioned above, the findings in the present study still serve as good basis for continuous examination. That is, the present study found that rime analogy training could foster students' decoding skills and positively change students' attitudes towards reading English words. Given the discussion of the

[32] The twelve clue words are: bag, cap, black, snack, wait, bed, green, sit, clock, from, bus, cup.

different difficulties the two groups face, English teachers could have a more comprehensive view of potential problems students need to solve in receiving rime analogy or phonics instruction.

Finally, since the positive effects of RA have been confirmed by research and also in the pilot of this study, English teachers are recommended to make good use of rime analogy for in-class teaching and for remedial teaching. Whenever students are stuck in decoding words, English teachers can enhance their confidence and refresh their memory by providing words they have learned as clues to guide them to read out unfamiliar words. After the students are familiar with RA, the teachers can develop their own clue word lists and can further extend the use of RA into homework or group project to reinforce their active use of RA strategy in learning English.

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Appendix A

# Generalization Test

A. pre-test

<指導語>

施測者：「等一下老師會給你 25 個英文單字，它們雖然是假字，但是都有符合發音規則，雖然老師還沒教你念單字的方法，你可以盡量念念看。」

B. post-test

<指導語>

施測者：「等一下老師會給你 25 個英文單字，它們是假字，但是都符合發音規則，所以你可以盡量念念看。」

| | | | | | |
|---|---|---|---|---|---|
| Name: No. Score: | 1. kot | 2. sen | 3. huck | 4. dail | 5. tox |
| | 6. sath | 7. pim | 8. bick | 9. fet | 10. teep |
| | 11. hain | 12. keat | 13. pash | 14. dat | 15. mig |
| | 16. lub | 17. noat | 18. lun | 19. meach | 20. hing |
| | 21. tock | 22. dop | 23. mut | 24. nid | 25. lish |

Scoring:

All items were scored by the same criterion. Please see item 1 as an example.

Maximum score of this test is 75 points (3x25=75).

| | | | | |
|---|---|---|---|---|
| “k”, “o”, “t” (3 points) | 1. s, e, n | 2. h, u, ck | 3. d, ai, l | 4. t, o, x |
| 5. s, a, th | 6. p, i, m | 7. b, i, ck | 8. f, e, t | 9. t, ee, p |
| 10. h, ai, n | 11. k, ea, t | 12. p, a, sh | 13. d, a, t | 14. m, i, g |
| 15. l, u, b | 16. n, oa, t | 17. l, u, n | 18. m, ea, ch | 19. h, i, ng |
| 20. t, o, ck | 21. d, o, p | 22. m, u, t | 23. n, i, d | 24. l, i, sh |

Appendix B

## Questionnaire on Attitudes Toward Reading English Words

唸讀英文字態度調查　　Name:　　No.

親愛的同學：
老師想了解你對唸讀英文字的態度，問卷中總共有11個項目，分別代表「非常同意」、「同意」、「不同意」、「非常不同意」。請根據題目，勾選「一個」最能代表你心裡想法的選項，謝謝！

| | | 非常同意 | 同意 | 不同意 | 非常不同意 |
|---|---|---|---|---|---|
| 1. | 我覺得唸讀英文字很有趣。 | □ | □ | □ | □ |
| 2. | 我發覺我唸讀英文字的正確度比其他同學好。 | □ | □ | □ | □ |
| 3. | 我知道唸讀英文字的方法。 | □ | □ | □ | □ |
| 4. | 我比其他同學唸讀了更多英文字。 | □ | □ | □ | □ |
| 5. | 我喜歡將英文字大聲的朗讀出來。 | □ | □ | □ | □ |
| 6. | 將英文字唸讀出來，讓我比其他同學更快學會新的英文字。 | □ | □ | □ | □ |
| 7. | 我喜歡嘗試唸讀英文字。 | □ | □ | □ | □ |
| 8. | 我唸讀英文字的速度很快。 | □ | □ | □ | □ |
| 9. | 唸讀出英文字對我來說很輕鬆。 | □ | □ | □ | □ |
| 10. | 我的英文字唸讀能力很好。 | □ | □ | □ | □ |
| 11. | 老師覺得我唸讀英文字的能力很好。 | □ | □ | □ | □ |

☺ 謝謝你用心填寫，祝你學習愉快! ☺

Appendix C

# Letter of Approval for Parents

## 英文課程規劃家長同意書

親愛的_____班家長:

您好，我是本班的英文老師，這學期英語課程的規劃，將延續五年級發音單元做下一階段加深加廣練習，期望對孩子學習英語單字有更多的幫助，本次活動將提供本人從事「改善小六學生唸讀英文字能力」研究之參考，特此通知家長。

學生姓名:_____ 家長簽名:_____

□同意學生增加英文字唸讀的練習。

□不同意增加英文字唸讀的練習。

英文老師 黃秀玉 敬上

Appendix D-1

## Class A's Scores on the Standardized English Word Recognition Test

| No. | Gender | Pronunciation | Meaning | Total |
|---|---|---|---|---|
| 1* | M | 30 | 21 | 51 |
| 2 | M | 55 | 43 | 98 |
| 3 | M | 1 | 1 | 2 |
| 4* | M | 70 | 56 | 126 |
| 5 | M | 43 | 29 | 72 |
| 6 | M | 28 | 19 | 47 |
| 7 | M | 40 | 20 | 60 |
| 8 | M | 12 | 8 | 20 |
| 9 | M | 41 | 21 | 62 |
| 10 | M | 11 | 6 | 17 |
| 11 | M | 20 | 14 | 34 |
| 12* | M | 96 | 93 | 189 |
| 13 | F | 0 | 1 | 1 |
| 14 | F | 1 | 2 | 3 |
| 15* | F | 49 | 26 | 75 |
| 16 | F | 3 | 2 | 5 |
| 17 | F | 3 | 2 | 5 |
| 18 | F | 54 | 28 | 82 |
| 19 | F | 33 | 19 | 52 |
| 20 | F | 7 | 7 | 14 |
| 21* | F | 75 | 59 | 134 |
| 22 | F | 1 | 1 | 2 |
| 23 | F | 3 | 2 | 5 |
| 24 | F | 2 | 2 | 4 |
| 25 | F | 7 | 3 | 10 |
| 26 | F | 97 | 95 | 192 |
| 27 | M | 2 | 2 | 4 |
| 28 | M | 0 | 0 | 0 |
| 29 | M | 0 | 0 | 0 |

*Note*. 1. Total scores =200

2. S26-S29 were not participants in the experimental group.

3. Participants whose generalization post-test scores are above 70 points are indicated by"*".

Appendix D-2

## Class B's Scores on the Standardized English Word Recognition Test

| No. | Gender | Pronunciation | Meaning | Total |
|---|---|---|---|---|
| 1 | M | 65 | 22 | 87 |
| 2 | M | 2 | 1 | 3 |
| 3 | M | 53 | 48 | 101 |
| 4 | M | 26 | 19 | 45 |
| 5 | M | 15 | 10 | 25 |
| 6 | M | 2 | 2 | 4 |
| 7 | M | 15 | 0 | 15 |
| 8 | M | 13 | 6 | 19 |
| 9* | M | 8 | 7 | 15 |
| 10 | M | 0 | 0 | 0 |
| 11 | M | 36 | 31 | 67 |
| 12 | M | 1 | 0 | 1 |
| 13 | F | 4 | 0 | 4 |
| 14 | F | 73 | 41 | 114 |
| 15 | F | 7 | 4 | 11 |
| 16 | F | 3 | 2 | 5 |
| 17 | F | 57 | 34 | 91 |
| 18 | F | 12 | 3 | 15 |
| 19 | F | 59 | 34 | 93 |
| 20 | F | 26 | 10 | 36 |
| 21 | F | 14 | 3 | 17 |
| 22 | F | 1 | 9 | 10 |
| 23 | F | 0 | 0 | 0 |
| 24 | F | 23 | 18 | 41 |
| 25 | F | 71 | 51 | 122 |
| 26 | F | 55 | 31 | 86 |
| 27 | M | 40 | 13 | 53 |
| 28 | M | 12 | 12 | 24 |
| 29 | F | 73 | 60 | 133 |
| 30 | M | 76 | 63 | 139 |

*Note*. 1. Total scores =200

2. S26 to S30 were not participants in the control group.

3. Participants whose generalization post-test scores are above 70 points are indicated by"*".

Appendix E

## List of Test Words and Clue Words

| No. | Clue word | Test word |
|---|---|---|
| 1. | hot | kot |
| 2. | ten | (sen) |
| 3. | duck | (huck) |
| 4. | tail | (dail) |
| 5. | box | (tox) |
| 6. | bath | sath |
| 7. | Kim | pim |
| 8. | sick | bick |
| 9. | net | (fet) |
| 10. | sleep* | teep |
| 11. | rain* | (hain) |
| 12. | meat | keat |
| 13. | trash | (pash) |
| 14. | cat | (dat) |
| 15. | pig* | (mig) |
| 16. | tub | lub |
| 17. | goat | noat |
| 18. | run* | lun |
| 19. | teach | meach |
| 20. | king | (hing) |
| 21. | rock* | (tock) |
| 22. | mop | (dop) |
| 23. | cut | mut |
| 24. | lid | (nid) |
| 25. | fish | (lish) |

*Note*. 1. Untrained clue words are indicated by "*".

2. Words parenthesized are low frequency real words or archaic words.

Appendix F-1

## Teaching Schedule for the Formal Study (Experimental Group)

| Week | | Date | Testing Materials for Subject Selection | |
|---|---|---|---|---|
| 1 | | 9/7-9/11 | Standardized English Word Recognition Test | |
| 2 | | 09/18(五) | Generalization Pre-test | |
| 3 | | 09/23(三) | Questionnaire on Attitudes Toward Reading English Words | |
| Week | Session | Date | Teaching Materials | |
| | | | Clue Words | Training Words |
| 4 | 1 | 09/30(三) | cat | bat, fat, hat, mat |
| | 2 | 10/02(五) | net | bet, pet, set, met |
| 5 | 3 | 10/09(五) | hot | dot, pot, cot, not |
| | 4 | 10/09(五) | mop | bop, top, cop, hop |
| 6 | 5 | 10/14(三) | cut | gut, hut, nut, rut |
| | 6 | 10/16(五) | tub | cub, dub, sub, hub |
| 7 | 7 | 10/21(三) | lid | bid, hid, mid, rid |
| | 8 | 10/23(五) | ten | den, hen, pen, men |
| 8 | 9 | 10/28(三) | Kim | dim, Tim, him, Jim |
| | 10 | 10/29(四) | box | pox, sox, lox, mox |
| 9 | 11 | 11/04(三) | sick | dick, tick, lick, pick |
| | 12 | 11/06(五) | duck | buck, suck, tuck, muck |
| 10 | 13 | 11/11(三) | fish | bish, tish, mish, wish |
| | 14 | 11/13(五) | bath | dath, path, hath, nath |
| 11 | 15 | 11/18(三) | king | bing, ding, sing, ring |
| | 16 | 11/20(五) | trash | dash, lash, mash, hash |
| 12 | 17 | 11/25(三) | meat | peat, seat, feat, heat |
| | 18 | 11/27(五) | goat | boat, moat, loat, hoat |
| 13 | 19 | 12/02(三) | tail | bail, fail, nail, sail |
| | 20 | 12/04(五) | teach | peach, leach, feach, reach |
| Week | | Date | Result Assessment | |
| 13 | | 12/04(五) | Generalization Post-test<br>Questionnaire on Attitudes Toward Reading English Words | |
| 14 | | 12/11(五) | Interview | |

Appendix F-2

## Teaching Schedule for the Formal Study (Control Group)

| Week | | Date | Testing Materials for Subject Selection | |
|---|---|---|---|---|
| 1 | | 9/7-9/11 | Standardized English Word Recognition Test | |
| 2 | | 09/17(四) | Generalization Pre-test | |
| 3 | | 09/22(二) | Questionnaire on Attitudes Toward Reading English Words | |
| Week | Session | Date | Teaching Materials | |
| | | | Clue Words | Training Words |
| 4 | 1 | 09/29(二) | cat | bop, sub, tick, peat |
| | 2 | 10/02(五) | net | mid, pox, dash, suck |
| 5 | 3 | 10/06(二) | hot | met, dick, bail, ring |
| | 4 | 10/13(二) | mop | nut, lick, wish, reach |
| 6 | 5 | 10/13(二) | cut | dot, Jim, hash, seat |
| | 6 | 10/16(五) | tub | cot, rid, dath, peach |
| 7 | 7 | 10/20(二) | lid | top, mish, hath, heat |
| | 8 | 10/22(四) | ten | dim, buck, mash, hoat |
| 8 | 9 | 10/27(二) | Kim | not, rut, fail, leach |
| | 10 | 10/29(四) | box | pet, hid, muck, tish |
| 9 | 11 | 11/03(二) | sick | hat, cub, men, loat |
| | 12 | 11/05(四) | duck | mat, cop, sing, feat |
| 10 | 13 | 11/10(二) | fish | bat, hut, mox, sail |
| | 14 | 11/13(五) | bath | den, him, tuck, boat |
| 11 | 15 | 11/17(二) | king | set, dub, lash, moat |
| | 16 | 11/19(四) | trash | hen, Tim, sox, nath |
| 12 | 17 | 11/24 (二) | meat | pot, hub, ding, nail |
| | 18 | 11/27(五) | goat | bid, pen, bish, feach |
| 13 | 19 | 12/01(二) | tail | hop, gut, pick, path |
| | 20 | 12/03(四) | teach | fat, bet, lox, bing |
| Week | | Date | Result Assessment | |
| 13 | | 12/03(四) | Generalization Post-test<br>Questionnaire on Attitudes Toward Reading English Words | |
| 14 | | 12/10(四) | Interview | |

Appendix G

## Training Words for Both Groups

| | 2000 word list from MOE | Clue words | Training words | |
|---|---|---|---|---|
| | | | Experimental group | Control group |
| 1 | flat | cat | bat, fat, hat, mat | bop, sub, tick, peat |
| 2 | let | net | bet, pet, set, met | mid, pox, dash, suck |
| 3 | lot | hot | dot, pot, cot, not | met, dick, bail, ring |
| 4 | shop | mop | bop, top, cop, hop | nut, lick, wish, reach |
| 5 | but | cut | gut, hut, nut, rut | dot, Jim, hash, seat |
| 6 | rub | tub | cub, dub, sub, hub | cot, rid, dath, peach |
| 7 | kid | lid | bid, hid, mid, rid | top, mish, hath, heat |
| 8 | when | ten | den, hen, pen, men | dim, buck, mash, hoat |
| 9 | slim | Kim | dim, Tim, him, Jim | not, rut, fail, leach |
| 10 | fox | box | pox, sox, lox, mox | pet, hid, muck, tish |
| 11 | kick | sick | dick, tick, lick, pick | hat, cub, men, loat |
| 12 | lucky | duck | buck, suck, tuck, muck | mat, cop, sing, feat |
| 13 | dish | fish | bish, tish, mish, wish | bat, hut, mox, sail |
| 14 | math | bath | dath, path, hath, nath | den, him, tuck, boat |
| 15 | bring | king | bing, ding, sing, ring | set, dub, lash, moat |
| 16 | cash | trash | dash, lash, mash, hash | hen, Tim, sox, nath |
| 17 | beat | meat | peat, seat, feat, heat | pot, hub, ding, nail |
| 18 | coat | goat | boat, moat, loat, hoat | bid, pen, bish, feach |
| 19 | mail | tail | bail, fail, nail, sail | hop, gut, pick, path |
| 20 | beach | teach | peach, leach, feach, reach | fat, bet, lox, bing |

*Note*. Item 12, *lucky,* in the 2000 word list is the only word that is not exactly matched with the rime of the clue word, *duck*. But the pronunciation of *luck* in *lucky* can still be learned using rime analogy.

Appendix H-1

# Lesson Plan for the Experimental Group

(15th session, word list: *king, bing, ding, sing, ring*)

| Procedure | Materials/ Aids | Time (10 min) |
|---|---|---|
| **Warm-up**<br>The teacher (T) reviews the five words from last period.<br><br>**Presentation and Practice**<br>1) T shows Ss the picture of *king* first, and then asks Ss to pronounce it, followed by presenting the flash card of the word *king*. T has Ss repeat *king* three times. T shows them the page containing the word *king* from their textbook to bring back their memory.<br>2) T presents the flash card of *bing*, and says "I don't know how to say it (*bing*), but I know *king* (pointing to the flash card of *king*). Because they both have *ing* (saying the letters *ing* while running the finger through *ing* from *king* and *ring*).<br>T: *ing* stands for?<br>Ss answers / ɪŋ /. (Or T provides answer.)<br>T has Ss repeat / ɪŋ / three times.<br>T points to letter b from *bing* and asks Ss "b, b, b"?<br>Ss respond "/b/, /b/, /b/".<br>Ts elicits the analogy strategy by asking "This is *king*, so this is (point to *bing*)?"<br>Ss answer *bing*.<br>T has Ss repeat the pair *king* and *bing* three times.<br>(By replacing the word *bing* with the other practice words, the same practice is carried out.)<br>T goes over the same practice (step 2) to teach Ss the four practice words again.<br>3) T randomly picks Ss and guides them to read aloud the practice words by using the strategy just taught in step 2.<br><br>**Production** | flash cards of the five words (*bath, dath, path, hath, nath*)<br>1) flash cards of *king* (picture and word cards)<br>2) textbook that has the word *king*<br>3) flash cards of *bing, ding, sing, ring)* | 1'40<br><br>4'20<br><br>1'30 |

| | | |
|---|---|---|
| 1) T has the Ss copy down the underlined part (rimes) of the practice words to their worksheets (see below).<br>1) king **2)** king **3)** king **4)** king<br>b___ d___ s___ r___<br>( answers: bing, ding, sing, ring)<br><br>2) Five group leaders read the four pairs of phonograms to the T and then go back to monitor their group members as they do the same practice. If their group members have difficulties saying the words, the group leaders model for them and ask them to repeat. | 1) worksheet<br>2) vocabulary checklist (see the bottom of the page) | 2'30 |

**checklist**

| student / session | | | | | |
|---|---|---|---|---|---|
| 1. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 13. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 14. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 15. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 17. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 18. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 19. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 20. | ☐ | ☐ | ☐ | ☐ | ☐ |

Appendix H-2

# Lesson Plan for the Control Group

(15th session, word list: *king, set, dub, lash, moat*)

| Procedure | Materials/ Aids | Time (10 min) |
|---|---|---|
| **Warm-up**<br>The teacher (T) reviews the five words from last period.<br><br>**Presentation and Practice**<br>1) T shows Ss the picture of *king* first, and then asks Ss to pronounce it, followed by presenting the flash card of the word *king*. T has Ss repeat *king* three times. T shows them the page containing the word *king* from their textbook to bring back their memory.<br>2) T presents the flash card and the strip of *set*, and points to letter *s* from the strip *set*, asking "s, s, s"?<br>Ss respond "/s/, /s/, /s/".<br>T points to letter *e* from *set* and asks Ss "e, e, e"?<br>Ss respond "/ɛ/, /ɛ/, /ɛ/."<br>T points to letter *t* from *set* and asks Ss "t, t, t"?<br>Ss respond "/t/, /t/, /t/."<br>T teaches the segmentation and blending of *set* by running her finger through the strip reading "s, e, t → set".<br>T has Ss practice the blending and segmentation of *set* again.<br>(By replacing the word "*set*", the same practice is carried out for the remaining words: *dub, lash, moat.)*<br>T goes over the same practice (step 2) to teach Ss the four practice words one more time.<br>3) T randomly picks Ss and guides them to read aloud the practice words by using the strategy just taught in step 2.<br><br>**Production**<br>1) T has the Ss copy down the underlined part of the practice words to their worksheets (see below). | flash cards of the five words (*bath, den, him, tuck, boat*)<br>1) flash cards of *king* (picture and word cards)<br>2) textbook that has the word *king*<br>3) flash cards of *set ,dub, lash, moat*<br>4) strips showing the blending of *set ,dub, lash, moat*<br><br>1) worksheet<br>2) vocabulary checklist (see the bottom of the page) | 1'40<br><br>4'20<br><br>1'30<br><br>2'30 |

| | | |
|---|---|---|
| k , i , ng → king<br>1) _ ,_ , _ → set<br>2) _ ,_ , _ →dub<br>3) _ ,_ , _ →lash<br>4) _ ,_ , _ →moat<br><br>2) Five group leaders read the segmentation and blending of practice words from the worksheet and then go back to monitor their group members as they do the same practice. If their group members have difficulties saying the words, the group leaders model for them and ask them to repeat. | | |

**checklist**

| student / session | | | | | |
|---|---|---|---|---|---|
| 1. | □ | □ | □ | □ | □ |
| 2. | □ | □ | □ | □ | □ |
| 3. | □ | □ | □ | □ | □ |
| 4. | □ | □ | □ | □ | □ |
| 5. | □ | □ | □ | □ | □ |
| 6. | □ | □ | □ | □ | □ |
| 7. | □ | □ | □ | □ | □ |
| 8. | □ | □ | □ | □ | □ |
| 9. | □ | □ | □ | □ | □ |
| 10. | □ | □ | □ | □ | □ |
| 11. | □ | □ | □ | □ | □ |
| 12. | □ | □ | □ | □ | □ |
| 13. | □ | □ | □ | □ | □ |
| 14. | □ | □ | □ | □ | □ |
| 15. | □ | □ | □ | □ | □ |
| 16. | □ | □ | □ | □ | □ |
| 17. | □ | □ | □ | □ | □ |
| 18. | □ | □ | □ | □ | □ |
| 19. | □ | □ | □ | □ | □ |
| 20. | □ | □ | □ | □ | □ |

Appendix I-1

## Experimental Group's Pre-and Post-training Scores on the Generalization Test

| No. | Gender | Pre-training | Post-training | Improvement |
|---|---|---|---|---|
| 1 | M | 60 | 71 | 11 |
| *2 | M | 54 | 63 | 9 |
| *3 | M | 1 | 13 | 12 |
| 4 | M | 41 | 70 | 29 |
| 5 | M | 47 | 66 | 19 |
| 6 | M | 47 | 61 | 14 |
| 7 | M | 31 | 57 | 26 |
| 8 | M | 45 | 61 | 16 |
| 9 | M | 40 | 64 | 24 |
| 10 | M | 33 | 54 | 21 |
| 11 | M | 33 | 65 | 32 |
| 12 | M | 63 | 72 | 9 |
| *13 | F | 3 | 22 | 19 |
| 14 | F | 0 | 29 | 29 |
| 15 | F | 42 | 72 | 30 |
| 16 | F | 2 | 33 | 31 |
| *17 | F | 3 | 26 | 23 |
| 18 | F | 60 | 67 | 7 |
| 19 | F | 18 | 66 | 48 |
| 20 | F | 23 | 44 | 21 |
| 21 | F | 69 | 74 | 5 |
| 22 | F | 0 | 34 | 34 |
| *23 | F | 0 | 18 | 18 |
| 24 | F | 5 | 49 | 44 |
| *25 | F | 9 | 28 | 19 |

*Note*. 1.Total scores =75

2. Participants with "*" indicates the interviewees.

Appendix I-2

## Control Group's Pre-and Post-training Scores on the Generalization Test

| No. | Gender | Pre-training | Post-training | Improvement |
|---|---|---|---|---|
| 1 | M | 59 | 59 | 0 |
| 2 | M | 7 | 59 | 52 |
| 3 | M | 53 | 69 | 16 |
| 4 | M | 49 | 54 | 5 |
| 5 | M | 26 | 59 | 33 |
| 6 | M | 37 | 54 | 17 |
| 7 | M | 34 | 60 | 26 |
| 8 | M | 54 | 61 | 7 |
| 9 | M | 46 | 72 | 26 |
| *10 | M | 0 | 15 | 15 |
| 11 | M | 38 | 54 | 16 |
| 12 | M | 3 | 52 | 49 |
| 13 | F | 2 | 36 | 34 |
| 14 | F | 60 | 67 | 7 |
| *15 | F | 16 | 19 | 3 |
| 16 | F | 4 | 63 | 59 |
| *17 | F | 53 | 66 | 13 |
| 18 | F | 9 | 58 | 49 |
| 19 | F | 56 | 62 | 6 |
| 20 | F | 43 | 58 | 15 |
| *21 | F | 37 | 64 | 27 |
| *22 | F | 0 | 1 | 1 |
| *23 | F | 0 | 1 | 1 |
| 24 | F | 54 | 67 | 13 |
| 25 | F | 33 | 63 | 30 |

*Note*. 1. Total scores =75

2. Participants with "*" indicates the interviewees.

Appendix J-1

## Experimental Group's Pre-and Post-training Scores on the Questionnaire

| No. | Gender | Pre-training | Post-training | Gains |
|---|---|---|---|---|
| 1 | M | 25 | 21 | -4 |
| *2 | M | 26 | 18 | -8 |
| *3 | M | 23 | 24 | 1 |
| 4 | M | 34 | 38 | 4 |
| 5 | M | 26 | 40 | 14 |
| 6 | M | 23 | 30 | 7 |
| 7 | M | 24 | 22 | -2 |
| 8 | M | 28 | 28 | 0 |
| 9 | M | 26 | 26 | 0 |
| 10 | M | 32 | 40 | 8 |
| 11 | M | 22 | 29 | 7 |
| 12 | M | 33 | 34 | 1 |
| *13 | F | 26 | 23 | -3 |
| 14 | F | 26 | 39 | 13 |
| 15 | F | 30 | 41 | 11 |
| 16 | F | 31 | 31 | 0 |
| *17 | F | 21 | 26 | 5 |
| 18 | F | 26 | 35 | 9 |
| 19 | F | 37 | 37 | 0 |
| 20 | F | 22 | 25 | 3 |
| 21 | F | 37 | 41 | 4 |
| 22 | F | 14 | 16 | 2 |
| *23 | F | 12 | 25 | 13 |
| 24 | F | 11 | 29 | 18 |
| *25 | F | 25 | 24 | -1 |

*Note*. 1. Total scores =44

2. Participants with "*" indicates the interviewees.

Appendix J-2

## Control Group's Pre-and Post-training Scores on the Questionnaire

| No. | Gender | Pre-training | Post-training | Gains |
|---|---|---|---|---|
| 1 | M | 32 | 39 | 7 |
| 2 | M | 14 | 23 | 9 |
| 3 | M | 33 | 35 | 2 |
| 4 | M | 11 | 12 | 1 |
| 5 | M | 19 | 16 | -3 |
| 6 | M | 22 | 19 | -3 |
| 7 | M | 28 | 31 | 3 |
| 8 | M | 25 | 31 | 6 |
| 9 | M | 24 | 26 | 2 |
| *10 | M | 25 | 17 | -8 |
| 11 | M | 32 | 30 | -2 |
| 12 | M | 15 | 36 | 21 |
| 13 | F | 26 | 25 | -1 |
| 14 | F | 33 | 36 | 3 |
| *15 | F | 16 | 19 | 3 |
| 16 | F | 17 | 22 | 5 |
| *17 | F | 36 | 29 | -7 |
| 18 | F | 33 | 36 | 3 |
| 19 | F | 30 | 31 | 1 |
| 20 | F | 28 | 27 | -1 |
| *21 | F | 38 | 31 | -7 |
| *22 | F | 20 | 17 | -3 |
| *23 | F | 28 | 24 | -4 |
| 24 | F | 21 | 31 | 10 |
| 25 | F | 27 | 32 | 5 |

*Note*. 1. Total scores =44

2. Participants with "*" indicates the interviewees.

Appendix K-1

# Transcription of Participants' Interviews

**(One of the Interviewees in the Experimental Group)**

**T:** S25, I felt you have made some progress on the course this semester, but I found that you seemed to encounter some difficulties on the (generalization) test. So I have some questions to ask you, hoping you will benefit from them.
Let's take a look at the test items from last time.
You did not read out the word "h-u-c-k" on that day. Did you try using the teacher's method?

**S25:** Yes, but I can not think of any (clue words).

**T:** (You) did not think of any. So, let me model one for you. What if I tell you this word? How do you say this word?

**S25:** "duck."

**T:** "u-c-k" stands for…?

**S25:** /ʌk/(uck).

**T:** This is duck, this is …?

**S25:** "huck."

**T:** O.K. So you know how to read it!

**S25:** Hmm.

**T:** You read "f-e-t" as "feet". You were close, but let us see how this is pronounced. Did you try using the teacher's method?

**S25:** Yes, but I can't think of any (clue words).

**T:** Let me give you some clue. If this word…(T points to "net")?

**S25:** "Nut."

**T:** Pardon?

**S25:** "Nut." "Net."(with teacher's correction)

**T:** Do you know how to read "e-t"? "e-t" stands for?

**S25:** /it/(eet).

**T:** It's /ɛt/ (et).

**S25:** /ɛt/ (et).

**T:** This is net, this is …?

**S25:** "fet."

**T:** O.K. Net-fet. Good job. You made it! Let's look at this one. You did not read out "h-i-n-g" last time. Do you know how to read "i-n-g"?

**S25:** (Shaking her head.)

**T:** No. Let me give you some clue, using my method. How do you read this?

**S25:** “king.”

**T:** “king.” O.K. This is king, this is …?

**S25:** “hing”.

**T:** Yes, “king”, “hing.”

Let us see. You pronounced “m-u-t” as /mjut/(mute). You were close. Let us see. What if I give you a hint this way (showing S25 the clue word in the textbook)? We have studied this word before. Did you know how to say “c-u-t”?

**S25:** “cut.”

**T:** O.K. This is cut, this is …?

**S25:** “mut.”

**T:** That’s right. Cut-mut. Do you think the twenty-session training is enough?

**S25:** Yes.

**T:** What do you think of the teacher’s teaching method?

**S25:** (No response).

**T:** If I have you choose (pointing at the option list)….

**S25:** Hmm, “clear”.

**T:** O.K. Thank you.

Appendix K-2

# Transcription of Participant's Interview

## (One of the Interviewees in the Control Group)

**T:** S10, I felt you have made some progress on the course this semester, but I found that you seemed to encounter some difficulties on the (generalization) test. So I have some questions to ask you, hoping you will benefit from them.
Let's take a look at the test items from last time.
For example, "t-o-x", you read /dot/ on that day. Did you try using the teacher's method?

**S10:** Yes.

**T:** Can you try saying it out? "t, t ,t"?

**S10:** /t/, /t/, /t/

**T:** "o, o ,o"?

**S10:** /ɑ/, /ɑ/, /ɑ/.

**T:** x, x , x…?

**S10:** /ks/, /ks/, /ks/.

**T:** So," t, /t/, /ɑ/ , /ks/" ?

**S10:** /tɑks/.

**T:** Right. This is the right way to say it. Let us see another one. "t-o-c-k", you said "/dɑt/" lat time. Did you try using the teacher's method?

**S10:** Yes.

**T:** Then, can you show me how to read it out using my method?

**S10:** /t/, /t/, /t/, /ɑ/, /ks/.

**T:** / ks/. So, all together?

**S10:** /tɑks/.

**T:** Let me model for you. t, t, t , /t/, /t/, /t/, o, o, o, /ɑ/, /ɑ/,/ɑ/, "ck" stands for?

**S10:** /k/.

**T:** "/t/, /ɑ/, /k/" ?

**S10:** /tɑks/. /tɑk/.

**T:** /tɑk/. O.K. You gave up on some of the test items. Let us look at this one. You did not say "t-e-e-p" You did not read it last time. Was there any part where you encountered difficulties?

**S10:** I did not know how to read the last two (letters).

**T:** You did not how to read "e-p". So you knew how to read the first two, "t-e"?

**S10:** Hmm.

**T:** My method is (segmenting) by "t", "ee", and "p". So let me demonstrate. t, t, t , /t/,

/t/, /t/, “ee” stands for?

**S10:** /i/.

**T:** /i/.Very good. “p, p, p” ?

**S10:** /p/, /p/, /p/.

**T:** /p/. So “/t/, /i/, /p/”?

**S10:** /tip/.

**T:** /tip/. Good. That is the way of saying it. Here is another one. Let me test you. For example, “s-a-t-h.” You did not read it last time, either. Was there any part where you encountered difficulties?

**S10:** Because I thought the last two (letters) were together.

**T:** Last two (letters) were together. Then, did you know how to read this (pointing at “th”)?

**S10:** No.

**T:** Let me see if you know the remaining (phonemes). Try using my method.

**S10:** /s/, /s/, /s/, /æ/, /æ/,/æ/ (Followed by silence.).

**T:** But you were stuck by the last two (letters)?

**S10:** Hmm.

**T:** “/s/, /æ/,/θ/” So now, do you know how to read it?

**S10:** /sɛθ/.

**T:** /sæθ/.

**S10:** /sɛθ/.

**T:** I am going to ask you one more item where you gave up last time. “k-e-a-t.”. You did not read it last time. Was there any part where you encountered difficulties?

**S10:** Still the last two.

**T:** You did not know how to read the last two?

**S10:** Hmm.

**T:** Let me teach you using my method. (Showing S10 the segmentation) “k, “ea”, and “t”. /k/, /k/,/k/, k, k, k, “ea” stands for?

**S10: (**No response)

**T:** /i/. “t, t, t”?

**S10, T:** /t/, /t/, /t/.

**T:** “/k/, /i/,/t/”

**S10:** /kit/.

**T:** /kit/. Good. That is the way of saying it.

**T:** O.K. Do you think the twenty-session training is enough?

**S10:** Hmm (Nodding his head).

**T:** What do you think of teacher’s teaching method?

**S10:** Fairly good.

**T:** If I have you choose (pointing at the option list). What would you choose?

**S10:** Easy to remember.

**T:** Easy to remember. O.K. Thank you.