

## CHAPTER 1

### GENERAL INTRODUCTION

#### 1.0 Introduction

This study seeks to investigate cross-language transfer of phonological and morphological awareness among young Malay second language learners. Cross – language transfer is taken to mean the positive transfer of linguistic knowledge and skills across languages (Cazden, 1974). Phonological Awareness (PA) refers to a child’s awareness that spoken words can be broken down to smaller units of sound (Goswami, 1999). Morphological Awareness (MA) refers to recognizing the presence of morphemes in words (Carlisle, 1995). Awareness in the context of this study is being able to recognize the presence of linguistic knowledge and the ability to manipulate it. Second language learners would refer to learners who are learning English as a second language in Malaysian schools.

Phonological awareness can be measured at three levels: the phoneme level, the syllable level and the onsets and rimes level. First let us look at the definition of the phoneme. The phoneme reflects the smallest unit of sound. For example, the word ‘pit’ and ‘bit’ differ by a single phoneme, the initial phoneme. Syllabic awareness refers to children’s ability to detect constituent syllables in words (Goswami, 1999). A word like ‘hospital’ has three syllables. A child who has syllabic awareness is able to know that there are three syllables in a word like ‘hospital’.

“Onset-rime awareness is the ability to detect that a single syllable is made up of two units, the onset, which corresponds to any phonemes before the vowel, and the rime, which corresponds to the vowel sound and to any following phonemes”. (Goswami, 1999: 135). This study will only be concerned with measuring phonological awareness at the level of the phoneme and not at the syllable level nor at the onset and rime level.

Morphemes are the smallest units of words that carry meaning. For example, the word ‘hearts’ is composed of two morphemes, the root ‘heart’ and the plural ‘-s’. Morphological knowledge includes knowledge of inflections and knowledge of derivational forms as well as knowledge of compound words, for example ‘firefighter’. Inflectional morphemes indicate the grammatical status of the words to which they are attached. For example: ‘kill’ and ‘-ed’ where the past tense inflection ‘-ed’ is added to the root ‘kill’. Derivational morphemes change the base word to create a new word which usually includes a change in grammatical category, for example the adjective ‘naughty’ to the noun ‘naughtiness’. Awareness of compound words is another aspect of morphological awareness. Morphological awareness can be measured at these three levels. For the purpose of this study only knowledge of inflections and knowledge of derivational forms will be used to measure morphological awareness.

Carlisle (1995) refers to morphological awareness as the conscious ability to think about and to manipulate the forms and structure of words.

Chapter Two will elaborate further on these two concepts.

## **1.1 Rationale of the Study**

Learning a second language is one of the most important skills a child can learn. Nunes and Bryant (2009: 200) pose an interesting question: "...is there anything that can be done in the teaching of the children's first language that would make them better learners of a second language?" Can a first language acquired by a child help the child become a better second language learner? This is an area that can have important implications to the way language is taught be it the first language (L1) or the second language (L2). Before this area of research can be explored some basic concepts have to be discussed.

One phenomenon of second language learning is the notion of transfer. Research has shown that transfer does take place between languages but thus far, especially in the field of Applied Linguistics, this type of transfer has been considered negative transfer (Odlin, 1989). More recently researchers have been investigating positive transfer, in particular, the transfer of phonological and morphological awareness across languages (see Harris & Hatano,1999; Nunes & Bryant, 2009; Yeong & Rickard Liow, 2012)

As far as negative transfer is concerned, a large amount of research has focused on interference effects from the native or first language (L1) when we learn a second language (L2). Behaviourist theories of L2 learning drew attention to how 'difficult' it was to learn the second language or the target language, 'difficulty' here being defined as the amount of effort required to learn an L2 pattern (Ellis, 1994). How difficult it was to learn a second language depended on the extent to which the target language was similar to or different from the native language. When the two were identical learning could take place easily through positive transfer. But if the two languages were different then negative transfer or interference would occur (Ellis, 1994).

This study will investigate positive transfer between two similar languages. This is not just the kind of transfer that would take place, if the surface-level features of both languages are the same but more importantly, the transfer of deep structure principles that take place despite surface-level differences. Bindman observes that “What transfers at this deep meta-linguistic level is an understanding of the underlying principles or concepts shared by the two languages” (2004:692).

Transfer occurs when linguistic knowledge from one language (for example a person’s first language) is applied to another language (for example a person’s second language). Bindman (1997) claims that grammatical awareness can be transferred from Hebrew to English and where grammatical concepts are clearly related in the child’s two languages, it is easier to transfer knowledge of them across languages.

The two languages examined in this study are Malay (L1) and English (L2). Both Malay and English have the same alphabetic script. While English has a deep orthography, Malay has a transparent orthography (Lee & Ong, 2006) i.e. when a language has almost a one to one correspondence between graphemes and phonemes. The Malay script has an almost one-to-one correspondence between graphemes and phonemes (Rickard Liow & Lee, 2004). For example the letter ‘e’ is the only grapheme in Malay that has two different pronunciations (Rickard Liow, 1999). The letter ‘e’ symbolizes the vowel sound /ə/ and /e/. English has a deep orthography where graphemes and phonemes do not always have a one to one correspondence, for example, the phoneme /f/ has two realizations as seen in words like ‘fish’ and ‘cough’. Hebrew is one other language that has a deep orthography. It should be noted that

vowelled Hebrew is a very shallow orthography. Unvowelled Hebrew is considered a deep orthography.

In contrast to the English language, Malay has very little inflectional morphology (Gomez & Reason, 2002). The Malay language is rich in derivational affixes, which are generally polysyllabic in nature. The two relevant classes for the process of word formation are affixes and roots (Gomez & Reason, 2002). For the purpose of the current research derivational affixes in Malay were exploited to form a battery of words used in the instruments of the study to measure phonological and morphological awareness in young Malay L2 learners of English. This study investigates whether phonological and morphological awareness can be positively transferred from the first language to the second language.

## **1.2 Statement of the Research Problem**

This thesis encompasses three parts with one common goal: Can phonological and morphological awareness be transferred from the L1 to the L2?

In the quantitative study I phonological awareness is seen as a predictor of early English spelling development. Yeong and Rickard Liow (2011) in their study on early spelling development in bilinguals found that English and Mandarin phonological processing skills predicted growth in English spelling sophistication for both the English L1 and Mandarin L1 children. Rickard and Poon (1998) found that phonological awareness could be transferred from Bahasa Indonesia to English.

Children learning to read and write in languages that have a regular grapheme – phoneme correspondence are able to acquire phonological awareness and later use this knowledge to help them spell in their second language (Yeong & Rickard Liow, 2011).

Studies have shown (e.g., Durgunoglu, Nagy & Hancin Bhatt, 1993; Rickard Liow & Poon, 1998) that when two languages are involved and one has a more transparent orthography than the other then transfer of phonological awareness will take place from the language with the transparent orthography to the language that has a deep orthography. As previous studies have shown this, the present study would like to also examine if this is the case between the Malay language (L1) which has a transparent orthography (Lee & Ong, 2006) and English (L2) which has a deep orthography (Yap, Rickard Liow, Jalil & Faizal, 2010) in the Malaysian context.

This study would furthermore like to examine the transfer of morphological awareness and phonological awareness from the L1 to the L2. Castro, Nunes and Strecht–Ribeiro (2004, cited in Nunes & Bryant 2009) found that morphological awareness in Portuguese was a predictor of English learning after one year of instruction. Bindman (2004) found that performance on a Hebrew spelling measure correlated with three English morpho-syntactic awareness tasks. This showed that grammatical awareness gained in the L1 (English) can be used for the L2.

If this study is able to show that Malay morphological awareness is a predictor of English spelling accuracy then this would indicate that there is transfer from the L1 to the L2. This area of research has yet to be investigated.

After establishing whether transfer occurs at a more general level i.e. spelling accuracy, a more detailed quantitative analysis of early spelling errors was undertaken. The following studies pertain to this area.

A large number of studies have focused on examining the relationship between phonological awareness and learning to read (Bradley & Bryant, 1983; Rego, 1999; Goswami, 1999, Defior S., 2004). A few studies have focused on phonological awareness and learning to spell (Rego, 1999; Treiman, 2004). More recently, there have been studies on morphological awareness and learning to spell (Ripens et al., 2008; Deacon et al., 2009; Nunes & Bryant, 2009). There have been even fewer studies on cross-language transfer of morphological or grammatical awareness (Bindman, 1997)

There are only two studies in the area of transfer of phonological awareness across languages where the two languages are English and Malay and the sample is taken from Malaysian learners. The first one is by Lee and Ong (2006) which examined the relationship between phonological awareness and early reading in the Malay language. The sample consisted of 46 children in Year 1. The study used three phonological awareness tasks: blending, segmentation and manipulation. The results indicated significant correlations between word recognition and all three measures of phonological awareness tasks. A multiple regression analysis indicated that blending tasks at syllable level had the greatest predictive validity for word recognition in the Malay language.

The second study is by Gomez and Reason (2002) who examined the relationship between phonological skills and reading performance in English of Malaysian children

whose home language was Malay. The sample consisted of 69 Malaysian children aged 7 to 8 years. The results showed that the Malay children had acquired a high level of phonological processing skills through their experience with a highly transparent orthography like Malay and also through the structured way in which reading is taught in Malay. These skills helped them to decode words in L2 (English).

Although these studies look at the relationship between phonological awareness and reading, neither of the studies look at the relationship between morphological and phonological awareness and spelling development among young Malay second language learners. This study will investigate whether significant correlations can be found between phonological and morphological awareness tasks and spelling performance. Multiple regression analysis will be used to see if Malay phonological awareness can predict English Spelling Accuracy.

If significant correlations can be found between phonological and morphological awareness tasks and spelling performance these can have a number of implications. First, this study would be able to provide original data on the relationship between morphological and phonological awareness and spelling development, where the two languages involved are Malay and English.

Secondly some educational implications are that learners who receive a good grounding in their first language can later use this knowledge to help them learn a second language. Also training in morpheme and phoneme awareness can help learners become better spellers.



Thirdly the methodology used in this study can help future researchers design their own studies if they wish to conduct research in this area.

Chapter Two will review more literature related to the above.

### **1.3 Method**

This section will be divided into two parts: method and design of the pilot study and method and design of the quantitative studies.

#### **1.3.1 Method and Design of the Pilot Study**

There were sixty children in the pilot study. Thirty-five children were 9 years old in Year Three and Twenty-five children were 12 years old in Year Six. The first language of the group of children participating in the study is Malay and they were also learning English as a second language. The group of learners was sampled from two urban primary national schools, one in Petaling Jaya and the other in Kuala Lumpur.

The pilot study was designed to determine if morphological awareness could be positively transferred between Malay and English. The transfer of phonological awareness could not be determined by the pilot study due to time limitations.

The following tasks were administered to the children. The English language tasks consisted of the morpheme sub-test and the phoneme sub-test [see 3.7A(i) – (ii)]. The Malay language tasks consisted of the spelling tests and two oral morphological awareness tasks: the word analogy task and the sentence analogy task.

The rationale, design and procedure of each of the language tasks are described in Chapter Three.

### **1.3.2 Method and Design of the Quantitative Studies**

These studies attempted to investigate the phonological and morphological awareness of young Malay second language learners and the ability of this awareness to influence spelling performance in both English and Malay. The learners for this study were selected based on the fact that their first language was Malay and their second language was English, as such the question of selecting children who had English as their L1 did not arise. The class teachers from the various schools chose the children who met the above criteria for the study. An additional criterion was that the children had to have had some knowledge of English before they started school at age seven. This was to ensure that the children could attempt to answer the language tasks that were used as instruments in this study.

A sample of 152 Malay children aged 7 to 9 years were selected for the quantitative study II and III. And of these 152 children, 100 Year 1 and Year 2 children (the seven-year-olds and the eight-year-olds) were selected for the quantitative study I. The children aged 9 years were left out of the quantitative study I as they did not perform well on the English vocabulary task and thus were not expected to provide reliable results for the quantitative study I. Furthermore these children achieved lower scores on the English spelling test compared to the eight-year-old children in SRK Bukit Bandaraya. As a result the nine-year-olds were left out of the analysis because they did not seem to have more knowledge of English compared to the eight-year-olds.

The children were selected from age seven to nine because in a pilot study conducted by the researcher, it was found that children who were twelve years old were too old for the study as the group showed ceiling levels in two of the spelling tasks. Pre-school children were also not used as respondents in this study because they were too young to be able to complete the language tasks.

The group of learners participating in this study was from urban primary national schools in Malaysia. The children came from average to high income homes. The children involved in this study spoke English as most of them came from English speaking homes. The children were selected on the basis that Malay was their first language and English was their second language. Although the children spoke some English at home it was clear after the data collection that the nine-year-old children from SRK Jalan Selangor did not have as good a command of the language compared to the eight-year-olds from SRK Bukit Bandaraya.

In order to collect the data required, the researcher administered 4 spelling tests and 11 awareness tasks to children from 3 different schools – SRK Wangsa Maju (50 seven-year-olds participated in the quantitative study I, II and III). SRK Bukit Bandaraya (50 eight-year-olds participated in the quantitative study I, II and III) and SRK Jalan Selangor (52 nine-year-olds participated in the quantitative study II and III). Two of the schools SRK Wangsa Maju and SRK Bukit Bandaraya were located in Kuala Lumpur and one school SRK Jalan Selangor was located in Petaling Jaya.

The researcher also administered 3 measures of the *Wechsler Intelligence Scale for Children (WISC-R)* to control for IQ (similarities, digit span and coding) and one measure on the WISC-R to control for Malay vocabulary and the *British Picture*

*Vocabulary Scale* to control for English vocabulary. These measures were taken to ensure that the children did not vary too greatly with regard to these variables.

The following tasks were administered to the children:

English language tasks consisted of the Spelling Tasks (Morpheme sub-test, Phoneme sub-test and Consistency of Stems of English Roots). The Phonological Awareness Tasks consisted of English Swapping of Phonemes, Identifying Beginning and End Phonemes and Matching Phonemes. The Oral Morphological Awareness Tasks consisted of Word Analogy, Sentence Analogy and Word Classification tasks. The English language tasks also included the British Picture Vocabulary Scale to measure English vocabulary.

A similar set of tasks were adapted and designed in the Malay language the only difference being the productive morphology task (an additional awareness task), and four measures of the Wechsler Intelligence Scale for Children which was administered in Malay.

The rationale, design and procedure of each of the language tasks are described in Chapter Three.

#### **1.4 Aim of the Study**

The aim of this study is to show that phonological and morphological awareness can be transferred within and across languages. While research has established that phonological awareness is an important predictor of learning to read (Bradley & Bryant, 1983; Goswami, 1999) less is known about the role phonological awareness plays in learning to spell, as there is a significantly less literature devoted to this area. This

study seeks to examine the relationship between phonological and morphological awareness and performance on spelling tests, both in the L1 and the L2 with the Malay language as L1 and the English language as L2.

In order to achieve this aim, a series of spelling tests and morphological and phonological awareness tasks both in Malay and English were administered to Malay learners aged seven to nine. A positive correlation between the awareness tasks and the spelling tests in both Malay and English would indicate the presence of transfer.

The subtest Vocabulary of the *Wechsler Intelligence Scale for Children – Revised* version in Malay, was used to control for Malay Vocabulary. This step was seen as necessary because the outcome variable Malay Spelling Test would be influenced by the predictor variable Malay vocabulary. Therefore it is necessary to control for the effects of this variable. Castro, Nunes and Strecht-Ribeiro (cited in Nunes & Bryant 2009) used a similar assessment of the learners verbal ability by using the WISC translated and adapted to Portugese.

The *British Picture Vocabulary Scale (BPVS)* (Short Form) was used to control for English Vocabulary. This step was necessary because the outcome variable English Spelling Test would be influenced by the predictor variable English vocabulary. Therefore it is necessary to control for the effects of this variable. Castro, Nunes and Strecht-Ribeiro (cited in Nunes & Bryant 2009) used the *BPVS* to control for English vocabulary. Bindman (2004) examined the connection between English children's awareness of morphology in English and their ability to solve morphological awareness tasks in Hebrew. In her analysis, Bindman also controlled for age and English vocabulary.

Three measures on the *Wechsler Intelligence Scale for Children-Revised* version (digit span, coding and similarities) were used to control for IQ.

Another variable that needs to be partialled out is age. This is because the older children in the sample might have an advantage over the younger ones as they might be more proficient in the language. Thus age might influence the two variables of interest, the awareness variable and the performance variable. By statistically removing the influence of the third variable, a clearer and more accurate indication of the relationship of the two variables of interest will be obtained. This is important because the interfering third variable can artificially inflate the size of the correlation coefficient obtained. By statistically controlling for the third variable the correlation between the two variables of interest is likely to be reduced, which should result in a smaller correlation coefficient.

Previous studies have also controlled for similar variables. Castro, Nunes and Strecht-Ribeiro (2004, cited in Nunes & Bryant 2009) analysed whether Portuguese children's awareness of morphology in Portuguese was a predictor of their English learning after one year of instruction. In their analysis Castro et al. controlled for age, general verbal ability and their previous knowledge of English words (assessed by the British Picture Vocabulary Scale).

As past research studies cite age and verbal ability as an issue that might influence the correlation coefficient, this study set out to also control for age, Malay vocabulary, English vocabulary and IQ.

## **1.5 Research Questions**

The research questions for this study are as follows:

1. Do young Malay second language learners transfer phonological and morphological awareness from their L1 to their L2?
2. Does phonological awareness facilitate phonological spelling in both the L1 and the L2?
3. Does morphological awareness facilitate morphological spelling in both the L1 and the L2?

## **1.6 Language Differences between Malay and English**

The Malay language belongs to the Malayo–Polynesian branch of the Austronesian family of languages. Malay like English is an alphabetic language. In contrast to English, Malay has a transparent orthography with highly regular grapheme – phoneme correspondence. Its morphology is transparent and it has simple, short syllabic structures (Yap, Rickard Liow, Jalil and Faizal, 2010). The language has a basic four syllable structure i.e. V, VC, CV and CVC (Gomez & Reason, 2002). Malay words are mostly made up of one, two or three syllables (Nik Safiah Karim, 1995). The Malay language has very little inflectional morphology but is rich in derivational affixes (Gomez & Reason, 2002). English, on the other hand, is a Germanic language and has a deep orthography with complex syllable structure. There are 25 letters and 34 phonemes in Malay while English has 26 letters and 44 phonemes. Malay has 5 simple vowels and 20 consonants: <x> is not used, <q> and <v> are found in only foreign loanwords. There are 5 digraphs <gh>, <kh>, <ny>, <ng>, and <sy> and three diphthongs <ai>, <au> and <ua> (Yap et al., 2010).

Children learning Malay are introduced to the sounds of the language in the oral mode through rhymes (*pantun*) and songs (*lagu*). They are taught how to write the alphabetic script. In initial reading children are always taught to sound the consonants with the vowels (a,e,i,o,u) never on its own for example, b+a, b+i, b+u, b+e and b+o then they produce syllables like *ba*, *bi*, *bu*, *be*, and *bo* (Gomez and Reason, 2002; Winskel and Widjaja, 2007).

### **1.7 Significance of the Study**

This study is expected to be significant to both teachers and education planners. If the quantitative study I shows that phonological awareness and morphological awareness can be transferred to help Malay learners spell English words with greater accuracy then this could have significant implications for the teaching of both English and Malay in primary schools. If the findings of the quantitative study II and III show that phonological and morphological awareness can facilitate spelling of morphemes and phonemes, then this would help curriculum designers, as incorporating phonological and morphological training in the syllabus for young learners would help them learn a second language more easily.

Intervention studies show that teaching children about sounds in words and about grapheme-phoneme relations radically improves their reading and spelling abilities (Nunes & Bryant, 2009).

### **1.8 Limitations**

There are some limitations to the study.



1) As the distribution was not normal for phonological spelling, non parametric tests had to be used. As such, it could not be determined if the significant correlation between phonological awareness and phonological spelling would remain significant after controlling for age, IQ and Malay vocabulary.

2) The British Picture Vocabulary Scale (BPVS) Short Form was used as a control for English vocabulary. Since the test was not developed and standardized on a Malaysian population, for the present study raw scores were used.

3) There was some reservation about the use of the Wechsler Intelligence Scale for Children – Revised 1974 (WISC –R) as an estimate of IQ for the present study. Firstly, the short form was used due to time constraints. The short form took 15 minutes to administer to each child over and above the 20 minutes needed to administer the language tasks. It was therefore impractical to administer the long form which would then have taken too long to administer to each child.

4) The test, administered in Malay, has not been validated on a Malaysian population. The test was designed originally to be applied to US norms. However, the WISC-R has been widely used in research and has been validated in both the US and UK ( Hunter, Yule, Urbanowicz and Lansdown, 1989; Klifman, 1990).

5) Finally, regression analysis was not conducted on the quantitative study II and III. This is because in some cases the relationship between the variables was not significant and in others the resulting correlation was too weak.

6) The study did not create a profile for each student. This information should be included in any future research in the area.

## **1.9 Organisation of the Thesis**

Chapter One of this thesis deals with the general introduction where important issues relating to the thesis are discussed. Both phonological awareness and morphological awareness are introduced and defined. The study is then set in context citing previous literature and the present gap in the research area. The method used in this study is described and the research questions set out. The chapter ends with a glossary of terms used in this thesis.

Chapter Two deals with the literature pertaining to the quantitative studies. The kind of transfer dealt with in this study is explained. Studies dealing with cross-language transfer of phonological and morphological awareness are reviewed. As the Malay language is one of the languages dealt with in this study, the origin and features of the Malay language are described.

Chapter Three describes the research design and methodology of the pilot study. The chapter also reports the results of the pilot study. Chapter Four describes the research design and methodology of the main study.

Chapter Five reports the findings followed by the discussion of the quantitative study I. Both phonological awareness and morphological awareness are dealt with in this chapter.

Chapter Six reports the findings followed by the discussion of the quantitative study II in relation to phonological awareness. Chapter Seven reports the findings followed by the discussion of the quantitative study III in relation to morphological awareness.

Chapter Eight is the conclusion which compares and contrasts the findings of the quantitative studies. It discusses implications of the study and offers directions for future research.

### **1.10 Glossary of Key Terms**

**Malay Phonological Awareness** consists of Malay Swapping of Phonemes task and Identifying Beginning and End Phonemes task

**Malay Morphological Awareness** consists of Malay Word Analogy task and the Malay Word Classification task

**Productive Morphology Task** is a pseudoword sentence completion task which is also considered a Malay morphological awareness task

**Malay Spelling Test** consists of the Malay Phonological Spelling test and the Malay Morphological Spelling test

**Malay Vocabulary** is a sub-test of the WISC – R where children are expected to provide the meaning of words from a word list

**IQ** consists of three sub-tests of the WISC –R: Similarities, Digit Span and Coding

**English Phonological Awareness** consists of English Swapping of Phonemes, English Identifying Beginning and End Phonemes and English Matching Phonemes

**English Morphological Awareness** consists of Word Analogy, Sentence Analogy and Word Classification task

**English Spelling Test** consists of the English Phonological spelling test and the English Morphological Spelling test

**Consistency of Stems of English Roots** an English spelling measure which tested the child's ability to recognize that words like 'know' and 'knowledge' share the same stem

**English Vocabulary** was assessed using the British Picture Vocabulary Scale where children had to identify English words from a given list

**English Spelling Accuracy** a variable which scored the total number of correct items on the English Spelling Test for each child

**Malay Spelling Accuracy** a variable which scored the total number of correct items on the Malay Spelling Test for each child.

**Transparent Orthography:** languages that have an almost one to one correspondence between graphemes and phonemes

**Deep Orthography:** languages where one grapheme has two or more phonetic realizations like the grapheme 'c' in the English language is realized as /k/ in 'cat' and /s/ in 'cease'

**Descriptive Statistics** describes the characteristics of the sample

**Multiple Regression Analysis** is used to explore the relationship between one continuous dependent variable and a number of independent variables or predictors

## **1.11 Summary**

This chapter began with a definition of terms used in the title of this study. This was followed by a more detailed definition of phonological and morphological awareness. Section 1.1 described the rationale of the study. This was followed by the statement of the problem. Next, the method and design of the pilot study as well as the main study was described. This was followed by the aim of the study, research questions, language differences between Malay and English and significance of the study. The limitations of the study were also addressed and this was followed by a description of the organization of the thesis. Finally a glossary of key terms was provided.

## **CHAPTER 2**

### **REVIEW OF RELATED LITERATURE**

#### **2.0 Introduction**

Section 2.1 to Section 2.10 review the literature pertaining to the quantitative study I, II and III. In Section 2.1, the notion of transfer is introduced. In Section 2.2 the general concept of transfer of metalinguistic awareness across languages is discussed. The argument then concerns cross-language transfer of phonological and morphological awareness in relation to word reading and spelling in Section 2.3 to 2.7. Section 2.8 presents a case for transfer from the L1 to the L2. Next the Malay language is introduced, the origin, development and features pertaining to this study are described in Section 2.9.. In Section 2.10, the description of the Malay sound system is provided as a guide to how Malay phonemes differ from English phonemes. Section 2.11 provides a brief review of the Malaysian Education System.

#### **2.1 Language Transfer**

Ellis (1994) observed that from a behaviourist view the notion of transfer was based on the idea “that language learning, like any other kind of learning, took the form of habit formation, a ‘habit’ consisting of an automatic response elicited by a given stimulus”(1994:299). The main obstacle to learning was interference from the first language.

Within the behaviourist framework second language learning consisted of overcoming the difference between the first and second language system (Littlewood, 1978). This study did not look upon the first language as primarily causing interference in the

learning of the second language but rather viewed the first language as one that could facilitate the learning of a second language.

In 1957, Robert Lado in his work 'Linguistics across Cultures' said about transfer:

“that individuals tend to transfer the forms and meanings, and the distribution of forms and meanings of their native language and culture to the foreign language and culture both productively when attempting to speak the language and to act in the culture and receptively when attempting to grasp and understand the language and the cultures practiced by natives”. (1957:2)

Although the above view was expressed over 60 years ago the view still holds true today and is frequently quoted in the literature connected to Contrastive Analysis

This marked the beginning of modern Contrastive Analysis. Lado formulated the Contrastive Analysis Hypothesis in which he stated that L1 transfer affected L2 acquisition. “Those elements that are similar to his native language will be simple for him and those elements that are different will be difficult.” (Lado, 1957:2)

Those elements that were similar to his native language would result in positive transfer or facilitation and those elements that were different would result in negative transfer or interference.

Ellis (1994) noted that there were four manifestations of transfer: interference, facilitation, avoidance and over-use. Interference was when errors occurred as a result

of negative transfer of mother tongue patterns with the learner's L2. Facilitation or positive transfer occurred when the learner's L1 could also facilitate L2 learning. Avoidance was when learners tried not to use linguistic structures which they found difficult because of differences between their native language and the target language. Over-use occurred when there was an excessive use of certain grammatical forms in L2 acquisition which could occur as a result of intra-lingual processes such as over-generalization.

This study was concerned with positive transfer or facilitation where the learner's L1 could also facilitate L2 learning. While conventional approaches to positive transfer deal mainly with the surface structures of both the L1 and L2, this study attempted to examine positive transfer despite surface level differences between languages.

All languages have underlying structural principles which contain basic syntactic, phonological and morphological elements. Di Pietro (1968) claimed that languages may not have the same surface structures but may be identical in the deep structure. What was deep therefore, was that which was common in both target and source languages. Linguistic knowledge therefore was transferable across languages at a deeper level of knowledge. For example, the use of grammatical morphemes in one language could facilitate the use of grammatical morphemes in another language even if the surface level structures of these morphemes were different (Bindman, 1997).

Cisero and Royer (1995) suggested that if there was transfer from a familiar to an unfamiliar language, then it could be that there was a kind of "*abstracted cognitive ability* that develops which can facilitate language processing across a variety of languages"(1995:279)

Cummins (1991) suggested that positive transfer could occur between the L1 to the L2, thus allowing skills from one language to facilitate acquisition in the other language. This kind of transfer suggested universal processing mechanisms.

Nunes and Hatano (2004) put forward two hypotheses with regard to transfer of awareness of morpho-syntax across languages. First, children learned surface-level facts about their language. If they were learning about the past tense, they would learn to say 'I open' and 'I opened' if they were talking about the past. Because all they knew were specific facts about the language, their knowledge was not useful in another language unless the other language had also the same facts. An example was the use of 's' as a marker of plural. If you referred to more than one object in English, you used an 's' at the end of the word. As this was also true of Portuguese, Spanish and French nouns when one was learning these languages, one could transfer one's knowledge of plural from English to the above mentioned languages.

The second hypothesis put forward by Nunes and Hatano (2004), was that children learned not only surface-level facts about their language, but also the deep structure principles manifested in the surface level. Their understanding of the past tense would be described as the rule that verbs could be inflected to show tense and that in English, the marker of the past was the 'ed'. In Japanese the past was marked by adding the particle 'ta'. The authors argued that although the surface manifestation of the rule that verbs could be inflected to show tense was different in Japanese and English, the deep-structure principle did not change. If children's knowledge was represented also at this deep-structure level, then their knowledge should be transferable across languages even if the specific facts of surface level grammar were very different across the languages.



Bindman (1997) supported the above view when she argued that just because a feature of language may be formed in different ways in two languages, this did not mean that no positive transfer of knowledge could occur between the two languages. She further noted that the differences in the surface level structures between two languages were not as important as the underlying principles that governed these structures. An awareness or knowledge of such linguistic principles was called metalinguistic awareness. Bindman (1997) further stated that language was a system of rules which could be analysed and manipulated. She claimed that it was this kind of understanding that may be transferred from language to language. Learning a first language could facilitate the learning of a second language if the underlying principles were similar in both languages.

## **2.2 Transfer of Metalinguistic Awareness across Languages**

Mora (2010) defined metalinguistic transfer as the application of particular metalinguistic awareness and knowledge acquired in students' L1 to speaking, reading and writing in their L2 English. Mora claimed that the degree of cross-linguistic transfer was greatest when both the languages had alphabetic writing systems that had many of the same letter-sound relationships such as the case of Spanish and English. Research studies offered evidence that there was a positive transfer between L1 and L2 in several areas: phonemic awareness and phonological processes (Durgunoglu, Nagy & Hancin-Bhatt, 1993; Cicero & Royer, 1995) and more recently morphological awareness (Bindman, 2004; Ramirez, Chen, Geva & Kiefer, 2010) The following sections will look at phonological and morphological awareness and review studies on transfer in these two areas.

### **2.3 Cross-Language Transfer of Phonological Awareness and Word Reading**

Cross-language transfer of phonological awareness in word reading has been most extensively investigated. It is the first area to be investigated involving cross-language transfer of metalinguistic awareness.

Durgunoglu, Nagy and Hancin-Bhatt (1993) investigated cross-language transfer in bilingual beginning readers. The aim of the study was to determine if phonemic awareness that developed through experience at home and school in a child's first language (e.g. Spanish) was related to word recognition in another language (e.g. English). In addition to phonemes the study also used syllables and onset-rime units as measures of phonological awareness.

The sample used for the study consisted of 31 Spanish-speaking, first-grade students from two school districts. All subjects were in transitional bilingual education programmes because they were considered to have limited English listening and speaking proficiency as determined by State Board of Education guidelines. In the first grade, students were mostly instructed in Spanish, with English taught as a second language. English instruction mainly focused on developing oral proficiency rather than literacy. As such the subjects had very little or no English reading proficiency.

Tests of letter identification, English and Spanish word recognition and phonological awareness were administered to the subjects. Phonological awareness was measured with segmenting, blending and matching tasks. In Spanish, like English, syllable awareness was easier than phoneme awareness.

In the present study syllable awareness tasks were not used to measure phonological awareness even though Malay has a very shallow alphabetic-syllabic script, because these tasks were deemed to be too easy for the subjects of the present study even some of the phoneme tasks were seen to reach ceiling levels for the better students.

Durgunoglu et al. (1993) showed that phonological awareness in Spanish was closely related to Spanish word recognition. The researchers also showed that there was a relationship between phonological awareness in Spanish and word recognition in English. Children who could perform well on Spanish phonological awareness tests were more likely to be able to read English words and English-like pseudo words than were children who performed poorly on phonological awareness tests. The writers concluded that phonological awareness was a significant predictor of performance on word recognition tests both within and across languages, even though the subjects had very little English reading proficiency.

The present study examined the relationship between phonological awareness and spelling scores both within the L1 and across languages i.e. phonological awareness in the L1 and spelling scores in the L2. In other words, could phonological awareness in the L1 facilitate phonological spelling in the L1 and could phonological awareness in the L1 facilitate phonological spelling in the L2 where the L1 was Malay and the L2 was English? The present study like the Durgunoglu et al. (1993) study would like to show whether transfer takes place both within and across languages as mentioned in the three research questions set out in section 1.5 of this thesis.

Cisero and Royer (1995) provided further support for the transfer of phonological awareness across languages. The authors argued that phonological awareness skills acquired in one language would transfer to another language even when the students had little or no experience with the second language. Transfer if it did take place could be attributed to “a kind of abstracted cognitive ability that develops which can facilitate language processing across a variety of languages” (1995:279). The researchers provided support for the development progression hypothesis (which stated that phonological awareness development began with the simplest form of awareness e.g., syllable awareness and progressed towards more complex forms e.g., phoneme awareness) which predicted that only skills that have been sufficiently developed would transfer. But Cisero and Royer added one qualification to this prediction which was that “languages need to be alphabetic with similar phonological structure” in order for transfer to take place which meant that “in both languages children need to identify the phonological components of words and learn how letter strings map onto phonology”(1995:280)

Although the languages under investigation in this study, Malay and English satisfied this requirement, as Malay was similar to English in that it had an alphabetic orthography with a number of shared phonemes (Yeong and Rickard Liow, 2011) it has been found in more recent studies that L1 and L2 cross-linguistic relationship in phonological awareness existed even when the two languages concerned were typologically different for example, in the case of English and Arabic (Saiegh-Haddad and Geva, 2008).

Cisero and Royer (1995) investigated subjects who were in the first grade and kindergarten levels from two Western Massachusetts school systems. Students in Transitional Bilingual Education classes were native Spanish-speaking students who received all subject-matter instruction in Spanish and English as a second language instruction. The primary language of the students in the lower Socio Economic Status mainstream classroom was English.

Rhyme detection, initial phoneme detection and final phoneme detection tasks were used to represent levels of phonological awareness. Tasks were developed in English and Spanish. Each task contained thirteen pairs of three-phoneme words in a consonant-vowel-consonant pattern. The phonological awareness battery was administered twice within the space of five months. Students were tested individually.

The results of the regression analysis of initial phoneme performance showed that both native and second language performance at time 1 significantly contributed to the prediction of second language performance at time 2 (native language,  $F(1,36) = 6.34$ ,  $p < .02$ ; second language,  $F(1,36) = 11.78$ ,  $p < .01$ ). Therefore students' ability to isolate initial phonemes in their L1 was a significant predictor of students' ability to isolate initial phonemes in their L2.

The results of the experiment showed that phonological awareness skills did transfer across languages even if the students had little or no experience in the second language. Therefore the transfer of phonological awareness was not restricted to language experience but rather transfer was taking place at some abstract level, which did not require learners to be proficient in the second language.

There have also been a number of studies that examined the relationship between phonological awareness and reading in bilingual children (Muter & Diethelm, 2001). It has been put forward that young bilinguals might have greater sensitivity to the phonological units of words because they must listen carefully to the speech streaming order to distinguish their two languages to organize their developing lexicon (Campbell & Sais, 1995 in Muter & Diethelm, 2001).

Muter and Diethelm (2001) explored the relationship between phonological and reading skills in a multilingual sample. Specifically, they explored the question whether “phonological awareness tests, in particular measures of segmentation, predict early progress in learning to read, irrespective of the language to which the child was initially exposed” (2001:192). 55 children from two kindergarten classes participated in the study. The children came from multilingual backgrounds and were being educated in the school’s English language program. Among the children, 22 were English L1 speakers, 28 were non-English L1 and 5 were of mixed L1. When the children were followed up one year later 46 remained in the sample. At this stage, 17 of the children were English L1, 24 were non-English L1 and 5 children were of mixed L1.

The findings showed that there were few differences between the English L1 and non-English L1 children on the measures of phonological awareness at either Time 1 or Time 2. The researchers concluded that phonological awareness and reading were most likely reciprocally related during the first year of formal school. Few differences could be discerned between the English L1 and non-English L1 on the phonological measures.

The findings of the multilingual sample confirm that phonological abilities were good predictors of both concurrent and later reading achievement. The results were similar to that of studies on monolingual children. The study also showed that in kindergarten, segmentation measures were better predictors than rhyming measures.

The present study involves bilingual learners. The relationship being examined in this study is between phonological awareness and performance on spelling tests. Findings of Muter and Diethelm (2001) would suggest that Malay-speaking learners in this study will have acquired phonological awareness simply by being exposed to their L1. Where Muter and Diethelm examined the relationship between phonological awareness and reading, this study will investigate the relationship between phonological awareness and spelling achievement. This study would like to determine if transfer does take place between phonological awareness in the L1 and spelling achievement in the L2.

One study that pertained specifically to the Malay language was a study by Lee and Ong (2006), which examined the relationship between phonological awareness and word recognition in the Malay language. There were 46 Year 1 children in the study. Measures of phonological awareness consisted of blending, segmentation and phoneme manipulation tasks. Results indicated significant correlations between word recognition and all three measures of phonological awareness tasks. The phonological blending at syllable level tests had the highest correlation to the word recognition test ( $r = .69$ ). The phonological manipulation at syllable level test correlated with word recognition ( $r = .41$ ). The researchers concluded that the most important phonological skill in learning to read in the Malay language was the skill of phonological blending at syllable level. This finding could be developmentally related in that different

phonological awareness skills were important at different stages of development and schooling. The study provided support for the transfer of phonological awareness to word recognition skills.

A study by Gomez & Reason (2002) examined the phonological and reading performance in English of 69 Malay children. The children were in Year Two and aged 7-8 years. The children's phonological skills in English were measured by the Phonological Assessment Battery (Gallagher & Frederickson, 1995). The Wechsler Objective Reading Dimensions (WORD) was used to assess reading and spelling abilities. The results showed that the Malaysian sample out-performed the UK standardization sample in the Non-Word Reading test. The researchers claimed that the Malay children had acquired a high level of phonological processing skills through their experience with a highly transparent orthography like Malay and also through the structured way in which reading is taught in Malay. In initial reading children were always taught to sound the consonants with the vowels (a, e, i, o, u) never on its own for example, b+a, b+i, b+u, b+e and b+o then they produced syllables like ba, bi, bu, be and bo (Gomez & Reason 2002). These skills helped them to decode words in L2 (English) where no semantic knowledge was necessary. The children were able to transfer phonological processing skills from L1 to L2.

Phonological awareness is the best predictor of early reading and spelling development (Yeong and Rickard Liow 2011). In their study Yeong and Rickard Liow used a 6-month longitudinal design and compared 50 children with English as their L1 and 50 children with Mandarin as their L1 from a kindergarten school. Both groups were tested with English and Mandarin tasks as predictors at the beginning of the study and their spelling sophistication scores were then computed by giving them a 52-item task



administered after 6 months. Regression analyses showed that phoneme awareness was the strongest predictor of spelling sophistication for English–L1 children. Phoneme awareness, syllable awareness and letter–sound knowledge were important for Mandarin–L1 children.

Rickard and Poon (1998) investigated to what extent phonological awareness of Bahasa Indonesia (L1) influenced phonological awareness in English (L2) and Hanyu Pinyin (L3)—the alphabetical script of Mandarin. They found that phonological awareness could be transferred from Bahasa Indonesia (shallow orthography) to English (deep orthography). The authors concluded that their results were consistent with published literature in that high levels of phonological awareness were associated with better performance in reading and spelling.

Children learning to read and write in languages that have regular grapheme–phoneme correspondences are able to acquire phonological awareness and later use this knowledge to help them spell in their second language. When the L1 is similar to English in that it has an alphabetic orthography with a number of shared phonemes bilingual children are able to abstract processing rules and transfer their metalinguistic awareness to reading and spelling (Yeong and Rickard Liow, 2011).

The findings of Durgunoglu, Nagy and Hancin Bhatt (1993) as well as Rickard Liow and Poon (1998) have shown that when two languages are involved and one language has a more transparent orthography compared to the other language which has a less transparent orthography then transfer of phonological awareness will take place from the language with the transparent orthography to the language that has a deep

orthography. In the case of the studies mentioned transfer takes place from the L1 to the L2.

#### **2.4 Phonological Awareness and Spelling**

Aidinis and Nunes (2001) investigated whether syllable awareness and phoneme awareness might make a significant and independent contribution to children's progress in reading and spelling in Greek. Sixty children of ages 5, 6 and 7 participated in the study. The children were monolingual speakers of Greek and came from three groups: kindergarten, Grade 1 and Grade 2. The study involved the use of the oddity task which can be easily applied to syllable and phoneme tasks and which has been shown to apply to reading and spelling, even after stringent controls for age, IQ, and short term processing memory.

The phonological tasks were based on Bryant et al.'s (1989) oddity task. For the spelling task, children from first to second grades were asked to write 18 words in isolation and three sentences. In the spelling task two different scoring methods were used: a strict "correct" versus "incorrect" scoring and a lenient score where phonologically acceptable spellings for the words were awarded a score even if the spellings were not conventional.

The first step in the analysis tested whether the phonological tasks were significantly correlated with reading and spelling scores. High and significant inter-correlations across all the phonological scores and with both reading and spelling were observed. The second step was a series of fixed order multiple regression to verify which predictors remained significant after controlling for the children's age. Children's scores in the spelling test were one of the dependent variables used. All the phoneme

and syllable tasks remained highly significantly ( $p < 0.01$ ) related to the children's reading and spelling scores. It was found that the best predictors of both outcome variables were the initial phoneme and the final syllable tasks, which accounted for 15.7% and 14.7% of the variance respectively in the prediction of spelling.

As with the above study, the present study will investigate whether phoneme awareness in Malay will make a significant contribution to children's progress in spelling in Malay. It will also investigate if phoneme awareness in the L1 (Malay) facilitate spelling scores in the L2 (English). The children in the present study will be given a phoneme manipulation task, a phoneme identification task and a phoneme matching task. In the spelling task the following scoring method will be used. A score of 1 will be given to every correct spelling and a score of 0 will be given for incorrect spellings.

Similar to the Aidinis and Nunes (2001) study, the first step in the analysis will be whether the phonological awareness tasks will significantly correlate with spelling scores. The second step will be to use partial correlations to verify if the relationship between the awareness tasks and the spelling tests remained significant after controlling for children's age, IQ, Malay vocabulary and English vocabulary.

The following was a study that examined the relationship between phonological awareness and spelling, an area which is of interest to the present study. De Sousa, Greenop & Fry (2010) investigated the effects of phonological awareness of Zulu-speaking children learning to spell in English. In their study, 30 monolingual English speakers and 30 emergent bilingual Zulu-English speakers were taken from the two public primary schools in South Africa. The emergent bilingual Zulu-English speakers were predominantly Zulu-speaking at home and exposed to English only at school. The

study sampled Grade 2 children as they would have had a year of being exposed to spelling. The emergent bilingual Zulu-English speakers had exposure to spoken Zulu at home but virtually no exposure to print materials in Zulu nor did they receive any instruction of learning to read and spell in Zulu.

The research hypotheses included predictions that among the group of emergent bilingual Zulu-English speakers, there would be a positive cross-language transfer between Zulu phonological processing skills and English spelling. A second hypothesis (of interest to the present study) was in the emergent bilingual Zulu-English speaking children. It was predicted that there would be cross-language transfer between Zulu spelling and English spelling of both words and non words.

For the phonological awareness measures, the tests included the ability to segment words into syllables. The child was asked to tap or segment a particular letter string. For the onset-rime level of phonological awareness Zulu and English adapted versions of Bradley & Bryant's (1983) sound categorization test were used. For both Zulu and English versions, the child was presented with three words and told that one of the words did not sound like the others. The child was then asked to select the word that sounded different. A third test of phonological awareness involved phoneme deletion. The spelling tests consisted of a Zulu spelling test and an English spelling test of real words and non-words. The English spelling test was administered to both monolingual English-speaking children and emergent bilingual Zulu-English speaking children. The spelling Zulu test was administered in Zulu to the emergent bilinguals.

The results showed that spelling of real words was easier than spelling of non-words. For emergent bilingual Zulu-English speakers, spelling of English words was easier

than spelling of Zulu words or non-words. This could be due to the fact that there was a lack of formal L1 Zulu spelling instruction. A within-subjects ANOVA comparison for the emergent bilingual Zulu-English speakers detected significant differences [ $F(1.29) = 88.54, p < .001$ ] between spelling L1 Zulu words and non-words and spelling L1 English words and non-words. Correlation analysis showed that for emergent bilingual Zulu-English speakers, there were several significant associations between L1 Zulu phonological awareness and L2 English spelling measures.

The results demonstrated that in emergent bilingual Zulu-English speakers, Zulu phonological processing skills were moderately positively associated with English spelling skills. Also, in emergent bilingual Zulu-English speaking children, Zulu spelling measures were moderately positively associated with English spelling measures. Children who were good at spelling tasks in Zulu were more likely to be good spellers in the English speaking tasks.

The above study is of particular interest to the present study because it investigates the relationship between L1 phonological processing skills and English spelling skills. The present study investigates the relationship between phonological awareness and spelling measures in Malay and English. There were 152 bilingual Malay-English speakers in this study. The difference is that the Malay-English speakers would have been exposed to both spoken and written Malay (L1) before they started school. In order to be selected for the study, the children would also need to have some knowledge of English.

The Phonological Awareness task in both English and Malay included phoneme manipulation, phoneme identification and phoneme matching tasks. The phonological

spelling tests in English included words that could be spelled using the phonological route, i.e. words that had a regular grapheme-phoneme correspondence. The Malay phonological spelling test was designed using the same principle.

The research hypotheses would predict that there would be positive cross-language transfer between Malay phonological awareness tasks and English spelling. A second research hypothesis would predict that there is cross-language transfer between Malay spelling measures and English spelling measures.

## **2.5 Morphological Awareness and Word Reading**

Ramirez, Chen, Geva and Kiefer (2010) conducted a study that investigated within and cross-language effects of morphological awareness on word reading among Spanish-speaking children who were English language learners. The researchers looked at 3 research questions. The first research question investigated the relationship between morphological awareness and Spanish word reading. Like Malay, the Spanish language has “a shallow orthography with a transparent grapheme-phoneme correspondence” (Ramirez et al., 2010: 349-350). The second research question looked at the relationship between morphological awareness and English word reading. The third research question investigated cross-language transfer of morphological awareness. In the study, 97 Canadian children from grades 4 and 7 participated. Spanish was the first language for these participants.

“The English morphological awareness test was adapted from Singson et al. (2000, cited in Ramirez et al., 2010:342-343). The children were asked to complete a sentence by selecting an appropriate derived form from four choices that had the same stem but different derivational suffixes. For example, *He likes to \_\_\_\_\_ (gratify,*

*gratuity, grateful, gratification) his desires.* A parallel version in Spanish was developed by the researchers.” “The Morphological Production test was a modified version of the Test of Morphological Structure designed by Carlisle (2000, cited in Ramirez et al., 2010:343). Children were required to orally produce a derived form of a given target word to complete a sentence. For example, *Locate. The birds migrated to a new \_\_\_\_\_ (location).* A parallel Spanish version was developed by the researchers.”

The findings showed that there were moderate to high correlations between the morphological awareness tasks and the reading tasks in both Spanish and English. Strong correlations were found between word reading in Spanish and Spanish morphological production,  $r = .75$ . Strong correlations were also found between word reading in Spanish and Spanish morphological structure  $r = .65$ . The analysis also revealed that there were less strong correlations in English. The findings of the study also showed that most of the cross-language correlations were significant. Word reading in English correlated significantly with Spanish morphological production,  $r = .47$ . Word reading in English also correlated significantly with Spanish morphological structure,  $r = .56$ . Correlations between word reading in Spanish and three English morphological awareness tasks were significant although the relationship was less strong compared to the relationship between word reading in English and Spanish morphological awareness tasks. The Ramirez et al. (2010) study showed that there is a significant relationship between morphological awareness and Spanish and English word reading. The study also showed that there was cross-language transfer of morphological awareness between Spanish and English. The findings also showed that “two Spanish morphological awareness measures in combination explained a

significant amount of variance (about 5%) in English word reading” (Ramirez et al., 2010:351).

The present study seeks to investigate within and cross language effects of morphological awareness on spelling. The morphological awareness measures in English include a word analogy measure, a sentence analogy measure and a word classification measure. The measures were adapted from Nunes, Bryant and Bindman (1997). A parallel Malay version was developed by the researcher.

The morphological spelling test included words that had the ‘-ed’ past regular verbs, the ‘wh-’ interrogative beginning morpheme, (for example, in the word ‘who’ learners would have to draw on their morphological awareness to be able to spell this word) the ‘-ian’ noun forming end morpheme and the ‘-ness’ noun forming end-morpheme. The test also included words which had silent letters and words that had no letter-sound correspondence. This was so that children could not spell the words based on a phonological route alone and had to use morphological processing in order to get the spelling correct.

## **2.6 Morphological Awareness and Spelling**

Nunes, Bryant and Bindman (1997) in their longitudinal study explored the relationship between an awareness of grammar and children’s progress in spelling morphemes, found that there was a “strong link between children’s initial grammatical awareness as measured by word analogy and sentence analogy tasks and their subsequent success in learning that they should use the conventional ‘-ed’ spelling at the end of regular past verbs” (1997:647). The grammatical awareness tasks consisted of a sentence analogy task, a word analogy task and a productive morphology task.



In their study, the researchers used a spelling task and three grammatical awareness tasks. Their spelling task required the children to spell 30 words, of these 10 were regular past verbs, therefore their last consonant sound was spelled as 'ed', 10 were irregular past verbs, so their final consonant was spelled phonetically and 10 were non-verbs whose final consonant was also spelled phonetically. All of the words ended in two consonantal sounds. The last consonant was a /d/ sound in half the words and a /t/ sound in the rest of the words.

The sentence analogy task was presented with the support of two puppets. The first puppet 'said' a sentence, then the second puppet 'repeated' the sentence but with a change to the tense of the verb. Then the first puppet said a second quite similar sentence. The child was asked to play the role of the second puppet and to make the same change to this sentence as the puppet had to the first. The changes made to the verbs were from present or present-continuous to past tense or vice versa. The aim was to see how well each child transformed the tenses.

The second task was a word analogy task. The different transformations were from noun to adjective, noun to verb, present to past verb and vice versa in each case. The productive morphology task was adapted from Berko's (1958) pseudo word task.

These tasks are of interest to the present study because all of these tasks were either adopted or adapted to be used in the present study as they were a good measure of morphological awareness. The English spelling task was adopted from Nunes, Bryant and Bindman (1997) to be used as the English spelling measure in this study. The

Malay version was developed by the researcher following the same phonological and morphological principles that guided the original task.

Both the sentence analogy task and the word analogy task were adapted as part of the English grammatical awareness tasks used in the present study. For the Malay version, the sentence analogy task was found to be unsuitable as Malay does not carry tense like the English language. This task was replaced by a Malay word classification task which required children to recognize that words belong to certain word classes.

In their study, Nunes, Bryant and Bindman (1997) showed that the children's awareness of morphology is a strong predictor of children's ability to spell words that cannot be spelled using a phonological route alone. The authors examined the spelling of words that ended in two sounds /t/ and /d/ some of these words, for example, the '-ed' past regular verb were spelled morphologically and not phonetically, for example, 'kissed'. The study showed that as children became more aware of morphology, they were able to assign the inflectional morpheme '-ed' to the right grammatical category.

Fowler and Liberman (1995, in Nunes et al., 2006), provided further evidence for the relationship between children's awareness of morphology and spelling. Fowler and Liberman "assessed children's knowledge of the connection between a base and a derived form and word recognition, pseudo-word decoding and spelling. They observed partial correlations between all these measures of literacy and performance in the morphological awareness tasks even after controlling for age and vocabulary." Nunes et al. (2006:770) supported the hypothesis that morphological awareness affects spelling.

## **2.7 Cross Language Transfer of Morphological Awareness**

A study conducted by Bindman (2004) showed that there was transfer of morphological awareness across languages. Since transfer does take place, the question one might ask is:

Whether there is anything in children's competence in their native language that can help them learn a second language – in particular whether they will be better learners of L2 morphology if they are more aware of morphology in their own language.

Nunes and Bryant (2009:201)

In this section, studies will be reviewed to show that children's competence in their native language can be used to facilitate performance in their second language, providing support for the present study which investigates whether phonological and morphological awareness in the L1 can facilitate performance on phonological and morphological spelling in both the L1 and the L2.

Bindman (2004) in her study examined relationships between performance on morpho-syntactic awareness tasks in English (L1) and Hebrew (L2) and between L2 morpho-syntactic awareness and L1 morphological spelling, in the two groups of children aged six to eleven years. The aims of the study were to explore whether grammatical awareness tasks in one language can be used for the child's other language even when the surface-level features of both languages are dissimilar.

Her findings showed that performance on the Hebrew Oral Cloze task was correlated with all three English morpho-syntactic awareness tasks although these correlations

were weak (between .3 and .39;  $n = 116$ ;  $p < .001$ ). This showed that grammatical awareness gained in L1 (English) can be used for the L2 (Hebrew).

Castro, Nunes and Strecht-Ribeiro (cited in Nunes & Bryant, 2009) carried out a study which analysed whether Portuguese children's awareness of morphology in Portuguese was a predictor of their English learning after one year of instruction. The subjects of the study were monolingual Portuguese children aged 9 to 12 years. At the beginning of the year, the children were given an assessment of their verbal ability in the form of the Wechsler Intelligence Scale for Children translated and adapted to Portuguese. The British Picture Vocabulary Test, three morphological awareness measures in Portuguese: the sentence completion similar to the Berko test, a sentence analogy and a word analogy task were administered to the children.

The subjects of the study were given English instruction for a year. The same book and instruction method were used with all the children. At the end of the school year the children were given an oral assessment in English. The researcher scored the children's production on the variety of their vocabulary, the variety of sentence structure and morphological correctness of the sentences.

A multiple regression analysis was conducted. The aim of the analysis was to investigate whether children's scores on Portuguese morphological awareness task given at the beginning of the year would correlate significantly with their English production at the end of the year after controlling for age, general verbal ability and their previous knowledge of English words. Children's verbal ability measured in Portuguese was significantly related to their English scores (it explained 34% of the variance in the children's English scores). After controlling for the children's age and

verbal ability, the partial correlations between each of the three measures of morphological awareness and the children's English scores were still significant. The researchers conclude that there is evidence that children's awareness of morphology in their native language is related to their L2 learning. The above study shows that children's awareness of morphology in their own language is a good predictor of their learning of L2 in the classroom.

Da Fontoura and Siegel (1995) investigated the transfer of syntactic and phonological awareness as well as working memory skills in a group of thirty-seven bilingual Portuguese-English Canadian children aged nine to twelve years. The children received most of their schooling in English but received some instructions in Portuguese. The children spoke Portuguese at home. In addition, they received some instruction in speaking, writing and reading Portuguese for one half hour per day in school. The subjects were thirty-seven students from a school in the Toronto area, a predominantly English-speaking area of Canada. The students were from grades four, five and six. All students were born in Canada from Portuguese native-speaking parents who spoke little English.

A comparison group of monolingual English-speaking children were selected from a larger sample who had been administered the tasks in English. The following tests were administered: English Oral Close Task, English Working Memory Task, Portuguese Word Reading, Portuguese Pseudoword Reading and Portuguese Working Memory Task.

The children were seen individually in three sessions. There were statistically significant correlations among the English and Portuguese tasks measuring the same

process. The reading disabled Portuguese-English bilinguals had significantly higher scores on the English pseudoword reading and word spelling tasks than a comparison group of monolingual English-speaking reading disabled. This finding may reflect a positive transfer from the more predictable group, hence – phoneme conversion rules of Portuguese to the very opaque orthography of English.

Geva and Ryan (1987) investigated the interdependence hypothesis as part of a study of cognitive, memory and linguistic-processing predictors of L2 reading development. The subjects were 73 grade five to seven children attending a bilingual Hebrew-English day school in Toronto. The test battery included measures of non-verbal intelligence, linguistic proficiency on the L2 (Hebrew oral-proficiency ratings and reading ability) and memory measures in the L1 and L2. The results pointed to an important role for memory processing in performing linguistic tasks or listening tasks in the L2 as a result of the fact that L2 linguistic processing is less automatized than L1 processing. A significant correlation ( $r = 0.37$ ,  $p < 0.001$ ) was found between the English clause-completion tasks and Hebrew reading, suggesting that those children who can more systematically employ executive control functions in their L1 are more likely to do so in their L2 as well. This correlation maintained significance ( $r = 0.26$ ) even when grade and non-verbal intelligence were partialled out. Strong correlations were also observed between non-verbal memory-span tasks in Hebrew and English. However, the relationship between Hebrew and English reading was not significant.

The present study would like to examine the hypothesis that morphological and phonological awareness in the first language facilitates spelling in the second language.

## **2.8 Transfer from L1 to L2**

Children who learn Malay as their L1 would find that they use a sub-lexical route (assembled phonology) to process words in the language (Rickard Liow and Lee, 2004; Winskel and Widjaja, 2007) This is because Malay has transparent orthography–phonology mappings (Yap et al. 2010). Malay words are made up of the same consonants as English and many of the grapheme–phoneme correspondences found in Malay can be found in English as well. Exposure to Malay makes it more likely that children learn to apply rule–based sublexical skills when learning to spell in English (Rickard Liow, 2012).

Exposure to a shallow script might make it easier for Malay L1 children to process regular words in English which can be decoded using the sublexical route. But this exposure may not help children spell irregular words which must be processed using the lexical route because grapheme–phoneme correspondence rules cannot be reliably applied to irregular words (Rickard Liow and Poon, 1998). According to the authors, phonological awareness does not develop as a result of cognitive maturation alone; exposure to an alphabetic language is a prerequisite.

Therefore it is likely that transfer of phonological awareness and morphological awareness will take place from the L1 to the L2 i.e. from a transparent orthography like Malay to a less transparent orthography like English. Therefore, it is likely that the current study would show that transfer takes place from Malay to English but not from English (L2) to Malay (L1).

Support for L1 Transfer to L2 was also found in a study conducted by Rickard Liow and Poon (1998) which investigated to what extent phonological awareness of Bahasa

Indonesia (L1) influenced phonological awareness in English (L2) and Hanyu Pinyin(L3). The investigators found that on the homophone decision task, those that had the Bahasa Indonesia L1 background seemed to be able to apply their phonological awareness acquired from their exposure to the transparent orthography of Bahasa Indonesia to the English script. In their study, the implicit phonological awareness acquired by the Bahasa Indonesia speakers transferred to both English and Hanyu Pinyin graphemes.

## **2.9 The Malay Language**

### **2.9.1 The Origin of the Language**

The Malay language belongs to the Austronesian family of languages. The Austronesian languages can be divided into four groups: the languages of the Malay Archipelago (or Nusantara), the languages of Polynesia, the languages of Melanesia and the languages of Micronesia.

The Malay language comes from the Nusantara group. Malay became the lingua franca for the Malay Archipelago region and flourished under the Malacca Sultanate. It was used as the language of the court, culture and administration. The Portuguese conquered Malacca in 1511. However, the role of Malay as the lingua franca of the region continued (Nik Safiah Karim, 1995).

### **2.9.2 The Development of Modern Malay**

Malay continued to develop in the 20<sup>th</sup> century during the colonial period but English played a more important role during this time. With independence, Malay developed very fast and became recognized as a modern language. It became the official language of the country and the language of administration. Malay became the main medium of



instruction at schools with English being taught as a second language (Nik Safiah Karim, 1995).

### **2.9.3 The Features of Modern Malay**

Malay is an alphabetic language with a transparent orthography. This means it has a consistent one to one correspondence between the phonemes and graphemes of the language. The Malay language is based on three types of sounds: vocal sounds, diphthong and consonant sounds. There are five vocal letters to represent six vocal sounds (Awang Sariyan 2004 cited in Lee & Ong 2006). The letter 'e' in Malay has two different pronunciations (Rickard Liow, 1999). The letter 'e' symbolizes the vowel sounds /ə/ and /e/.

As illustrated in Dewan Bahasa dan Pustaka (1992) the sound /e/ as in 'enak' and 'petak' and the sound /ə/ as in 'emas' and 'kena' There are three diphthongs: *ai*, *au* and *oi*. There is a regular one to one correspondence between the consonant letters and consonant sounds. There are five digraphs in Malay: 'gh', 'kh', 'ng', 'ny' and 'sy' (Awang Sariyan 2004 cited in Lee & Ong 2006). The Malay language is basically a disyllabic language with the basic four syllable structure i.e. V, VC, CV and CVC (Gomez & Reason, 2002). Malay words are mostly made up of one, two or three syllables (Nik Safiah Karim, 1995). The Malay language has very little inflectional morphology but is rich in derivational affixes (Gomez & Reason, 2002). Tense in Malay is understood from the context. However, if one wanted to be specific one could use certain words which indicate tenses. For example, the use of the adverbs of aspect such as 'sudah' (after) 'belum' (before) and 'sedang' (while) (Gomez and Reason, 2002).

Teoh Boon Seong (1994) in his study, 'The Sound System of Malay Revisited' describes certain features of the Malay language that is of interest to this study. Citing Farid M. Onn (1980), Teoh (1994) observes that in the Malay language /r/ seldom occurs in word-final position or when another consonant follows. If it does occur, then the phonetic rule of /r/ deletion is observed. He claims that the "environment in which /r/ deletes is peculiarly familiar, i.e. at word boundary and before a consonant. He provides examples of the word 'kisar' which means 'revolve'. The phonetic transcription is given as [kisa:]. Here /r/ occurs at word boundary. Yet if the phoneme /r/ occurs before a vowel as in 'kisar + an' (meaning 'revolution') than its phonetic realization is [kisaran] /r/ is not deleted in spoken Malay.

In the same way /r/ is deleted in spoken Malay in words that use the prefix 'ber' if the phoneme /r/ occurs before a consonant. For example, in words like 'berkata' (to utter) which is realized in spoken Malay as [bɛ:kata] or in a word like 'berdebat' (which means to debate) which is phonetically realized as [bɛ:ɔbat]. In both cases /r/ is deleted in spoken Malay.

It is on this principle that certain categories for the Malay morpheme subtest used in this study were developed. For this study, words that reflect the prefix 'ber' + stem beginning with a consonant where the letter 'r' is not pronounced in spoken Malay, were selected. For example, in words like 'berjumpa' (to meet) or 'berharta' (to possess wealth).

In the same way, when 'r' occurs at the end of the stem or word boundary /r/ deletion is observed in spoken Malay. For example, in words like 'pasar' (which means 'a

market') /r/ is not realized [pasa:]. But if /r/ occurs before a vowel then /r/ is realized as in 'pasar + an' ('market') [pasarən].

Words where 'r' is not realized in spoken Malay are included in the Malay morphological subtest because learners cannot spell these words based on sound alone. There has to be some morphological processing on the part of the learner in order to spell these words correctly, for example, in a word like 'pasar'

Words where /r/ is realized were included in the phonological subtest because these words can be spelled using a phonological route alone, for example, in a word like 'pasarən'

In his study, Teoh (1994) also transcribed the word 'kahwin' (which means 'to marry') as [kawɪn]. The letter 'h' which appears at the end of a syllable before a consonant is not realized in spoken Malay. Based on this, a category of words where 'h' is silent in spoken Malay were developed, for example, words like 'pahlawan' and 'rahsia'. This category was included in the morphological subtest because some morphological processing is needed in order to spell these words correctly.

Two other categories were developed for the morphological subtest. That is words that have double letters. These words such as 'menggunakan' which has a double 'g' and 'menaikkan' which has a double 'k' were used as the child needs to know the morphological rule in order to spell these words correctly.

The next section will describe the Sound System of Malay. This is to provide a comparison to the English Sound System. Phonemes that depart from English phonemes are identified.

## **2.10 The Malay Sound System**

The Malay Sound System described below is based on Zaharah Othman and Sutanto Atmosumarto's (2007) *Colloquial Malay* and Paitoon M. Chaiyanara (2001) *Fonetik dan Fonologi Bahasa Melayu*.

There are five vowel phonemes in Malay: /a/, /i/, /e/, /u/, /o/. These are represented by five graphic symbols: 'a', 'i', 'e', 'u', 'o'.

### **2.10.1 Vowels**

/a/

The Malay /a/ is pronounced in two ways depending on its position. When 'a' is in word-initial position (which is normally accented) or when it is between two consonants, it is pronounced like the 'a' in the English word *father*:

<i>akar</i>	-	root	<i>makan</i>	-	eat
<i>taman</i>	-	garden	<i>bayar</i>	-	pay

The second way to pronounce 'a' occurs in word-final position, in which case it is pronounced as /a/ as in the English word *china*. In this position, 'a' is usually unaccented:

<i>ada</i>	-	to exist/to have	<i>bahawa</i>	-	that
<i>apa</i>	-	what	<i>kata</i>	-	word

Note: 'a' can combine with 'i' or 'u' to produce the diphthongs /ai/ (as in the English *my* and *tie*) and /au/ (as in the English *cow* and *bow*):

<i>air</i>	-	water	<i>laut</i>	-	sea
<i>cair</i>	-	watery	<i>daun</i>	-	leaf

/e/

The Malay 'e' has two different sounds. One is pronounced like the English /a/ as in *ago* and *again*. The other is pronounced like the phoneme /e/ in *set* and *bet*.

e in <i>ago</i>			e between <i>bed</i> and <i>bad</i>		
<i>emas</i>	-	gold	<i>elok</i>	-	nice
<i>kertas</i>	-	paper	<i>ejaan</i>	-	spelling

/i/

The Malay 'i' is pronounced much like the English vowel sound /i/ as in *feet*, *meat* and *be*:

<i>itu</i>	-	that	<i>beli</i>	-	buy
<i>ikan</i>	-	fish	<i>beri</i>	-	give

Note: The 'i' can combine with 'u' or 'o' to produce diphthongs /iu/ (no English equivalent) and /io/ (as in the English *kiosk*):

/iu/			/io/		
<i>tiup</i>	-	blow	<i>biola</i>	-	violin
<i>siul</i>	-	whistle	<i>Tioman</i>	-	(an island)

/o/

The Malay 'o' is a back vowel rounded and semi narrow and is distributed only in initial and middle position of the word

initial	middle	final
/?oleh/	/kota?/	-
by	city	

/u/

The Malay 'u' is a back vowel rounded and narrow which can be distributed to all positions of the word.

initial	middle	final
/?ubi/	/bulat/	/satu/
potato	round	one

### 2.10.2 Consonants

There are twenty-four consonants in Malay. A few technical terms have to be used to describe their pronunciation.

/t/ and /d/

Unlike the English /t/, the Malay /t/ is not aspirated when it occurs in syllable-initial position (no puff of air) like the English phoneme /t/ in time. As in English, the Malay /d/ is the counterpart of /t/. Note the contrast of meaning when one replaces the other in the following pairs of words:

*Initial position*

<i>talam</i>	-	tray	<i>dalam</i>	-	inside
<i>titik</i>	-	dot	<i>didik</i>	-	teach

This contrast is obvious among Malay ESL learners who pronounce the English word *time* with an unaspirated /t/.

*Final position*

<i>abad</i>	-	century	<i>cepat</i>	-	quick
<i>murid</i>	-	pupil	<i>tempat</i>	-	place

/p/ and /b/

Both bilabial sounds, as in English, /p/ is voiceless and /b/ is voiced. The main feature of Malay /p/ is that, unlike the English sound /p/ in *pin*, it is never aspirated. It is also unrealized when it occurs in the final position in a word. As in English, in Malay /b/ is the counterpart of /p/. The /b/ is voiced whereas /p/ is voiceless. Note the contrast of meaning in the following pairs of words when /p/ is replaced by /b/ or vice versa:

<i>pagi</i>	-	morning	<i>bagi</i>	-	for
<i>pedas</i>	-	hot	<i>bedah</i>	-	operate

In the final position in a word, both /p/ and /b/ are pronounced unrealized.

<i>tetap</i>	-	constant	<i>sebab</i>	-	because
<i>lengkap</i>	-	complete	<i>bab</i>	-	chapter

/k/ and /g/

When the Malay /k/ occurs initially, it is different from the English /k/ in that it is not aspirated. In the final position /k/ is pronounced unrealized, making it into a glottal stop. As in English, the Malay /g/ is the counterpart of /k/: the /g/ is voiced whereas /k/ is voiceless. In initial position, the pronunciation of Malay /g/ is very much like the English /g/ in *game*. Note the contrast of meaning in the following pairs of words when /k/ is substituted by /g/ or vice versa:

*kelas* - class                      *gelas* - glass

*karang* - compose                      *garang* - fierce

/k/ in syllable-final position is realized as a glottal stop.

*anak* - child                      *mogok* - to strike

*adik* - younger sibling                      *pokok* - tree

/g/ does not occur in syllable-final position

/c/ and /j/

Malay /c/ is pronounced much like the English 'ch' in *chair* or *cheese*. The Malay /j/ is pronounced much like the English /j/ in *jet* or *jam*. The difference between them is that /j/ is voiced whereas /c/ is voiceless.

'c' never occurs in the final position. Note the contrast of meaning in the following pairs of words when /c/ is replaced by /j/ or vice versa:

*cari* - find                      *jari* - finger

*acar* - pickle                      *ajar* - teach



/h/

The Malay /h/ is pronounced very much like the English /h/ in *hen*, *home* or *hay*. It is found in initial, medial and final positions. Attention needs to be drawn to the fact that in the final position, the /h/ must still be pronounced audibly, otherwise the meaning changes:

<i>guru</i>	-	teacher	<i>guruh</i>	-	thunder
<i>kerah</i>	-	monkey	<i>kerah</i>	-	to 'mobilise'

In medial position, flanked by two different vowels, the /h/ is optionally audible:

<b>Written</b>		<b>Spoken</b>		<b>Meaning</b>
<i>tahu</i>		<i>tau</i>		to know
<i>pahit</i>		<i>pait</i>		bitter

When 'h' is flanked on both sides by the same vowel, the /h/ is clearly pronounced:

<i>sihir</i>	-	witchcraft	<i>mohon</i>	-	request
<i>leher</i>	-	neck	<i>dahan</i>	-	branch

/ng/

These two letters represent one sound. It is pronounced much like the English /ng/ in *ring* or *sing*. The /ng/ in the initial or medial positions is difficult for foreign learners.

<b>Initial position</b>			<b>Medial position</b>		
<i>ngeri</i>	-	fear	<i>tangan</i>	-	hand
<i>ngantuk</i>	-	sleepy	<i>bunga</i>	-	flower
<b>Final position</b>					
<i>terbang</i>	-	fly	<i>pulang</i>	-	to return
<i>barang</i>	-	thing	<i>hilang</i>	-	to lose

Combine /ng/ and /g/

The three-letter combination “ngg” should be pronounced very much like the English “ng” in *angle*, *Congress*.

<i>panggung</i>	-	cinema	<i>tunggu</i>	-	to wait
<i>singgah</i>	-	to stop over	<i>bangga</i>	-	to be proud of

‘ny’

The two letters “ny” represent one phonemic unit. It is pronounced much like the English “ny” in “canyon” and “Kenya”.

<i>nyanyi</i>	-	to sing	<i>nyamuk</i>	-	mosquito
<i>tanya</i>	-	to ask	<i>sunyi</i>	-	quiet

/r/

The Malay /r/ is similar to the English /r/.

<b>Initial position</b>	<b>syllable-cluster</b>
<i>rasa</i>	<i>praktik</i>
<i>rumah</i>	<i>drama</i>
<i>ramah</i>	<i>pra</i>

/w/

The Malay /w/ differs from the English /w/ in that it is pronounced with much less rounding of the lips.

<i>wajib</i>	-	<i>obligatory</i>	<i>warna</i>	-	<i>colour</i>
<i>waktu</i>	-	time	<i>walaupun</i>	-	even if

/kh/

The two letters ‘kh’ are represented by one phonemic unit /kh/. It is pronounced like ‘ch’ in the Scottish “loch”. It occurs at both the beginning and the end of a syllable.

Many of the following words are originally from Arabic.

<b>Initial</b>			<b>final</b>		
<i>khabar</i>	-	news	<i>akhirat</i>	-	end of the world
<i>khutbah</i>	-	sermon	<i>makhluk</i>	-	creature

/m/, /n/, /l/, /s/, /sy/, /f/, /v/ and /y/

The remaining consonants m, n, l, s, sy, f, v and y are phonemically similar to their counterparts in English, though never quite the same.

<b>As in English</b>		<b>Malay examples</b>	<b>English translation</b>
/m/	mother	<i>makan, minum</i>	eat, drink
/n/	no	<i>nama, nasi</i>	name, rice
<b>As in English</b>		<b>Malay examples</b>	<b>English translation</b>
/l/	line	<i>lupa, lepas</i>	forget, leave
/s/	say	<i>saya, siapa</i>	I, who
/sy/	she	<i>syukur, syurga</i>	prayer, heaven
/f/	fan	<i>fikir, fasih</i>	think, understand
/v/	television	<i>televisyen</i>	television
/y/	yet	<i>yang, daya</i>	the one who/that which, force

The consonants /f/, /v/ and /z/ are not frequently used in the Malay language. Some words which use these consonants have been borrowed into the language from English.

The Malay speaker thus finds these sounds relatively new in his L1 and therefore when

he pronounces these consonants he tends to approximate the sound nearest to his own language system.

					R.P.	Malay ESL Speaker	
/p/	for	/f/	in	fan	/f en/	-	/p en/
				film	/film/	-	/pilm/
/b/	for	/v/	in	very	/very/	-	/beri/
				vitamin	/vit min/	-	/bit min/
/d/	for	/z/	in	zebra	/zi:br/	-	/dzi:br/
				zero	/zi:r u/	-	/dzi:r/

(Baskaran, 1987)

As can be seen from the description of the Malay orthographic system, the Malay language has a highly regular grapheme-phoneme correspondence. English has a deep orthography.

The next section will be a brief review of the Malaysian Education System.

## **2.11 A Brief Review of the Malaysian Education System**

The Malaysian Education System encompasses education beginning from pre-school to tertiary education.

Primary education covers a period of six years and together with secondary education (5 years which encompasses 3 years of lower secondary and 2 years of upper secondary) covers a period of 11 years of free education.

The admission age to the first year of primary education is seven. Primary schooling is mandatory for all children between the ages of 7 and 12. The role and position of the Malay language and the English language in the education system has been subjected to change over the years.

After Malaysia won its independence from the British in 1957, the Malay language replaced English as the main medium of instruction.

In 2003 PPSMI (the teaching and learning of science and mathematics in English) was introduced. It was a government policy aimed at improving the command of English among pupils at primary and secondary schools in Malaysia. In accordance to this policy science and mathematics were taught in the English medium. After much debate, the Deputy Prime Minister of Malaysia announced the reversal of the policy in 2012. The new policy MBMMBI (To Uphold Bahasa Malaysia and to Strengthen the English Language) was introduced as the previous policy had some weaknesses. Teachers found it difficult to cope with the language change from Malay to English. PPSMI was considered problematic in spite of the introduction of ETeMS (English for Teaching Mathematics and Science) a language development course where teachers were given support so that they will have the basic capacity to use English as the medium of instruction.

With the change in policy from PPSMI to MBMMBI, Malay was once again used as a medium of instruction for the teaching of Science and Mathematics in primary and secondary schools. Another objective of the policy was to strengthen the command of English by improving the existing curriculum and providing sufficient and qualified teachers and teaching materials.

With the introduction of the Malaysia Education Blueprint 2013 – 2025 the government is committed to raising world-class students (The Star, 7 September 2013). With the implementation of the blueprint, children were expected to be fully proficient in Malay and English. There would be extra contact hours in the classroom for English in all schools. An increase in the number of hours in the teaching of the Malay language would be introduced in vernacular schools. By 2016 all SPM students had to obtain at least a pass in English.

Although Malay remains a medium of instruction in all National schools, English is seen to play an important role as a good command of English was needed for a “global generation” (The Star, 7 September 2013). With the introduction of the Malaysia Education Blueprint, pupils will be motivated to learn both Malay and English and as such it would be important to see if the learning of an L1 (Malay) can in any way help learners acquire their L2 (English).

## **2.12 Summary**

Section 2.1 to 2.10 focused on the quantitative studies I, II and III. Section 2.1 began with an introduction to the notion of transfer. Section 2.2 to 2.7 are related to studies pertaining to cross-language transfer of morphological and phonological awareness. Section 2.8 concerns transfer from L1 to L2. This was followed by a description of the Malay language in Section 2.9. Section 2.10 described the Malay sound system. Section 2.11 provided a brief review of the Malaysian Education System.

## CHAPTER 3

### RESEARCH DESIGN, METHODOLOGY AND RESULTS OF THE PILOT STUDY

#### 3.0 Introduction

This chapter will discuss the research design and methodology of the pilot study followed by the results yielded by it. The chapter introduces the pilot study and the research questions developed for the pilot study. The participants, procedure and improvements of the pilot study are described. The results of the pilot study provide descriptive statistics of all the awareness and spelling measures. Spearman Brown's split-half measure of internal consistency was used to estimate the reliability of the spelling tests and awareness tasks. The findings of the pilot study are discussed in relation to the two research questions developed for the pilot study (3.2). The pilot study concludes that there is evidence of transfer from the L1 to the L1 and from the L1 to the L2. The method used in both the pilot study and the main study is described as descriptive empirical research.

#### 3.1 Report on the Pilot Study

Bilingual studies have provided empirical support for the transfer of phonological, literacy and grammatical skills between the learner's first language and his second and conversely from his second language to his first. This pilot study would like to determine if morphological awareness could be positively transferred between two languages. The transfer of phonological awareness could not be determined by the pilot study. This was because there was not enough time to administer the phonological awareness tasks as this researcher only had access to the sample classes for one and a half weeks. The phonological awareness tasks will be included as part of the main study. The two languages that were studied were Malay and English. The sample was taken from children

who were native-speakers of Malay and who began to learn English as a second language in school at the age of seven.

### **3.2 Research Questions of the Pilot Study**

This pilot study set out to investigate the following research questions:

1. Can morphological awareness in the first language facilitate the spelling of morphemes in the same language?
2. Can morphological awareness in the first language facilitate the spelling of morphemes in the second language?

This study sought to answer the research questions using the following methods :-

- (i) By examining the relationship between Malay morphological awareness tasks and Malay morpheme spelling tasks, this study would determine whether there was transfer between morphological awareness in the first language and spelling of morphemes in the same language. A positive correlation between the awareness task and the spelling tasks would indicate that transfer did take place.
- (ii) By examining the relationship between Malay morphological awareness tasks and English morpheme spelling tasks, this study would determine whether there was transfer between morphological awareness in the first language and the spelling of morphemes in the second language. A positive correlation between the awareness tasks and the spelling tasks would predict that transfer did occur.

### **3.3 Participants of the Pilot Study**

Sixty children participated in this study; thirty-five children were 9-year olds in their Third Year of Primary Education and twenty-five children were 12-year olds and in their Sixth



Year of Primary Education. The children were sampled from these age groups because a few months prior to the Pilot Study samples of these same children's writing were obtained from the two groups and the kind of errors that appeared in their writing suggested that they were making these errors based on the level of phonological and morphological awareness possessed at the time.

The group of children participating in the Pilot Study were children whose first language was Malay and who were also learning English as a second language. The group of learners was sampled from two urban Primary National Schools in Petaling Jaya and Kuala Lumpur, Malaysia. The children sampled from the school in Petaling Jaya generally came from lower to middle income homes. The children sampled from the school in Kuala Lumpur generally came from middle to higher income homes. The information was obtained by asking the children from each school to write down the occupation of both parents.

### **3.4 Procedure**

The sample was obtained by giving 9-year-old and 12-year-old Malay children the following tasks:

#### **3.4.1 English Language Tasks**

##### **A. Spelling Tasks**

- i) Morphological Spelling Tests - these tasks were based on test administered by Nunes, Bryant and Bindman (1997)

### **3.4.2 Malay Language Tasks**

#### A. Spelling Tasks

- i) Morphological Spelling Test
- ii) Sentence Completion of Non-Words

#### B. Oral Morphological Awareness Task

- i) Word Analogy Task
- ii) Sentence Analogy

### **3.5 General Testing Procedure**

The testing period took one and a half weeks. During this time the researcher met the Head Teacher as well as the class teacher of the classes that were to be tested. The researcher then met the pupils and conducted the morphology awareness tasks. The spelling tasks were conducted by the class teachers who were native-speakers of Malay. The teachers were asked to use standard Malay for this purpose. The researcher advised each teacher that the tasks required that the teacher read the sentences in the Spelling Tests with the kind of pronunciation that they would use for normal everyday speech. The pupils were also advised that they should not copy from each other.

### **3.6 English Language Tasks**

#### A. Spelling Tasks

- (i) English Morpheme sub-test (Appendix A)

## **Rationale and Design**

The English spelling test used in this study was designed by Nunes, Bryant and Bindman (1997). The spelling test used in this study was designed to test children's ability to spell words that departed from the regular phonetic spelling of the word.

The children were asked to spell a total of 33 words from a total of 66 words that made up both Session One and Session Two of the English Spelling Test. The words contained in the test fell into different categories, and were chosen so that the child would not be able to spell the words using a phonological spelling alone; he or she would need to make use of morphological processing in order to spell the words correctly. The morpheme sub-test consisted of words that contained the following grammatical morphemes '-ed' past tense end morpheme, the 'wh-'interrogative beginning morpheme, the '-cian' noun forming end morpheme and the '-ness' noun-forming end morpheme.

## **Procedure**

The test was divided into two sessions. Session 1 contained a total of 40 words and Session 2 contained a total of 26 words. Due to time constraints both sessions were administered on the same day.

Each sentence containing the target word (see Appendix A) was spoken using a pronunciation used in normal everyday speech. This was to ensure that the speaker would not distort the normal pronunciation of the words. The children were told that they would hear a word followed by a sentence containing the word. Then they would hear the word again. The children were then told that they would have to write down the word on the paper provided.

(ii) English Phoneme sub-test (Appendix A)

The phoneme sub-test was a part of the main morphological spelling test administered to the children. The phoneme sub-test consisted of words that ended with the letter 'd' or 't'.

**Design**

The children were asked to spell a total of 26 words.

**Procedure**

The tests were administered in the same way as the morpheme sub-test. Each sentence containing the target word was spoken using a pronunciation of normal everyday speech (see Appendix A). This was to ensure that the speaker would not distort the normal pronunciation of the words. The children were told that they would hear a word followed by a sentence containing the word. Then they would hear the word again. The children were then told that they will have to write down the word on the paper provided.

**3.7 Malay Language Tasks**

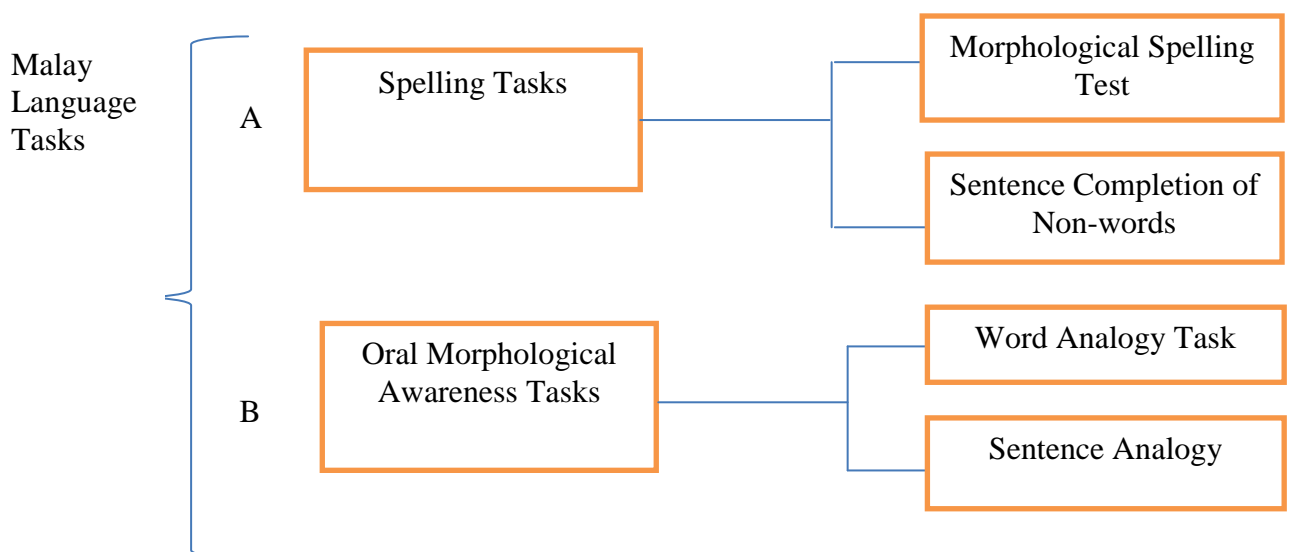


Figure 3.1: Overview of the Malay Language Tasks used in the Pilot Study

## A. Spelling Tasks

- (i) Malay Morpheme sub-test (Appendix B)

### **Rationale and Design**

The tests were designed to test children's ability to spell words that departed from the regular phonetic spelling of the word.

The words contained in this test were chosen because they contained different grammatical morphemes. In order to spell these words correctly the child would have to draw on his awareness of morphology. This would indicate that the child was using the lexical route to spell words. The children were asked to spell a total of 12 words taken from the total of 66 words from Session 1 and Session 2 of the Malay Spelling Test (Appendix B). Category One tested the prefix 'ber' (6 words). Category Two tested double letters (6 words). The morpheme sub-test consisted of words in the following categories:

- (a) The prefix 'ber' + consonant where the letter 'r' is not pronounced in spoken Malay. The prefix 'ber' can also be added to verbs and nouns. Verbs, which took prefix 'ber', can be classified into two categories. The first category comprises Reflexive verbs which indicate an action performed by the doer to himself, no other person or party is involved in the action. For example, 'berhenti' - 'to stop', 'berdiri' - 'to stand'. The second category consists of Reciprocal verbs, to indicate an action performed by two or more persons or parties. Many of these show retaliative actions. For example, 'berjumpa' - to meet each other, 'berkumpul' - to assemble with other people, 'berjanji' - to make a promise to another person. 'Ber' can also be added to nouns. When nouns had the prefix 'ber' they become verbs. For example,

'harta' (wealth) – 'berharta' (possessing wealth), 'kereta' (car) – 'berkereta' (using a car).

- (b) The prefix 'meng + g' where the double letter 'g' occurred in words that begin with 'g'. This is also a verb-forming prefix which is included in the general class of verbs, which take on the prefix 'me'. This prefix is used to form transitive verbs in most cases. The prefix takes on many forms for example depending on the root that it is attached to, the prefix 'me' is realised as 'me', 'meng', 'mem', 'men' or 'meny'. This study will only look at the prefix 'meng' as this morpheme is spelled with double letters if the root word begins with 'g' and therefore does not have a one-to-one sound-spelling correspondence.
- (c) The suffix 'kan' where the double letters 'k' occurs when the root word ends with the letter 'k'. The suffix 'kan' appears with the prefix 'me' to form transitive verbs from other verbs, nouns, adjectives or adverbs.

The first category of words to be tested included two-types of words with prefix 'ber': (1) 'r' pronounced ('ber' + stem beginning with vowel); and (2) 'r' not-pronounced ('ber' + stem beginning with consonant) words with 'be' + consonant to control for over-generalisation.

The second category of words includes two types of words with the final 'r' at the end of the stem.

- (1) 'r' not-pronounced (stem ending with 'r' ); and
- (2) 'r' pronounced (stem ending with r + suffix)

The third category includes irregular words that are not phonetically regular. Children who rely only on the phonological route would find it difficult to spell irregular words.

The fourth category of words includes words that have double letters when a prefix or suffix is added. In such cases the prefix ends with the same letter as the first letter of the root word and the suffix begins with the same letter as the last letter of the root word. An example of this is, 'menggunakan' (meng+guna+kan) and 'menaikkan' (me+naik+kan). Words without double letters using the same prefix and suffix are added as a control for this category. An example is 'menghijaukan' (meng+hijau+kan).

### **Procedure**

The whole test was divided into two parts Session 1 consisted of 35 words and session 2 consisted of 30 words (see Appendix B). The morpheme test was a sub-test of the main spelling test. Due to time constraints both sessions were conducted on the same day. A native Malay speaker using a pronunciation used in normal everyday speech dictated the sentences. This was to ensure that the speaker would not distort normal pronunciation of the words. The children were told that they will hear a word, then they will hear a sentence containing the word and then they will hear the word again. The children were then told that they would have to write down the word on the paper provided.

#### (ii) Sentence Completion Task of Malay Non-Words (Appendix C)

### **Rationale and Design**

The pseudoword sentence completion task was used to measure orthographic knowledge of pronounceable 'non-words'. The pseudowords formed for this task complies with Malay orthographic rules. They are composed of non-existing stems plus real Malay affixes.

These tasks were based on tasks designed by Berko (1958) but in this case the task was administered in writing.

The elicited pseudowords fell into two main categories. The first category of words tested two-types of pseudowords with prefix 'ber': (1) 'r' pronounced (ber+ stem beginning with vowel); and (2) 'r' not-pronounced ('ber' + stem beginning with consonant). The second category of pseudowords tested double letters when a prefix or suffix is added. In such cases, the prefix ends with the same letter as the first letter of the root word for example 'menggurus' (meng+gurus) and cases where the suffix begins with the same letter as the last letter of the root word, for example, 'meninukkan' (meninjuk + kan). Words without double letters using the same prefix and suffix were added as a control for this category.

### **Procedure**

The words were given in a sentence completion format (see Appendix C). The children were told that each sentence introduced a 'new' word that they have not heard before. This 'new' word was introduced in different forms, i.e. in either its root form or its root form + a real Malay affix. For example, a 'new' word 'justa' was introduced as 'menjustakan' (men+justa+kan). The children were asked to fill in the blanks with a suitable form of the 'new' word based on the clues given in the previous sentence.

### **B. Oral Malay Morphological Awareness Tasks**

- (i) Word Analogy Task (Appendix D)

#### **Rationale and Design**

This task was designed following the model of the task by Nunes, Bryant and Bindman (1997). The aim of the task was to test the child's explicit awareness of morphology in



spoken language. This task involved grammatical transformations between different parts of speech.

In this task the children were required to carry out transformations from noun to adjective, verb to noun and verb to the infinitive form. The children were asked to produce the correct transformations for 8 words (see Appendix D).

**kebun (root word) > pekebun (pe + kebun)**  
**(garden)                      (gardener)**

### **Procedure**

The task was presented orally to the children. Each child was presented with the task individually. The researcher began the session by asking the child his name and age and family background, for example, his parent's occupation etc. While this information was important for the study, it also helped to put the child at his ease. The child was then told that he will hear one pair of related words for example: *muda* (young) > *pemuda* (youth). Then the child is presented with a second word and asked to complete the pair using the correct transformation i.e. *tulis*(write) > \_\_\_\_\_ Answer : *penulis* (writer).

The researcher went over the example with the child. If the child was hesitant the researcher asked questions like: 'In what way are the words different?' Once the child could produce the correct answer to the transformation the researcher proceeded with the trial items.

(ii) Sentence Analogy Task

**Rationale and Design**

This task was designed following the model of the task by Nunes, Bryant and Bindman (1997). The aim of the task was to test children's awareness of Malay morphology. This is done by examining how well the children are able to use verbs in their base form as well as verbs with the addition of suffixes and prefixes.

In this task the target words were embedded in a sentence:

**Dia menulis surat > Dia menulis surat semalam**

He writes a letter

He wrote a letter yesterday

(Present Time)

(Past Time)

**Procedure**

The researcher introduced the task with an example. The children were asked how they thought the sentences differed. Once the child could produce the correct answer to the transformation the researcher proceeded with the trial items. Based on the results of the pilot study this test was not successful (as Malay verbs do not carry tense) and will not be used in the main study.

**3.8 Improvements on the pilot study**

The main study of this research will include phonological awareness tasks in both English and Malay. This is to test the hypothesis that phonological awareness can be transferred from the first language to the second language and that phonological awareness in Malay can predict the spelling of phonologically regular words in English.

### 3.8.1 Oral English Phonological Awareness Tasks

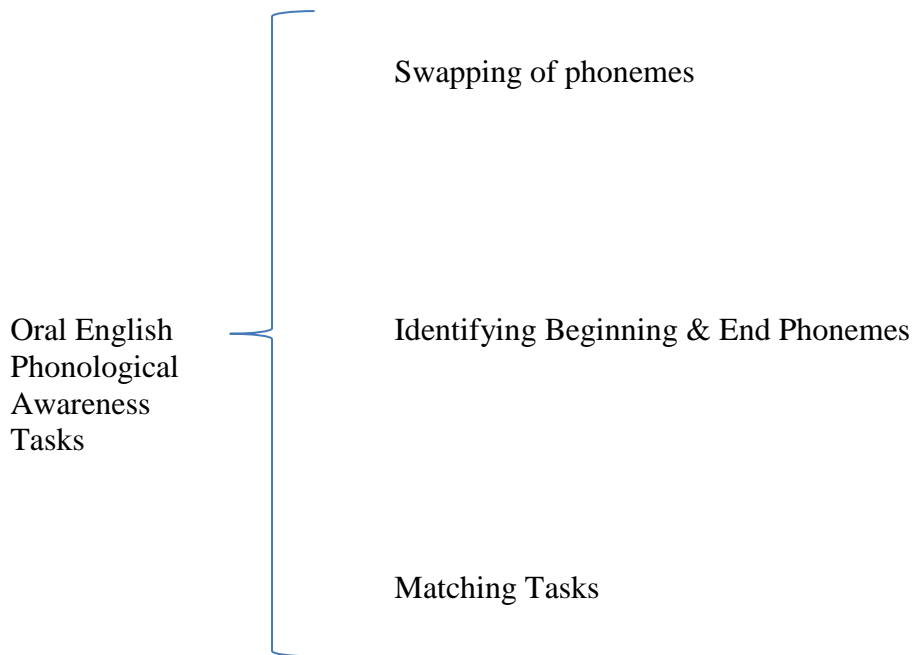


Figure 3.2: Overview of the Oral English Phonological Awareness Tasks to be used in the Main Study

1. Swapping phonemes (Appendix E)

#### **Rationale and Design**

This task was based on task developed by Adams (1990). It was designed to determine if the child has an awareness of phonology. The task involved the recognition of the initial phonemes of two words presented to the child.

In this task the child has to swap the initial phoneme of the two words presented to him.

For example:

'lamp' and 'room'

The child will delete the initial phoneme of both words and swap the phonemes. The resulting words will be 'ramp' and 'loom'. This task consisted of 12 trials.

### **Procedure**

This task was presented orally to each child. The researcher began the session by giving the child a trial example so that he understood what is required of him. The task was presented to the child through the use of picture cards. A pair of objects was presented on the same card. The child was encouraged to name them. Once he had identified both objects he was asked to swap the initial phoneme in both words. If the child was successful the researcher continued with the remaining trials. If the answers were incorrect then the child was given another example to ensure that the child understood how to do the task.

## 2. Identifying beginning and end phonemes (Appendix F)

### **Rationale and Design**

This task was designed to determine if the child could identify beginning and end phonemes.

In this task the child was given two words and he had to state which part of both words shared the same phoneme. For example, with words like 'cattle' and 'class', he would have to identify the beginning phoneme of both words. The child would then say whether both initial phonemes were the same or were different. This task consisted of ten trials.

### **Procedure**

This task was presented orally to each child with the use of picture cards. A pair of objects was shown on a card. The child was encouraged to name the objects and then to state which part of the word, the beginning or the end shared the same phoneme.

### 3. Matching Task (Appendix G)

#### **Rationale and Design**

The purpose of this task was to determine if the child could identify the phoneme at the beginning of a word given to him and then match this phoneme to one of three alternatives given to him.

This task was designed to determine if the child could identify the beginning phoneme of the target word and match the sound with three alternatives given to them. This task consisted of eight trials.

#### **Procedure**

This task was presented orally to each child. The researcher began the session by giving the child an example so that he understands what is required of him. The target word and the three alternatives are presented to the child orally and the child is then asked to state if the first, second and third word shared the first sound with the target word.

### 3.8.2 Oral Malay Phonological Awareness Tasks

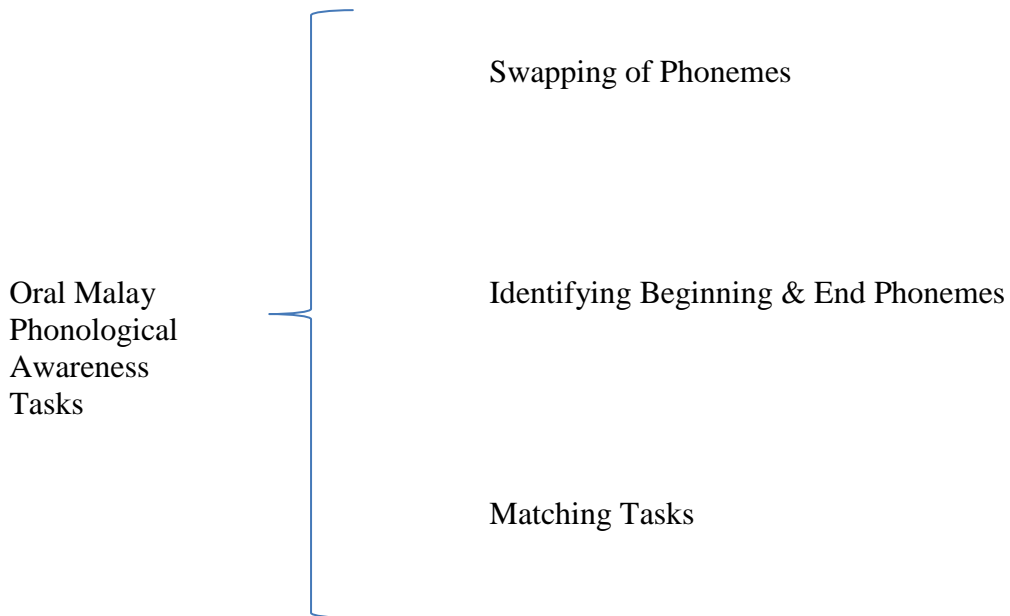


Figure 3.3: Overview of the Oral Malay Phonological Awareness Tasks to be used in the Main Study

#### 1. Swapping of Phonemes (Appendix J)

##### **Rationale and Design**

This task was designed to determine if the child had an awareness of phonology. The task involved the recognition of the initial phoneme of two words presented to the child.

In this task the child had to swap the initial phoneme of the two words presented to him, for example:

'angsa' - goose

'ekor' - tail

The child would delete the initial phoneme and swap the phonemes. The resulting words would be 'engsa' and 'akor'. The task consisted of ten trials.

## **Procedure**

This task was presented orally to each child. The researcher began the session by giving the child a trial example, so that he understood what was required of him. The task was presented to the child through the use of picture cards. A pair of objects was presented on the same card. The child was encouraged to name them. Once he had identified both objects he was asked to swap the initial phoneme in both words. If the child was successful the researcher continued with the remaining trials. If the answers were incorrect then the child was given another example to ensure that the child understood how to do the task.

## 2. Identifying beginning and end phonemes (Appendix K)

### **Rationale and Design**

This task was designed to determine if the child could identify beginning and end phonemes.

In this task the child was given two words and he had to state which part of both words shared the same phoneme. For example, in a word like 'bayar' and 'bebas', the child would have to state that the beginning phoneme of both words is the same and the end phonemes of both words are different. This task consisted of ten trials.

### **Procedure**

This task was presented orally to each child. A pair of words was said aloud. The child was asked to decide which part of the word, the beginning or the end shared the same phoneme.

### 3. Matching Task

#### **Rationale and Design**

The purpose of this task was to determine if the child could identify the phoneme at the beginning of a word given to him and then match this phoneme with a choice of three words given to him.

In this task the child was given two words and he had to state which part of both words shared the same phoneme, for example in a word like 'bahu' (shoulder) the child would identify the initial phoneme /b/ and then match this sound to the initial phoneme of one of the three words presented to the child. This task consisted of eight trials.

#### **Procedure**

This task was presented orally to each child. The researcher began the session by giving the child an example so that he understood what was required of him. The target word and the three alternatives were presented to the child orally and the child was then asked to state if the first, second and third word shared the first sound with the target word.

The main study of this research will also include morphological awareness tasks in English. This will allow the researcher to investigate if morphological awareness can be transferred from the L2 to the L1.



### 3.8.3 Oral English Morphological Awareness Tasks

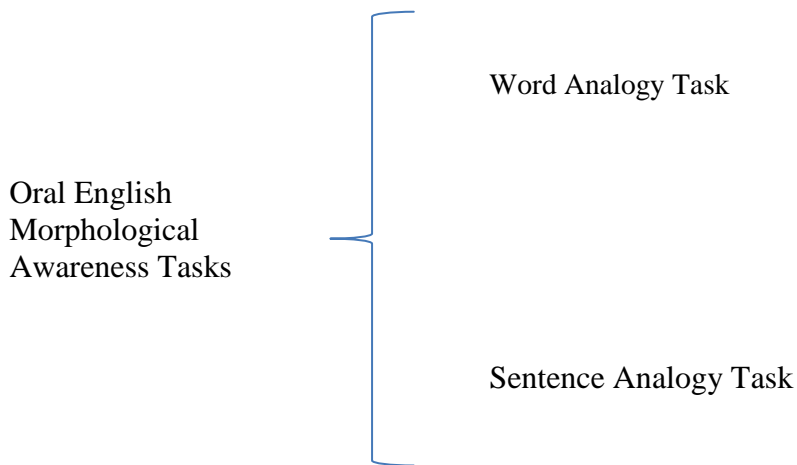


Figure 3.4: Overview of the Oral English Morphological Awareness Tasks to be used in the Main Study

(i) Word Analogy Task (Appendix L)

#### **Rationale and Design**

The aim of the task was to test the child's explicit awareness of morphology in spoken language. This task involved grammatical transformations between different parts of speech.

In this task the children were required to carry out transformations from nouns to adjectives, verbs to nouns, present verbs to past verbs. The children were asked to produce the correct transformation for eight words.

#### **Procedure**

The task was presented orally to each child. The researcher began the session by asking the child his name and age and family background, for example, his parent's occupation etc.

While this information was important for the study it also helped to put the child at his ease. The child was then told that he will hear one pair of related words for example: *length* (long) > *width* \_\_\_\_\_ Answer : wide. The child was asked to complete the second pair using the correct transformation.

The researcher went over the example with the child. If the child was hesitant the researcher asked questions like: 'In what way are the words different?' Once the child could produce the correct answer to the transformation the researcher proceeded with the trial items.

(ii) Sentence Analogy Task (Appendix M)

**Rationale and Design**

The aim of the task was to test children's awareness of English morphology. This is done by examining how well the children are able to use verbs in their base form as well as verbs with the addition of suffixes and prefixes.

In this task the target words were embedded in a sentence. The transformations in this case involved tense, i.e. present to past, present continuous to past, past to present. For example:

Ahmad likes Yati	Ahmad liked Yati
Ahmad knows Yati	Ahmad _____ Yati
	(knew)

**Procedure**

The researcher introduced the task with an example. The children were asked how they thought the sentences differed. Once the child could produce the correct transformation the researcher proceeded with the trial items.

The above was a description of the Method and Design of the Pilot Study. Now the researcher will describe the results of the pilot study.

In the pilot study, the data collected was analysed using descriptive statistics and a reliability indices. A correlation between morphosyntactic measures and outcome measures are also included as part of the analysis. The second part of this section (3.11) will discuss the research hypothesis.

### **3.9 Descriptive Statistics**

The sample for this study consisted of 60 bilingual Malay learners. The learners were in Year 3 in School 1 (9-years-old) from a school in Petaling Jaya and Year 6 in School 2 (12-years-old) from a school in Kuala Lumpur.

#### **3.9.1 English Measures**

##### **English Spelling Test**

###### **(i) Morpheme sub-test**

The morpheme sub-test consisted of words that contained the ‘-ed’ past tense end morpheme, the ‘wh-‘ interrogative beginning morpheme, the ‘ian’, noun-forming end morpheme and the ‘-ness’ noun-forming end morpheme.

As the morpheme sub-test was administered only once, Spearman Brown’s split-half measure of internal consistency was used to estimate the reliability of the test. The test was divided into two halves. The first half contained all the odd numbered items and the second half contained all the even numbered items.

Spearman Brown's split-half reliability for the test was .51 for the 9-year-old subjects and .72 for the children aged 12. .72 is an acceptable level of reliability (Mehrens & Lehmann, 1978).

The distribution of scores on the task for the 9-year-olds is shown below in Figure 3.5. All the analysis for the reliability tests were done separately because the pilot study showed that the 12-year-old children were regarded as too old for the study as some of the scores showed ceiling effects. For the 9-year-olds, out of a total of 19 items, 8 items were included in the test.

The scores were approximately normally distributed for the 9-year-olds. The maximum possible score was 8. The mean score was 3.4 (SD1.68), and the scores ranged between 0 and 6.

**Table 3.1 : Kendall correlation coefficients between total English morphological spelling scores and item scores on the sub-morpheme test for the 9-year-olds**

	<b>naughtiness</b>	<b>where</b>	<b>what</b>	<b>when</b>	<b>who</b>	<b>why</b>	<b>which</b>	<b>magician</b>
Total English	0.34	0.52	0.31	0.44	0.49	0.35	0.52	0.19
Morphological	N (33)	N (34)	N (34)	N (34)	N (33)	N (33)	N (34)	N (31)
Spelling Scores	.029	.001	.045	.004	.002	.025	.002	.236

The past '-ed' form reached floor levels on the item-total correlational analysis.

Words like 'magician' remained on the test even if the items were not significant because they increased the reliability scores.

The distribution of scores for the 12-year-olds were approximately normally distributed. The maximum possible score was 6. The mean score was 3.1 (SD1.99), and the scores ranged between 0 and 6.

For the 12-year-olds out of a total of 19 items, 5 items were included in the test. Only the significant items were included in the test.

As the morpheme sub-test was administered only once, Spearman Brown's split-half measure of internal consistency was used to estimate the reliability of the test. The test was divided into two halves. The first half contained all the odd numbered items and the second half contained all the even numbered items.

All the analysis for the reliability tests were done separately because the pilot study showed that the 12-year-old children were regarded as too old for the study as some of the scores showed ceiling effects.

**Table 3.2 : Kendall correlation coefficients between total English morphological spelling and item scores on morpheme sub-test for the 12-year-olds**

Total English Morphological Spelling Scores	<b>covered</b>	<b>kissed</b>	<b>laughed</b>	<b>specialness</b>	<b>naughtiness</b>
	.42	.60	.52	.44	.54
	.062	.006	.010	.034	.008

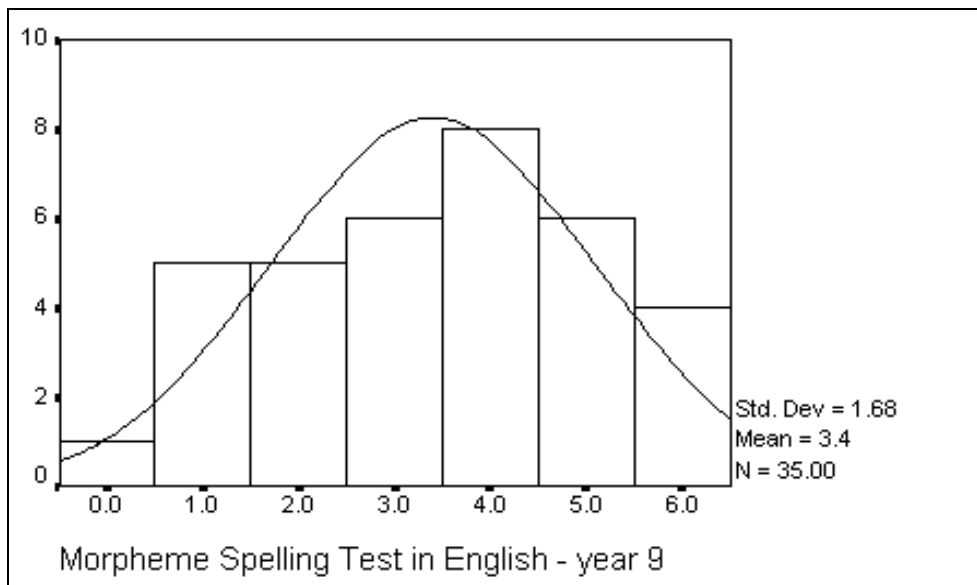


Figure 3.5: Morpheme Spelling Test in English – Year 9

The wh- interrogative beginning morpheme reached ceiling levels after the item-total correlation analysis.

Each word was scored for accuracy; a score of 1 was given to the correct spelling of the morpheme for each word and a score of 0 was given to incorrect spelling. A total score was obtained. An item-total correlation was obtained between the score in each item in the sub-test and the total score for the morpheme sub-test. Because the data are scored as ‘pass-fail’ items, non-parametric measures of association were used. The Kendall’s tau-b correlation coefficients and Spearman’s rho correlation coefficient were considered more suitable as the data set was small. Based on the correlation obtained, (see Table 3.1 and Table 3.2) the items that did not show significance were taken out of the analysis.

For the 9-year-olds the wh- interrogative beginning morpheme words were significant, the ‘-ness’ end morpheme words were also significant. These words were included in the

main study. The '-ed' past verbs were also included in the main study even though the items reached floor effect in the analysis. This is because the children are expected to find these words difficult to spell. In the analysis on the 12-year-olds, the wh-words reached ceiling effect. As the main study will include a sample from only 7-year-old, 8-year-old and 9-year-old children, these items were also retained for the main study.

(ii) Phoneme sub-test

The phoneme sub-test consisted of words that ended with the letter 'd' and 't'. Each word was scored for accuracy; a score of 1 was given to the correct ending of each word and a score of 0 was given to incorrect endings. A total score was obtained.

A Spearman Brown's split-half reliability for the test was .77 for the 9-year-olds. This is an acceptable level of reliability (Mehrens & Lehmann, 1978). The scores were approximately normally distributed. The maximum possible score was 13. Mean score was 5.3 (SD 3.08), and the scores ranged between 0 and 12.

An item-total correlation was obtained for each item using Kendall and Spearman Rho correlation coefficients. Only the significant items were maintained in the test. Out of a total of 26 items, 13 items were included in the test for 9-year-olds.

**Table 3.3 : Kendall correlation coefficient between total English Phonological spelling and item on phoneme sub-test for the 9-year-olds**

	<b>build</b>	<b>cold</b>	<b>field</b>	<b>found</b>	<b>ground</b>
Total English Phonological Spelling	.34	.45	.43	.48	.36
	.025	.003	.005	.001	.018

	<b>held</b>	<b>sold</b>	<b>told</b>	<b>belt</b>	<b>left</b>	<b>lost</b>	<b>meat</b>	<b>soft</b>
Total English Phonological Spelling	.26	.47	.38	.27	.40	.29	.33	.50
	.082	.002	.011	.081	.018	.052	.029	.001

A Spearman Brown's split-half reliability for the 12-year-olds was .79. This is an acceptable level of reliability (Mehrens & Lehmann, 1978). The distribution scores for the 12-year-olds is shown in Figure 3.6. The scores were approximately normally distributed. The maximum possible score was 5. The mean score was 3.8 (SD1.23) and the score ranged between 0 and 5.

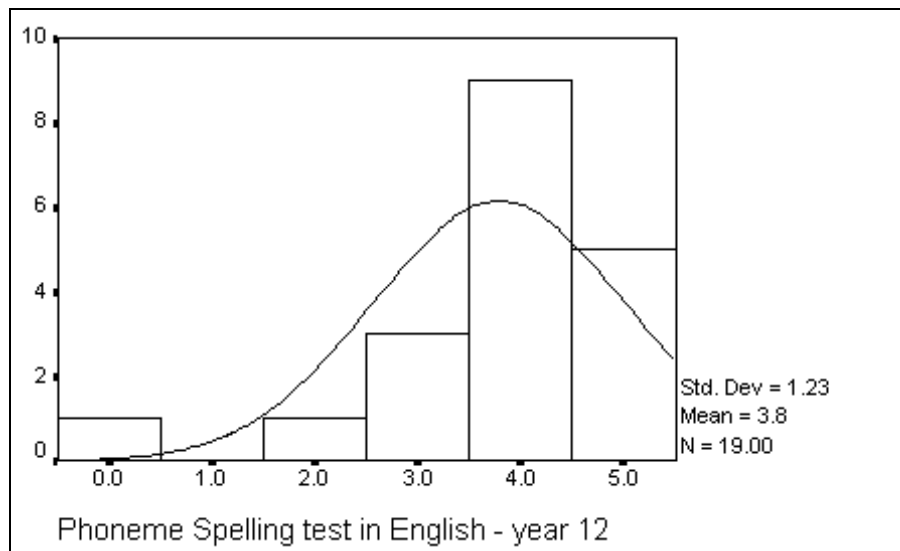


Figure 3.6: Phoneme Spelling Test in English – Year 12

From the 26 items, 5 items were included in the test for the 12-year-olds (see Tables 3.3 & 3.4).



**Table 3.4: Kendall correlation coefficient between Total English Phonological Spelling and items on the phoneme sub-test for 12-year-olds**

	<b>told</b>	<b>belt</b>	<b>heart</b>	<b>sent</b>	<b>cold</b>
Total English Phonological Spelling	.41	.46	.43	.45	.32
	.044	.024	.042	.029	.128

Some items that were not significant on the item-total correlation analysis were included to increase reliability scores.

The number of items on the morpheme and phoneme sub-test for the two age groups vary slightly because different items were significant for the two groups. But the tests conducted were the same for both groups.

The 9-year-old subjects could not spell –ed past tense morphemes well. They responded better to the wh- words and the noun-forming end morphemes like ‘-ness’ and ‘-cian’.

The analysis on the item-total correlations for the 12-year-old subjects were insignificant except for five items this was because the rest of the items reached ceiling effect. For the main study of this research, the target groups will be Year 1, 2 and 3 children (7- 9-year-olds). This research shows that the development of morphological and phonological patterns that are targeted in this study are most prominent in these groups.

#### Consistency of the Stems of English Words

In this test, children were given two words that shared the same stem, for example, ‘know’ and ‘knowledge’. Scores were given based on whether they spelled the stems of the pairs of words given to them in the same way. Two methods of scoring were used

for this task, a strict scoring method and a lenient scoring method. The strict criterion gave a score of 1 if the child spelled the stems of the pair of words correctly, and in the same way. All other spelling given were scored 0.

The lenient criterion gave a score of 1 if the child spelled the word stems of the words consistently even if incorrectly although in this case the child may have spelt the words using a phonological strategy.

Most stimuli in the consistency task were words but sometimes pseudowords were included as part of the pair. The pseudowords comprised real roots and real affixes in non-existing combinations for example 'special' was paired with 'specialness' (this task was based on the consistency task by Nunes, Bryant & Bindman, 1997). Out of the eleven pairs of words, three were reliable for the 9-year-olds and 6 pairs were reliable for the 12-year-olds. (see Tables 3.5 and 3.6).

Spearman Brown's split-half reliability for the consistency test using the strict scoring method was .70 for the 9-year-olds. This is an acceptable level of reliability (Mehrens & Lehmann, 1978). The mean score for the 9-year-olds was 0.3 (SD0.7), and the score ranged between 0 and 3. The maximum possible score was three. The distribution of scores is shown in Figure 3.7. The scores were approximately normally distributed.

The item-total correlations for the 9-year-olds are shown in Table 3.5.

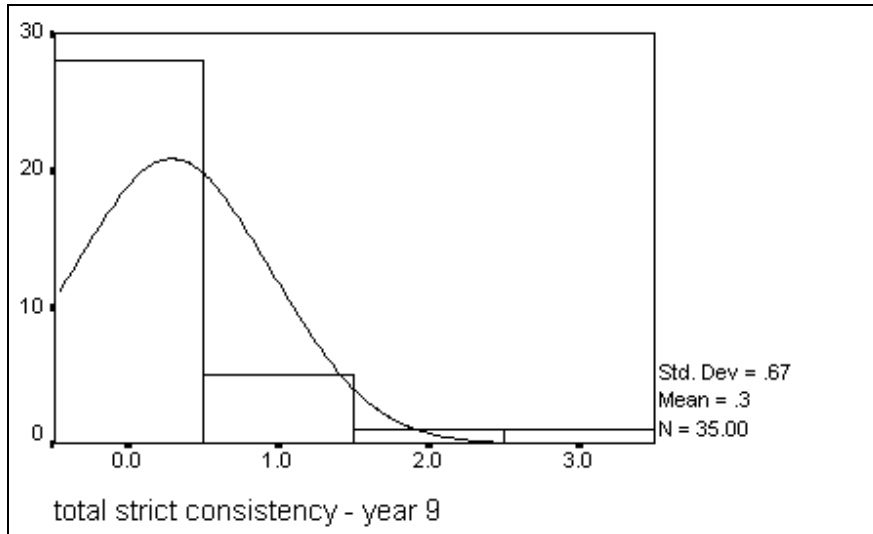


Figure 3.7 : Total Strict Consistency – Year 9

**Table 3.5 : Kendall correlation coefficient between Total Consistency of English Roots and items on Consistency of English Roots sub-test – year 9 (Strict Criterion)**

	<b>meat</b>	<b>special</b>	<b>sweat</b>
Total Consistency of English Roots	.48	.48	.34
	.011	.012	.076

The item-total correlation analysis for the 9-year-olds were insignificant for all except three items. This was because there was a floor effect for the items.

Spearman Brown’s split-half reliability for the consistency test using the strict scoring method was .75 for the 12-year-olds. This is an acceptable level of reliability (Mehrens & Lehmann, 1978).

The scores were approximately normally distributed. The maximum possible score for the 12-year-olds was 6. The mean score was 2.7 (SD 1.28), and the scores ranged between 1 and 6.

The item-total correlation analysis for the 12-year-olds is as follows:

**Table 3.6 : Kendall correlation coefficient between Total Consistency of English Roots and items on consistency of English roots sub-test – Year 12 (Strict Criterion)**

	heart/y	magic/ian	sweat/y	treasure/s	know/ledge	meat/y
Total Consistency of English Roots	.52	.42	.64	.43	.43	.51
	.008	.029	.001	.026	.012	.008

Spearman Brown’s split-half reliability for the consistency test using the lenient criterion was .47 for the 9-year-olds. The distribution scores are shown in Figure 3.8.

From the 11 pairs, 4 were significant for the 9-year-olds, see Table 3.7.

The maximum possible score for the 9-year-olds was 3. The mean score for the 9-year-olds was 9.6 (SD 1.3) and the scores ranged between 0 and 3.

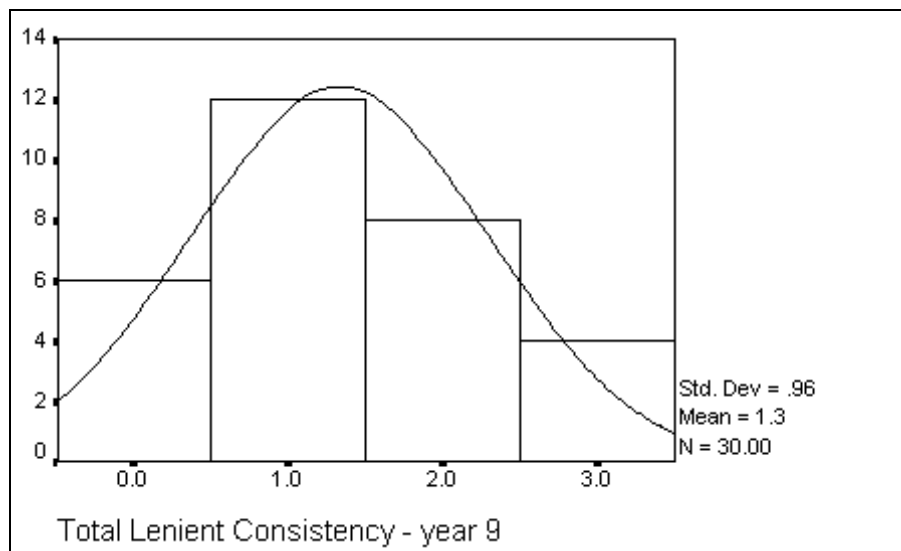


Figure 3.8: Total Lenient Consistency – Year 9

The item–total correlation analysis for the 9-year-olds is as follows:

**Table 3.7 : Kendall correlation coefficient between Total Consistency of English Roots and items on Consistency of English Roots sub-test – year 9 (Lenient Criterion)**

	<b>strong/strength</b>	<b>long/length</b>	<b>magic/ian</b>
Total Consistency of English Roots (Lenient Criterion)	.48	.47	.24
	.003	.005	.164

Spearman Brown’s split-half reliability for the consistency test using the lenient criterion was .71 for the 12-year-olds. .71 is an acceptable level of reliability (Mehrens & Lemann, 1978). From the 11 pairs of words, 4 pairs were significant for the 12-year-olds.

The maximum possible score for the 12-year-olds was 4 and the mean score was 2.6 (SD 1.3), and the scores ranged between 0 and 4. A comparison of the means between the two age groups showed that scores using the strict criterion increased by school year.

The measures used in the pilot study to assess the child’s ability to spell in English were found to be effective and will be used for the main study with some revisions. The items for the sub-morpheme test will be revised to include only items which contain the ‘-ed’ past tense end morpheme, the ‘wh-’ interrogative beginning morpheme, the ‘ian’ noun-forming end morpheme and the ‘-ness’ noun-forming end morpheme. As these correlated significantly on the item total correlational analysis conducted on the data obtained in the pilot study.

The phoneme sub-test was regarded as a good measure to assess the child's ability to spell words that have a one-to-one sound – spelling correspondence. Some words on the test that were regarded as difficult for the 7 and 8-year olds will not be used in the main study, for example, words like 'except'.

### **3.9.2 Malay Measures**

#### *Malay Spelling Test*

(i) Morpheme sub-test

The morpheme sub-test consisted of words in the following categories:

- (a) The prefix 'ber' + consonant where the letter 'r' is not pronounced in spoken Malay. The prefix 'ber' + vowel where the letter 'r' is pronounced and 'be' words where 'be' is part of the stem.
- (b) The prefix 'meng + g' where the double letter 'g' occurs in words that begin with 'g'.
- (c) The suffix 'kan' where the double letter 'k' occurs when the root word ends with the letter 'k'.

Spearman Brown's split-half reliability for the test was .71 for the 9-year old age group. This is an acceptable level of reliability (Mehrens & Lehmann, 1978). Since the pilot study showed that the 9-year olds are a more optimal group, this study will concentrate on 7, 8 and 9-year olds in the main study of this research. The distribution scores for this task for the 9-year olds is shown in Figure 3.9.

The maximum possible score was 7, the mean score was 4.1 (SD 2.77) and the scores ranged between 0 and 7.

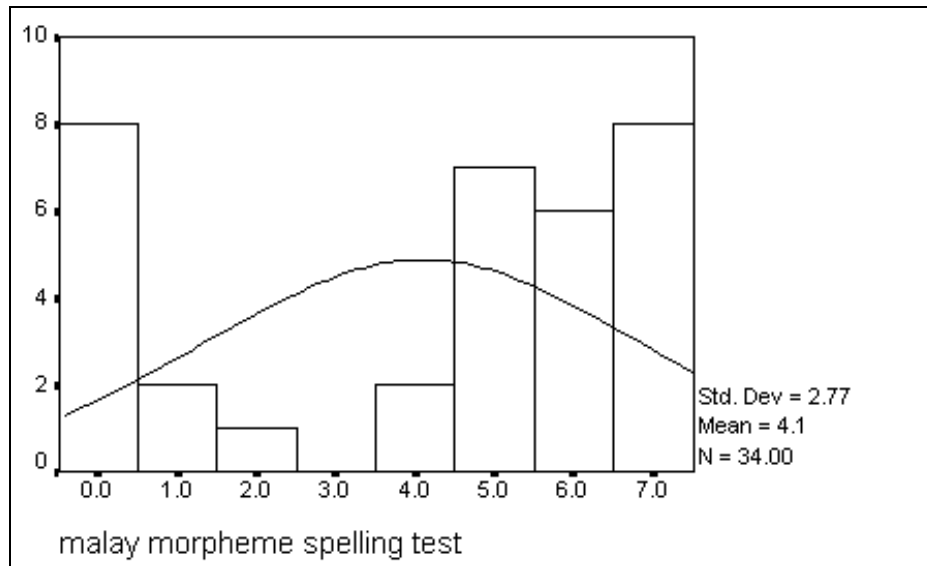


Figure 3.9: Malay Morpheme Spelling Test

Spearman Brown's split-half reliability for the test was .82 for the 12-year old age group. The scores were approximately normally distributed. The maximum possible score was 7. The mean score was 2.87 (SD .34). The maximum possible score was 3 and the scores ranged between 2 and 3.

Each word was scored for accuracy; a score of 1 was given to the correct spelling of the morpheme for each word and a score of 0 was given to incorrect spellings. A total score was obtained. An item total correlation was obtained between the scores of each subject for every item in the sub-test against the total scores obtained by each subject for the morpheme sub-test. Kendall's tau-b and Spearman rho correlation coefficient were used to establish significance of the items on the tests. The items with poor correlation were deleted from the test.

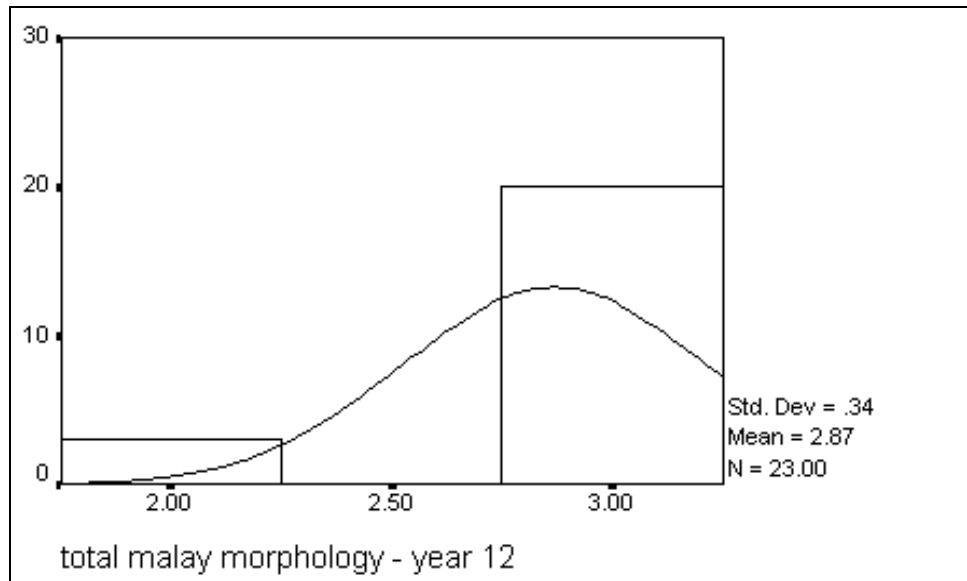


Figure 3.10: Total Malay Morphology – Year 12

#### Phoneme sub-test

The phoneme sub-test consisted of words in the following categories:

- (a) words that had 'be' as part of the stem
- (b) words that had 'ber' + vowel where the letter 'r' is pronounced in spoken Malay.  
The prefix 'ber' morpheme is used to form intransitive verbs.
- (c) words that had 'r' + suffix where the letter 'r' is pronounced. The suffixes commonly used for these kind of words are 'kan' and 'an', where 'kan' is used to form intransitive verbs and the suffix 'an' is used to form nouns.
- (d) regular words
- (e) the letter 'g' in prefix 'meng' and the letter 'k' in suffix 'kan'. Both these affixes have a constant letter-sound correspondence. These affixes are used to form transitive verbs.



Spearman Brown split-half reliability for the test was .88 for the 9-year olds. This is an acceptable level of reliability (Mehrens & Lehmann, 1978). Out of a total of 20 items, 11 were significant. The distribution of scores for the phoneme sub-test for the 9-year olds is shown in Figure 3.11.

The mean score for the 9-year olds was 9.7 (SD 1.73) and the scores range between 5 and 11.

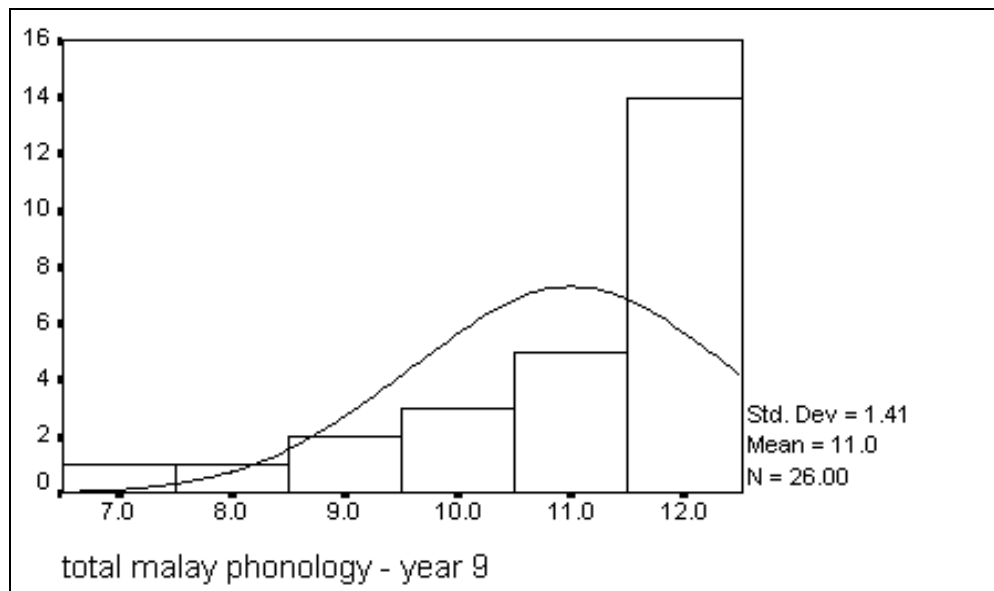


Figure 3.11: Total Malay Phonology – Year 9

Spearman Brown split half reliability coefficient was only .31 for the 12-year olds. The reliability scores for the phoneme test for the 12-year-olds were very low. The item-total correlation was not significant in all but four items on the test. This is because there was a ceiling effect on the items. The pilot study showed that the test would be more suitable for 7, 8 and 9-year-olds. The sample for the main study will concentrate on these age groups. The mean scores for the 12-year-olds was 3.8 (SD .44) and the scores ranged between 3 and 4. The maximum possible score was 4.

**Table 3.8 : Kendall correlation coefficient between Total Malay Phonological Spelling and items on the sub-phoneme test - year 9**

	<b>menghijaukan</b>	<b>menceritakan</b>	<b>mengingat(g)</b>
Total Malay Phonological Spelling	.73	.46	.35
	.0001	.010	.053

	<b>ikan (reg)</b>	<b>membesarkan</b>	<b>pasaran</b>	<b>menghijaukan</b>
Total Malay Phonological Spelling	.35	.44	.29	.73
	.054	.014	.100	.0001

	<b>pelajaran</b>	<b>menggunakan (k)</b>	<b>mengucapkan</b>	<b>tidak (reg)</b>
Total Malay Phonological Spelling	.38	.21	.35	.32
	.054	.245	.054	.075

**Table 3.9 : Kendall correlation coefficient between Total Malay Phonological Spelling and items on the sub-test – year 12**

	<b>mengangkat</b>	<b>berikut</b>	<b>menghijaukan</b>	<b>tidak</b>
Total Malay Phonological Spelling	.36	.53	.53	.36
	.075	.010	.010	.075

Some items were retained in the test even when they had insignificant item-total correlations. This was so that there was an increase in reliability.

(iii) Sentence Completion Task of Malay Non-Words

The sentence completion task of non-words was designed to see if the child could generate non-words using the correct grammatical morpheme. The elicited grammatical morphemes fell into the following categories : the 'ber' prefix where 'r' is pronounced ('ber' + stem beginning with a vowel) and where 'r' is not pronounced ('ber' + stem beginning with consonants). The second category tested pseudowords that have double letters when a prefix or suffix is added.

Spearman-Brown's split-half reliability for the test was .72 for the 9-year-olds. This is an acceptable level of reliability (Mehrens & Lehmann, 1978). The distribution of scores on this task for the 9-year-olds is shown in Figure 3.12. The maximum possible score was 8. This means score was 2.4 (SD 1.53) and the scores ranged between 0 and 7.

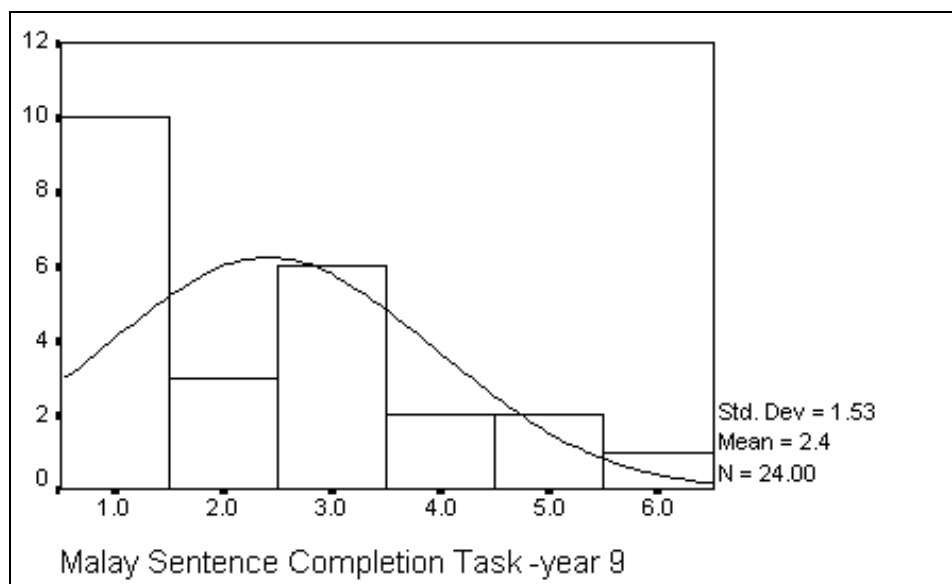


Figure 3.12: Malay Sentence Completion Task – Year 9

Each pseudo word was scored for accuracy; a score of 1 was given if the child managed to produce the correct affix, a score of 0 was given to incorrect spellings and incorrect forms of the affix. A total score was obtained.

An item-total correlation was obtained between each item and the total score. Only the significant items were included in the test. See Table 3.10.

**Table 3.10 : Kendall correlation coefficient between Total Sentence Completion Task scores and items of the Sentence Completion Task – 9-year-olds**

	<b>4</b>	<b>7</b>	<b>10</b>	<b>11</b>	<b>13</b>	<b>15</b>	<b>16</b>
Total Sentence Completion Task of Malay Non-Words	.54	.46	.26	.46	.37	.66	.65
	.002	.010	.143	.010	.039	.0001	.0001

Spearman Brown’s split-half reliability for the test was .83 for the 12-year-olds. This is an acceptable level of reliability (Mehrens & Lehmann, 1978). The maximum possible score for the 12 year-olds, was 5.1 (SD 3.3) and the scores ranged between 0 and 10.

**Table 3.11 : Kendall correlation coefficient between Total Sentence Completion Task Scores and items on the Sentence Completion Task – year 12**

	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>13</b>	<b>15</b>	<b>16</b>
Sentence Completion Task of Malay Non-Words	.38	.63	.41	.30	.20	.42	.53	.52	.63	.52	.53	.44
	.042	.0021	.030	.113	.026	.026	.004	.005	.001	.005	.004	.018

It was found that The Sentence Completion Task of Malay non-words was too difficult for the 9-year-olds. For the main study, this task will be administered in oral form. The children will be asked to produce nonsense words with real affixes after the root word

(a pseudoword) is given to them in context. This will be a better way to test a child's awareness of morphology rather than administering the task in writing.

### *Morphological Awareness Task*

#### (i) Malay Word Analogy Task

In this task, the children were required to carry out transformations from noun to adjective, verb to noun, and verb to infinitive form.

Spearman Brown's split-half reliability for the test was .74 for the 9-year-old subjects. This is an acceptable level of reliability (Mehren's & Lemann, 1978). The distribution of scores on this task for the 9-year-olds is shown in Figure 3.13. The scores were approximately normally distributed. The maximum possible score was 3. The mean score was 1.0 (SD .94) and the score ranged between 0 and 3.

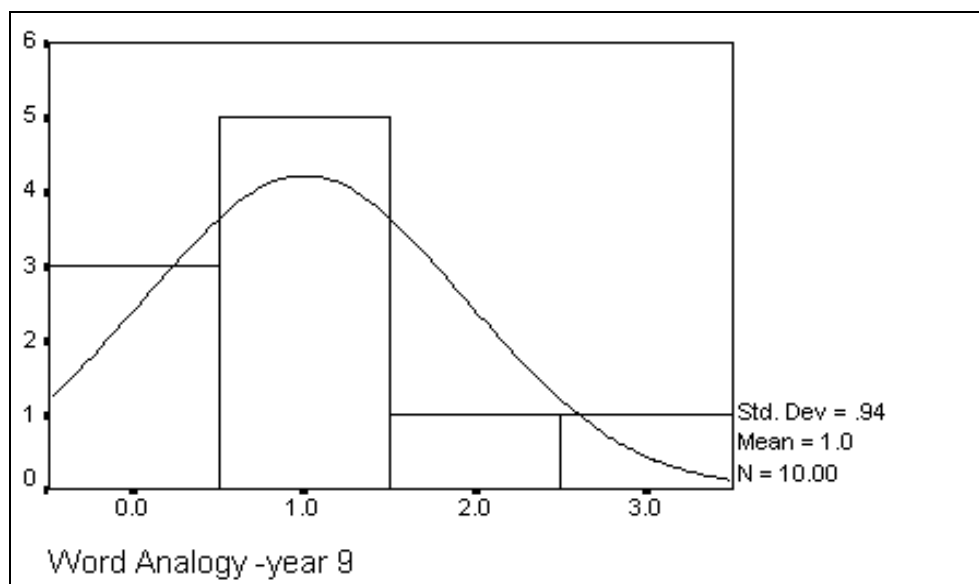


Figure 3.13: Word Analogy – Year 9

In the Word Analogy task, each correct grammatical form was given a score of 1 and all incorrect forms were given the score of 0. A total score was obtained. Items that did

not show a significant correlation coefficient on the item-total correlation analysis were deleted (see Table 3.12). Out of a total of 8 items, 3 were included in the test for 9-year-olds.

**Table 3.12 : Kendall correlation coefficient between Total Malay Word Analogy scores and items of the Malay Word Analogy Task – year 9**

	<b>3</b>	<b>4</b>	<b>7</b>
Total Malay Word Analogy Task	.33	.58	.54
	.278	.058	.077

The items that were not significant, were retained in the test, as without these items the reliability could not be carried out.

Spearman Brown split-half reliability for the test was .62 for the 12-year-old subjects. This is an acceptable level of reliability (Mehren & Lehmann, 1978).

The distribution of scores for the 12-year-olds is shown in Figure 3.14. The scores were approximately normally distributed. The mean score was 3.0 (SD 1.05) and the score ranged between 1 and 4. The maximum possible score was 4.

**Table 3.13 : Kendall correlation coefficient between Total Malay Word Analogy scores and items of the Malay Word Analogy Task – year 12**

	<b>3</b>	<b>4</b>	<b>6</b>	<b>8</b>
Total Malay Word Analogy	.69	.33	.54	.42
	.025	.111	.111	.175

The item total correlations for the word analogy task for the 12-year-olds were not significant but the items were retained as without them there would be too few items to calculate the reliability scores.

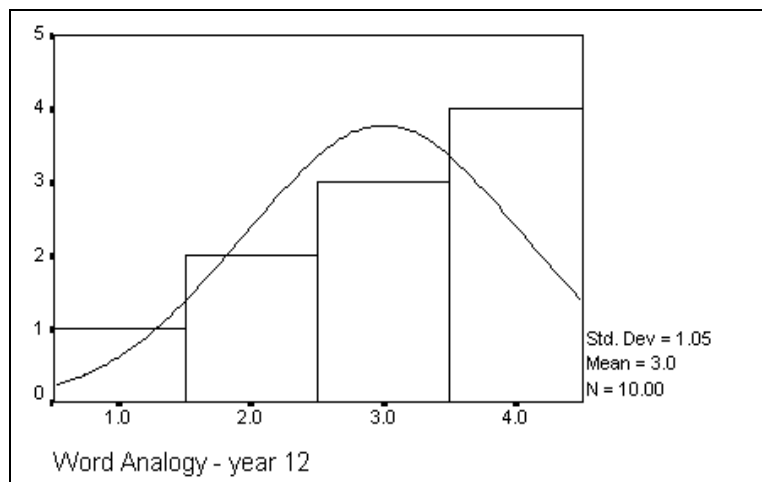


Figure 3.14: Word Analogy – Year 12

(ii) *Malay Sentence Analogy Scores*

In this task, the target words were embedded in a sentence. The transformations involved tenses, i.e. from present to past, present to present continuous, past to past perfect tense and past perfect to present continuous tense.

Spearman Brown's split-half reliability for the task was .72 for the 9-year-olds. The distribution scores on this task for the 9-year-olds is shown in Figure 3.15.

The scores were approximately normally distributed. The maximum possible score was 4. The mean score was 1.6 (SD 1.65) and the scores ranged between 0 and 4.

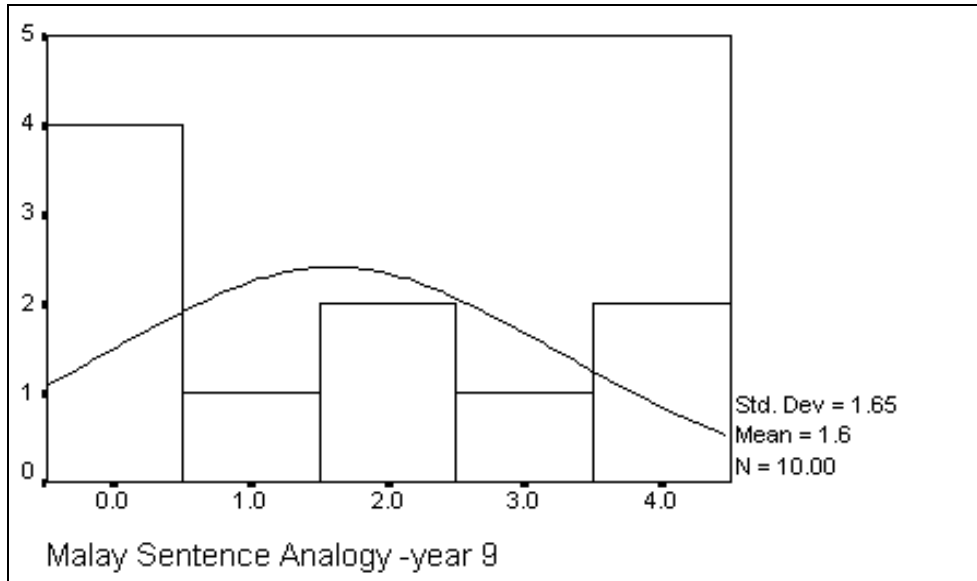


Figure 3.15: Malay Sentence Analogy – Year 9

Each correct transformation was given a score of 1 and all incorrect transformations were given a score of 0. A total score was obtained. An item-total correlation was used to establish significance for each item using Kendall's tau-b and Spearman rho correlation coefficients. Only the significant items were included in the test. See Table 3.14. Out of the 8 items, 4 were included for the 9-year-olds.

**Table 3.14 : Kendall correlation coefficient between Total Malay Sentence Analogy scores and items of the Sentence Analogy Task – Year 9**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>7</b>
Total Malay Sentence Analogy	.66	.57	.57	.81
	.028	.061	.060	.007

Spearman Brown's split-half reliability for the task was .80 for the 12-year-olds. The distribution scores for the 12-year-olds is shown in Figure 3.16. The scores were normally distributed. The maximum possible score was 4. The mean score was 3.1 (SD 1.29) and the scores ranged between 0 and 4.



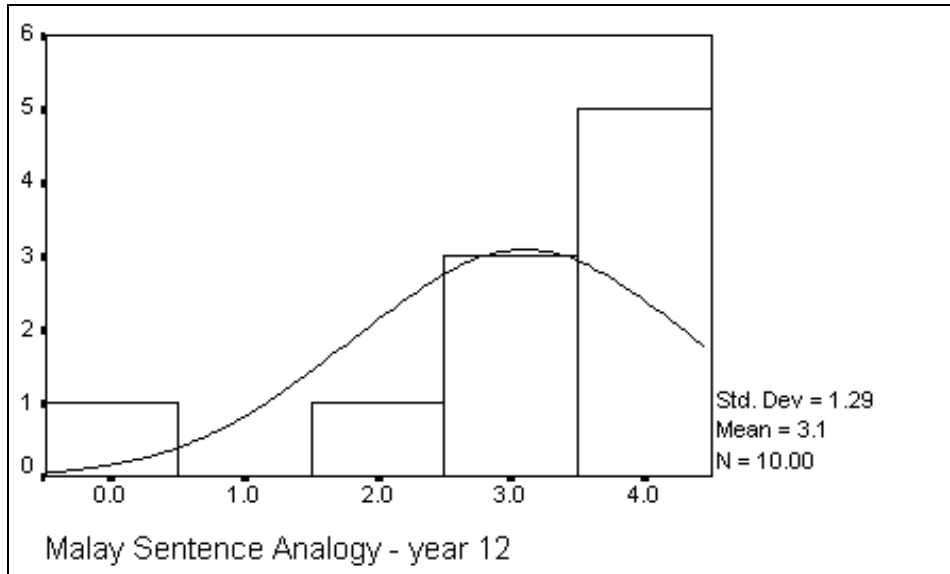


Figure 3.16: Malay Sentence Analogy – Year 12

For the 12-year-olds, 4 items out of 8 items were included in the test.

**Table 3.15 : Kendall correlation coefficient between Total Malay Sentence Analogy scores and items of the Sentence Analogy Task – Year 12**

	<b>2</b>	<b>5</b>	<b>7</b>	<b>8</b>
Total Malay Sentence Analogy	.53	.58	.78	.71
	.090	.064	.008	.024

The descriptive statistics showed that for the 12-year-old children the English morpheme test and the English phoneme sub-test showed a ceiling effect, the Malay phoneme sub-test also had a ceiling effect. This pilot study showed that the 12-year-olds may have been too old for the tasks. For the main study, the sample will be taken from 7-year-olds, 8-year-olds and 9-year-olds.

To examine the hypothesis that morphological awareness tasks facilitate the spelling of morphemes in that first language, correlations were conducted between morphological awareness tests and Malay morpheme spelling and Malay sentence completion task.

The English morpheme spelling task showed that the interrogative words and noun forming words had significant correlations for the 9-year-olds. The –ed past tense verb correlation was not significant for 9-year-olds. For the main study, the morpheme spelling test will include the wh-words, the –ness words, the ‘ian’ and the –ed words as it is expected that the –ed past words will be difficult for children in years 1, 2 and 3.

The main study will also include measures to test phonological awareness. The main spelling test will therefore include words that were phonologically regular.

The items on the Malay morpheme sub-test were revised to include the silent ‘h’ in words like ‘mahkota’. This was to include another category of silent letters.

The Sentence completion task was found to be too difficult for the 9-year-olds with only 5 out of 16 items having significant item-total correlation. For the main study, this task will be an oral productive morphology test, where children will be given a non-word in the first sentence and from the context will be asked to produce the correct form of the word in the second sentence. While in the pilot study this was a written task, in the main study this will be an oral task. This was done to reduce the level of difficulty of the task.

Items 1 and 2 in the Malay word analogy were revised to include more difficult items.

The Sentence analogy was found to be too easy for the 9-year-old age group. This task was substituted with the Oral productive morphology task and a word classification task.

### **3.10 Research Questions**

#### *Research Question 1*

Can morphological awareness in the first language facilitate the spelling of morphemes in the first language?

To examine the evidence for this hypothesis, correlations between Malay morphological awareness tasks and Malay morpheme spelling and Sentence completion tasks were analysed. The correlations between morphological awareness tasks help to establish external validity for the Malay morphological awareness tasks. Table 3.16 shows that the Malay sentence completion task correlated significantly with Malay word analogy task ( $p < .01$ ).

The significant correlations between Malay word analogy task and the Malay sentence completion tasks show that morphological awareness is associated with the spelling of morphemes. As the sentence completion tasks required that the children use morphological processing, the question one might ask is: If morphological awareness can facilitate the spelling of morphemes in the first language, can it facilitate the spelling of morphemes in the second language.

#### *Research Question 2*

Can morphological awareness in the L1 facilitate the spelling of morphemes in the L2?

To examine the evidence for this hypothesis, the correlations between performance on Malay morphological awareness tasks and English morpheme spelling tasks were analysed. The correlations are shown in Table 3.17.

Strict consistency of English roots correlated strongly with Malay word analogy task ( $p < .001$ ). Malay word analogy task also correlated with Lenient consistency of English roots ( $p < .01$ ). The correlations show that the Malay word analogy task is associated with the spelling of English roots. This indicates that transfer is taking place across the two languages. This would mean that learners were using Malay MA to help them spell English morphemes correctly. This is a new finding as previous studies have not shown such a relationship between Malay MA and English Spelling.

**Table 3.16 : Correlations between Malay morphological awareness tasks and Malay spelling of morphemes**

	1	2	3	4
M				
1. Sentence Analogy	1			
M				
2. Word Analogy	.4335 P = .05	1		
M				
3. Sentence Completion Task	.5245 p = .03	.6815 ** p < .01	1	
M				
4. Morpheme Spelling	-.6377 p = .004	-.4743 p = .05	-.5034 p = .001	1

\*\* p < .01

**Table 3.17 : A correlation between Malay morphological awareness measures and English spelling of morphemes**

	1	2	3	4	5
M					
1. Sentence Analogy	1				
M					
2. Word Analogy	.4335 P = .05	1			
E					
3. Morpheme Spelling	-.0299 p = .912	.2212 p = .41	1		
E					
4. Spelling Strict Consistency	.2653 p = .34	.8008 *** p < .001	.3801 ** p < .01	1	
E					
5. Spelling Lenient Consistency	.4840 p = .06	.7378 p < .01	-.0212 p = .89	.4080 p < .01	1

\*\* p < .01, \*\*\* p < .001

### 3.11 Summary

This chapter described the research design and methodology of the pilot study followed by the results of the pilot study. The chapter introduced the pilot study and introduced the research question developed for the pilot study. The participants, procedure and improvements of the pilot study were described. The results of the pilot study have provided the descriptive statistics and reliability indices. The findings of the pilot study provided evidence that there was transfer from the L1 to the L1 and from the L1 to the L2.

## CHAPTER 4

### RESEARCH DESIGN AND METHODOLOGY OF THE MAIN STUDY

#### 4.0 Introduction

This chapter will discuss the research design and methodology of the main study. The main study is divided into three parts: the quantitative study I, the quantitative study II and the quantitative study III. The research design and methodology discussed in this chapter is the same for all the studies. The aim of the studies is described. The research questions, sub questions and method of the studies are presented in tabulated form. The research design, participants, schools, research tools, data analysis procedure are described. This is followed by the procedure of tasks used in the main study. Finally, the control measures used in the study are described.

#### 4.1 Research Questions, Sub Questions and Method

The main study was divided into three parts: the quantitative study I, II and III. The purpose of the quantitative study I was to answer research question (RQ) 1:

RQ1: Do young Malay second language learners transfer phonological and morphological awareness from the L1 to their L2?

The aim of the quantitative study I was to investigate if there is transfer of phonological and morphological awareness from the L1 to the L2. The L1 in this study was the Malay language and the L2 was the English language. The sample included children who were native speakers of Malay (children whose L1 was Malay) and had acquired some level of English language literacy (spoke English) before entering school at the age of seven.

**Table: 4.1 Research Questions and Method of the Quantitative Study I**

Research Questions	Method
RQ1:	
Do young Malay second language learners transfer phonological & morphological awareness from their L1 to their L2?	i) By examining the relationship between Malay phonological awareness tasks and English Spelling Tests scored for accuracy, this study will determine if there is transfer between L1 and L2. Correlations, Partial Correlations and Multiple Regression will be used to determine if transfer takes place.
	ii) By examining the relationship between Malay morphological awareness tasks and English Spelling Tests scored for accuracy, this study will determine if there is transfer between L1 and L2. Correlations, Partial Correlations and Multiple Regression will be used to determine if transfer takes place.
	iii) By examining the relationship between English phonological awareness tasks and English Spelling Tests scored for accuracy, this study will determine if there is transfer between L2 and L2. Correlations, Partial Correlations and Multiple Regression will be used to determine if transfer takes place.
	iv) By examining the relationship between English morphological awareness tasks and English Spelling Tests scored for accuracy, this study will determine if there is transfer between L2 to L2. Correlations, Partial Correlations and Multiple Regression will be used to determine if transfer takes place.

The purpose of the quantitative study II and III was to answer research question 2 and 3:

Research Question 2

Does phonological awareness facilitate phonological spelling in both the L1 and the L2?

Research Question 3

Does morphological awareness facilitate morphological spelling in both the L1 and the L2?

The aim of the quantitative study II and III was to investigate if there was positive transfer of phonological and morphological awareness both within and across languages. The two

languages involved in the study were Malay and English. The sample included children who were native speakers of Malay and had acquired some level of English language literacy before entering school at the age of seven.

**Table: 4.2 Research Questions, Sub Questions and Method of the Quantitative Study II and III**

Research Questions	Sub Questions	Method
RQ2:		
Does phonological awareness facilitate phonological spelling in both the L1 and the L2?	Can phonological awareness in the L1 facilitate phonological spelling in the L1?	By examining the relationship between Malay phonological awareness tasks and Malay phoneme spelling tests, this study will determine if there is transfer between phonological awareness in the first language and spelling of phonemes in the same language. A positive correlation between the awareness task and the spelling tests will indicate that transfer does take place.
	Can phonological awareness in the L1 facilitate phonological spelling in the L2?	By examining the relationship between Malay phonological awareness tasks and English phoneme spelling test, this study will determine if there is transfer between phonological awareness in the first language and spelling of phonemes in the second language. A positive correlation between the awareness tasks and the spelling test will predict that transfer does occur.



Research Questions	Sub Questions	Method
RQ3:		
Does morphological awareness facilitate morphological spelling in both the L1 and the L2?	<p>A) Can morphological awareness in the L1 facilitate the spelling of morphemes in the L1?</p> <p>B) Can morphological awareness in the L1 facilitate the spelling of morphemes in the L2?</p> <p>C) Can morphological awareness in the L2 facilitate the spelling of morphemes in the L1?</p> <p>D) Can the spelling of morphemes in the L1 facilitate the spelling of morphemes in the L2?</p>	<p>Ai) By examining the relationship between Malay morphological awareness tasks and Malay morpheme spelling tests, this study will determine if there is transfer between morphological awareness in the first language and spelling of morphemes in the same language. A positive correlation between the awareness task and the spelling test will indicate that transfer does take place.</p> <p>Bi) By examining the relationship between Malay morphological awareness tasks and English morpheme spelling tests, this study will determine if there is transfer between morphological awareness in the first language and the spelling of morphemes in the second language. A positive correlation between the awareness tasks and the spelling test will predict that transfer does occur.</p> <p>Ci) By examining the correlations between English morphological awareness tasks and Malay morpheme spelling test, this study will determine if there is transfer between morphological awareness in the second language and the spelling of morphemes in the first language. A positive correlation between the awareness tasks and the spelling test will predict that transfer does occur.</p> <p>Di) By examining the correlations between the performance on tests of morphological spelling in Malay and English by a group of Malay children learning English as a second language. A correlation between performance on the first and second language would suggest a transfer of linguistic knowledge between the languages.</p>

The steps in the research are carried out as shown in Figure 4.1

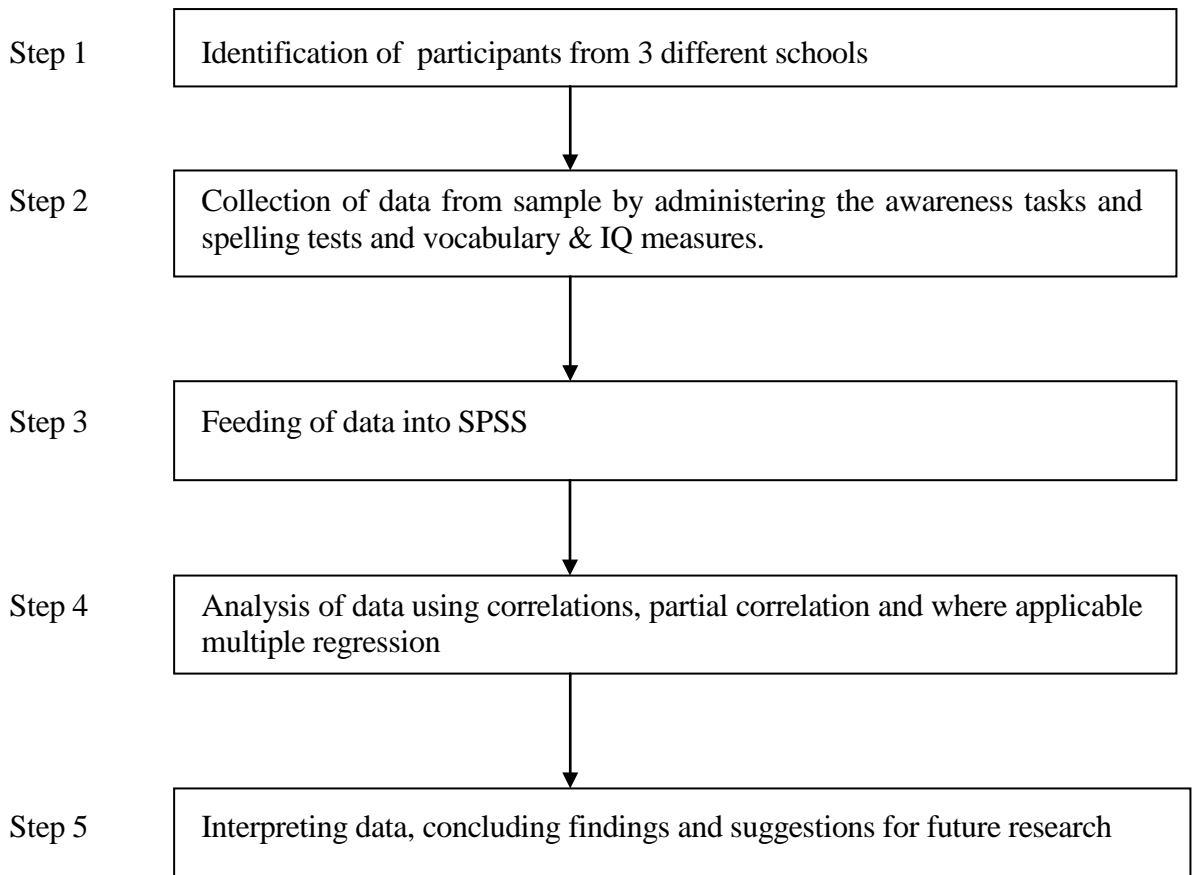


Figure 4.1: Steps in Research for the Quantitative Studies

## 4.2 Research Design

Research designs are plans and procedures for research (Creswell, 2009). Research design refers to “the outline, plan or strategy specifying the procedure to be used in seeking an answer to the research question” (Christensen, 2007:299). As such the data collected for the study consisted of responses and scores of a series of spelling tests and awareness tasks. In addition to this, data was also collected from children’s responses to four measures of the WISC-R and the British Picture Vocabulary Scale.

### **4.3 The Participants**

The section on participants will provide information on the selection and number of participants. The participants were selected using the quota sampling method. Quota sampling as defined by Sapsford and Jupp (1998) is the most widely used method of non-probability sampling. Using this method the researchers “simply set out to find individuals who fit the required quota criteria. They continue doing this until they have filled their quota” (Sapsford & Jupp, 1998:36).

The required quota criteria for selection of respondents for this study were as follows:

Children had to be from age 7 – 9 years. They had to have Malay as their L1 and English as their L2. Children should have had some knowledge of English before they entered school at the age of seven.

The respondents were selected across a number of classes in the same Year or Standard. The respondents were not all from the same class. The teachers were then asked to select students who fit the criteria. The better students or more proficient students were selected.

Only two schools were included in the quantitative analysis for study I, Year 1 and Year 2. The nine-year olds in Year 3, were left out of the quantitative analysis for study I as they had obtained very low scores on the English vocabulary task and thus were not expected to provide reliable results for the quantitative study I (refer to Section 1.3.2).

Altogether 100 children participated in the quantitative study I, of which 50 children came from Year 1 (seven-year-olds) and 50 from Year 2 (eight-year-olds). The children came from national schools in Kuala Lumpur, a large city in Malaysia. The children were tested at the end of the school year in both cases. This means that the Year 1 children would have had six months of formal learning of the English language and the Year 2 children would have had one year and six months of formal learning. English as a subject is only taught in schools six months after the child begins Year 1. The Malay language was their L1 and the English language was their L2.

For the quantitative study II and III, all three schools were included (see section 4.4). The participants were the 100 children used in the quantitative study I as well as 52 children from Year 3, i.e. the nine-year-olds (After the collection of data it was discovered that there was an additional 2 children in the Year 3 cohort. It was decided to include these 2 children in the analysis). The children were in their first, second and third year of primary education. They were between the ages of seven and nine. A total of 152 children participated in the quantitative study II and III.

The children in all the quantitative studies were native-speakers of Malay who were learning English as a second language. The children were sampled from these age groups because a pilot study was conducted on nine-year-old and twelve-year-old children. It was found that the twelve-year-old age group showed ceiling levels in two tasks (see section 1.3.2).

#### **4.4 The Schools**

The group of learners who participated in this study were from urban primary national schools in Malaysia. The choice to include urban children and not rural children in the study was because rural children may not have the command of English necessary to complete the tasks required. Three different schools were included in the study – SRK Wangsa Maju (50 seven-year-old children participated in the quantitative studies I, II and III), SRK Bukit Bandaraya (50 eight-year-old children participated in the quantitative studies I, II and III) and SRK Jalan Selangor (52 nine-year-old children participated in only the quantitative study II and III). Two of the schools, SRK Wangsa Maju and SRK Bukit Bandaraya were located in Kuala Lumpur and one school SRK Jalan Selangor was located in Petaling Jaya, a suburb of Kuala Lumpur.

The children were from the average to higher income homes. This was because the children involved in this study needed to speak some English before starting school. In the urban areas children from average to higher income homes have a higher probability of being exposed to English through the media, home environment and interactions outside the home. The personal records of pupils about their family background enabled the researcher to ascertain that the pupils had some exposure to English before they entered school that is, they were able to speak English before they entered school. This information was obtained from the schools.

In the administration of the WISC-R, details of the child's birthday date and the date of testing, name, gender and parent's occupation were recorded.

#### **4.5 The Research Tools**

Research Tools will provide information about the actual survey instruments to be used (Creswell, 2009). In order to collect the data required, the researcher administered 4 spelling tests and 11 awareness tasks to the children from three different schools (as already introduced).

The researcher also administered three measures of the *Wechsler Intelligence Scale for Children (WISC-R)* to control for IQ (similarities, digit span and coding) and one measure on the WISC-R to control for Malay vocabulary and the *British Picture Vocabulary Scale* to control for English vocabulary. These measures were taken to ensure that the children did not vary too greatly with regard to these variables.

#### **4.6 Data Analysis Procedure**

The data collected were computed and analysed using the Statistical Package for the Social Sciences (SPSS) for Windows version 16.0.

For the quantitative study I, a score was obtained from the total number of correct items on the spelling tests and the awareness tasks. These were then subjected to three statistical procedures – correlation, partial correlations and hierarchical multiple regression.

For the quantitative study II and III a total score based on the presence or absence of the target morpheme or phoneme on the spelling tests as well as total scores from the awareness tasks were obtained. These were then subjected to two statistical procedures - correlation and partial correlations.

#### **4.6.1 Correlation**

Correlation analysis was used to describe the strength and direction of the linear relationship between two variables. “If a high value on one variable is associated with a high value on another, they are said to be positively correlated” (Sapsford and Jupp, 1998:253). To carry out the analysis Pearson Product moment Correlation and Spearman rho were used for the parametric and non-parametric statistics respectively.

#### **4.6.2 Partial Correlation**

Partial Correlation was used to explore the relationship between two variables, while controlling for another variable.

#### **4.6.3 Multiple Regression**

Multiple regression was used to explore the relationship between one continuous dependent variable and a number of independent variables or predictors. Multiple regression can give us information “about the relationship between two variables in order to estimate or predict the behavior of one variable from the other” (Sapsford and Jupp, 1998:254).

Below the procedure for the various tasks used in the study are described.

#### **4.7 Procedure of Tasks used in the Main Study**

The sample was obtained by giving 7, 8, and 9-year old Malay children the following tasks:

## **English Language Tasks**

### A. Spelling Tasks

- (i) Morpheme Sub-Tests - these tasks were based on tests designed by Nunes, Bryant & Bindman (1997).
- (ii) Phoneme Sub-Test
- (iii) Consistency of stems of English roots (strict or lenient)

### B. Phonological Awareness Tasks

- (i) English Swapping of Phonemes Task
- (ii) Identifying Beginning and End Phonemes
- (iii) Matching Phonemes

### C. Oral Morphological Awareness Tasks

- (i) Word Analogy Tasks
- (ii) Sentence Analogy Task
- (iii) Word Classification Task

### D. The British Picture Vocabulary Scale (BPVS)

## **Malay Language Tasks**

### A. Spelling Tasks

- (i) Morpheme Sub-Test
- (ii) Phoneme Sub-Test

### B. Phonological Awareness Tasks



- (i) Malay Swapping of Phonemes Task
  - (ii) Identifying Beginning and End Phonemes
- C. Oral Malay Morphological Awareness Tasks
- (i) Word Analogy Task
  - (ii) Word Classification Task
  - (iii) Productive Morphology Task / Sentence Completion Task of Malay Non Words
- D. Wechsler Intelligence Scale for Children. Revised Version

#### **4.8 General Testing Procedure**

The researcher visited three urban schools in Petaling Jaya and Kuala Lumpur (see section 4.3). The researcher met the Head Teacher and the class teacher of the classes involved in the study. The researcher negotiated suitable times to conduct the spelling test as well as arrangements to interview each pupil for 20 minutes for the awareness tasks and 15 minutes for the WISC-R and Picture Vocabulary Tests. The researcher met with the individual class teachers so that instructions on how the spelling tests were to be administered could be discussed.

The individual class teacher administered the spelling tasks while the researcher was available to answer any questions the pupils or teacher might have. This was to ensure that the normal study schedule conducted by the class teacher was not disrupted. Arrangements were also made to take individual pupils out of their normal class hours for a period of 35 minutes. The researcher tried to interview a maximum of 15 pupils per day over a period of 4 to 5 weeks.

The researcher advised each teacher that the tests required that the teacher read the sentences with the kind of pronunciation that they would use for normal everyday speech. The pupils were also advised that they should not copy from each other.

#### 4.9 English Language Tasks

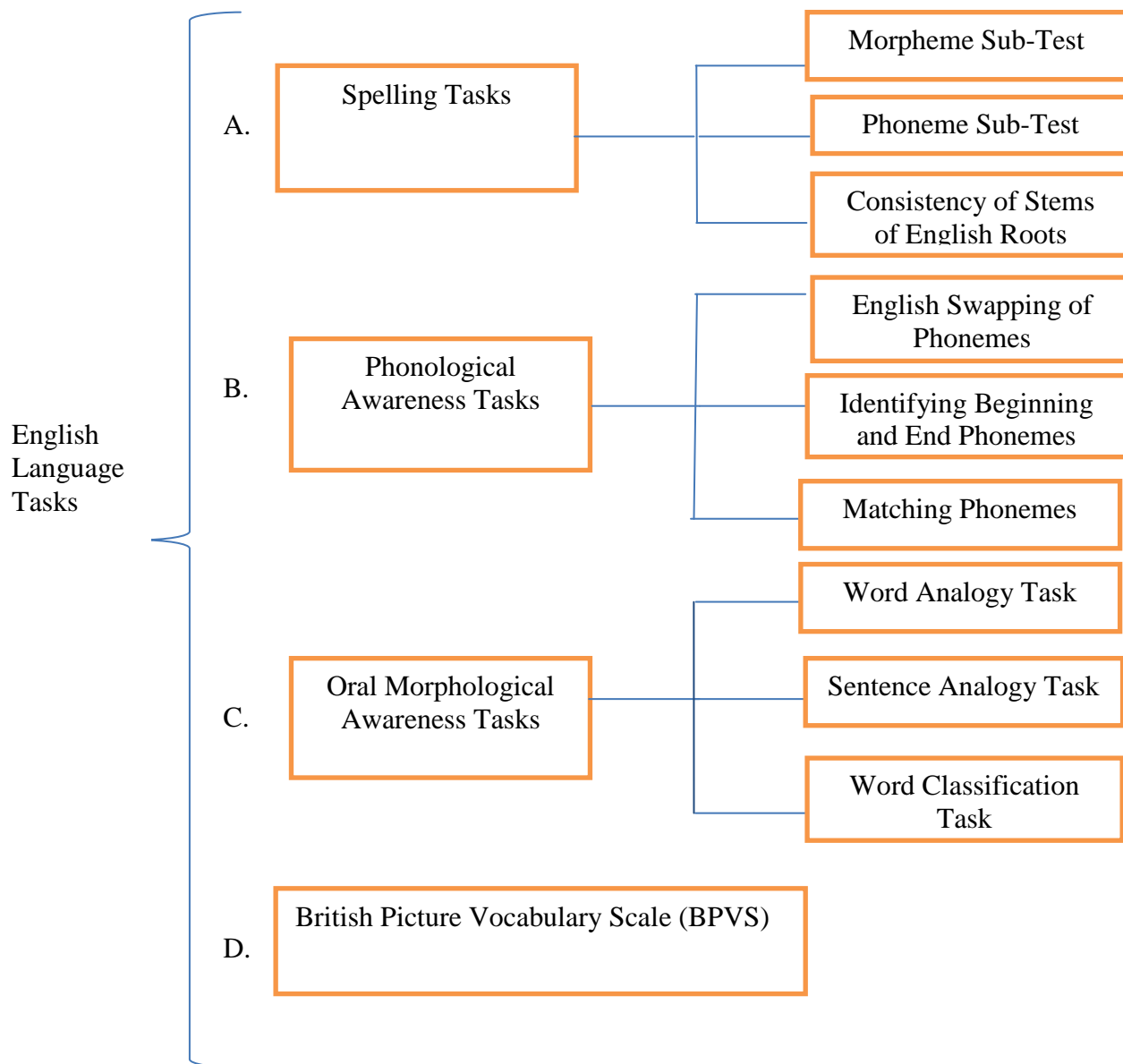


Figure 4.2: Overview of the English Language Tasks

## A. Spelling Tasks

### (i) English Morpheme sub-test (Appendix A)

#### **Rationale and Design**

The English spelling test used in this study was designed by Nunes, Bryant and Bindman (1997). The task was designed to test children's ability to spell words that departed from the phonetic spelling of the word and followed a morphological structure.

The children were asked to spell a total of 33 words from a 66 words spelling test because only those 33 words targeted morphemes. The words contained in the test fell into different categories, which were chosen so that the child would not be able to spell the words using phonological awareness alone. The child would need to make use of some morphological processing in order to spell the word correctly. The morpheme sub-test consisted of words that contained:

- (a) the '-ed' past tense end morpheme, for example, words like 'laughed' and 'killed'
- (b) the 'wh-' interrogative beginning morpheme, for example, words like 'where' and 'which'
- (c) the 'ian' noun-forming end morpheme, for example, words like 'magician'
- (d) the '-ness' noun – forming end morpheme, for example, 'specialness' and 'naughtiness'
- (e) silent letters for example, words like 'iron' and 'half'.

#### **Procedure**

Each sentence containing the target word was spoken using a pronunciation used in normal everyday speech. This was to ensure that the speaker should not distort the normal pronunciation of the words. The children were told that they would hear a word followed

by a sentence containing the word. Then they will hear the word again. The children were then told that they will have to write down the words on the paper provided. The test is part of the main spelling test which was divided into two sessions. Session 1 contained a total of 40 words and Session 2 contained a total of 26 words. (See Appendix A)

(ii) English Phoneme Sub-Test (Appendix A)

### **Rationale and Design**

The phoneme sub-test is part of the main spelling test administered to the children. The phoneme sub-test consisted of words that ended with the letter 'd' or 't', for example, words like 'bird' or 'left'. Stems that can be spelled using a phonological route like 'open' and 'soft' and vowels in words like 'meaty' and 'worm'.

The children were asked to spell a total of 26 words.

### **Procedure**

Refer to section 3.7A (ii).

(iii) Consistency of English Roots (Appendix A)

### **Rationale and Design**

The consistency of English roots sub-test is based on the main English spelling test.

In this test the children were given two words that share the same stem for example 'know' and 'knowledge'. Each word in the pair appeared on different tests, which were conducted on two different days with a lapse of a few days in between to ensure that children were not merely memorising the words. A total of 11 pairs of words, which share the same root, were included in these tests.

## **Procedure**

The test was part of the main spelling tests. There were two sessions to the test. The sessions were conducted on different days.

### **B. Oral English Phonological Awareness Tasks**

#### **Swapping Phonemes (Appendix E)**

## **Rationale and Design**

The task was designed to determine if the child had an awareness of phonology in spoken language. It involved the deletion and substitution of phonemes between two words.

In this task, the child had to identify the beginning phoneme of a word and swap the first phoneme of the first word that he hears with the first phoneme of the second word he hears. Two words are given to the child, for example: 'crawl' and 'book'. The child will have to swap the first phoneme in both words. He will then produce the words 'brawl' and 'cook' (See Appendix E). This task consisted of 12 trials.

## **Procedure**

Refer to section 3.9.1.1

### **(ii) Identifying beginning and end phonemes (Appendix F)**

Refer to section 3.9.1.2

(iii) Matching Task (Appendix G)

Refer to 3.9.1.3

B. Oral English Morphological Awareness Tasks

(i) Word Analogy Task (Appendix L)

**Rationale and Design**

The aim of the task was to test the child's explicit awareness of morphology in spoken language. This task involved grammatical transformations between different parts of speech.

In this task the children were required to carry out transformations from nouns to adjectives, verbs to nouns, present verbs to past verbs. The children were asked to produce the correct transformation for 8 words. (See Appendix L )

**Procedure**

The task was presented orally to each child. The researcher began the session by asking the child his name and age and family background, for example, his parent's occupation etc. While this information was important for the study it also helped to put the child at his ease. The child was then told that he will hear one pair of related words for example: *length* (long) > *width* \_\_\_\_\_ Answer : wide. The child is asked to complete the second pair using the correct transformation.

The researcher went over the example with the child. If the child was hesitant the researcher asked questions like: 'In what way are the words different?' Once the child

could produce the correct answer to the transformation the researcher proceeded with the trial items.

(i) Sentence Analogy Task (Appendix M)

**Rationale and Design**

The aim of the task was to test children's awareness of English morphology. This is done by examining how well the children are able to use verbs in their base form as well as verbs with the addition of suffixes.

In this task the target words were embedded in a sentence. The transformations in this case involved tense, i.e. present to past, present continuous to past, past to present. For example:

Ahmad likes Yati	Ahmad liked Yati
Ahmad knows Yati	Ahmad _____ Yati
	(knew)

See Appendix M.

**Procedure**

The researcher introduced the task with an example. The children were asked how they thought the sentences differed. Once the child could produce the correct transformation the researcher proceeded with the trial items.

i) Word Classification Task (Appendix N)

**Rationale and Design**

The aim of the task was to test children's awareness of English morphology. This is done by examining how well children were able to classify words into nouns, verbs and adjectives.

In this task the children were presented with two sets of words. For example, the first set of three words could be nouns, e.g. ‘tree’, ‘school’, ‘chair’. Then the child is presented with a second pair of words, e.g. ‘pen’ and ‘small’. The child is then asked which of the second pair of words could belong to the first set of words. The child recognises that ‘pen’ is also a noun whereas ‘small’ is an adjective. He chooses ‘pen’ (See Appendix N)

### Procedure

The researcher introduces the task with an example. Once the child could classify the words correctly, the researcher proceeded with the trial items.

#### 4.10 Malay Language Tasks

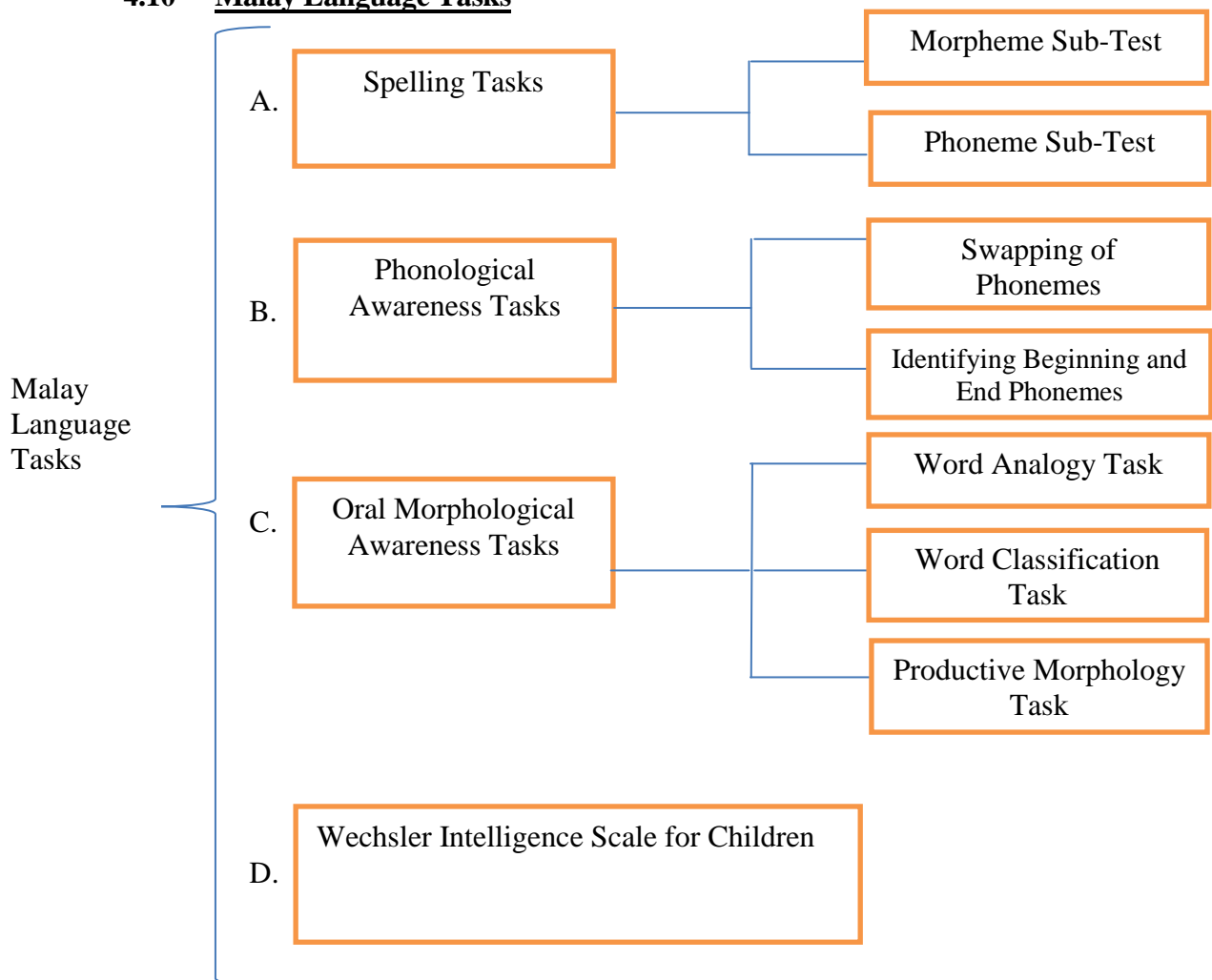


Figure 4.3: Overview of the Malay Language Tasks



A. Spelling Tasks

(i) Malay Morpheme sub-test (Appendix H)

**Rationale and Design**

The spelling test used in this study was adapted based on the English spelling test designed by Nunes, Bryant and Bindman (1997). The tests were designed to test children's ability to spell words that departed from the phonetic spelling of the word and reflected the morphological structure.

The words contained in this test were chosen because they contained different grammatical morphemes. In order to spell these words correctly children would have to draw on an awareness of morphology. The children were asked to spell a total of 32 words. Category 1 tested the prefix 'ber'. Category 2 tested double letters. The morpheme sub-test consisted of words in the following categories:

I.(a) The prefix 'ber' + stem beginning with a consonant where the letter 'r' is not pronounced in spoken Malay. The prefix 'ber' can be added to verbs and nouns. The prefix 'ber', for example, the root word 'jumpa' (meet) becomes 'berjumpa' (to meet). The prefix 'ber' can be a noun-forming prefix as well, for example, the noun 'harta' (wealth) becomes 'berharta' (to possess wealth).

(b) The prefix 'ber' + the stem beginning with a vowel where 'r' is pronounced in spoken Malay. As a verb-forming prefix, the root word 'asal' (origin) becomes 'berasal' (to originate from). 'Ber' can also be a noun-forming prefix for example 'kereta' (car) becomes 'berkereta' (using a car).

c) As a control for the 'ber' prefix, a category of non-verbs with the 'be' + consonant was included to control for overgeneralisation. For example, words like 'beku' (frozen) and 'benar' (real).

II. This category of words includes two types of words with the final 'r' at the end of the stem.

a) 'r' not pronounced (stem ending with 'r'). For example 'pasar'

b) 'r' pronounced (stem ending with 'r' + suffix). For example 'pasaran' (pasar + an)

III. The category of words includes words that have double letters when a prefix or suffix is added.

a) The prefix 'men + g' where the double letter 'g' occurs in words that begin with 'g'.

This is also a verb-forming prefix, which is included in the general class of words, which take on the prefix 'me'. This prefix is used to form transitive verbs in most cases. The prefix takes on many forms, for example, depending on the root that it is attached to, the prefix 'me' is realised as 'me', 'meng', 'mem', 'men', or 'meny'. This study will only look at the prefix 'meng' as this morpheme is spelled with double letters if the root word begins with the 'g' and therefore does not have a one-to-one sound-spelling correspondence. For example, 'menggunakan' (meng + guna + kan) is realised phonetically as /mɔ̃ngguna kan/ and 'menggosokkan' (meng + gosok + kan) is realised phonetically as /mɔ̃ngo:so:ka n/. In the sample writing collected, eight-year old children spell 'menggusokkan' with a single 'g'.

b) The suffix 'kan' where the double letters 'k' occurs when the root word ends with the letter 'k'. The suffix 'kan' appears with the prefix 'me' to form transitive verbs from

other verbs, nouns, adjectives and adverbs, for example 'menaikkan' (me + naik + kan) realised phonetically as /m̄nai kan).

IV. This category includes words without double letters using the same prefix and suffix as a control for category III words. An example is 'menghijaukan' (meng + hijau + kan) realised phonetically as /m̄ng:hi:jaukan/.

V. Words that have a silent 'h' when the letter 'h' appears at the end of a syllable and before a consonant. For example 'mahkota', 'mahkamah'.

### **Procedure**

The whole test was divided into two parts. Session 1 consisted of 35 words and Session 2 consisted of 30 words (see Appendix H).

The morpheme test was a sub-test of the main spelling test. The test items are as follows:

#### Session 1

1. Words with the prefix 'ber' where 'r' is often not pronounced in spoken Malay, i.e. ('ber' + stem beginning with a consonant) (morphological coding):

- berwarna
- berjalan
- bermahkota

2. Words with the prefix 'ber' where 'r' is pronounced in spoken Malay i.e. ('ber' + stem beginning with a vowel) (phonological coding):
  - berahsia
  - beransur-ansur
  - berisi
  
3. 'be' words that are non-verbs or non-nouns (phonological coding):
  - bebas
  - betul
  
4. Words that end with the silent 'r' (morphological coding):
  - tawar
  - mendengar
  
5. Words that end with the 'r' + suffix 'an' (phonological coding):
  - saluran
  - pelajaran
  - pasaran
  - gambaran
  
6. Words that have a regular phonetic spelling (phonological coding):
  - manis
  - tidak
  - kecil

7. Words that have a double letter with the addition of the prefix 'meng' + stem beginning with the 'g' (morphological coding):
- menggunakan
  - menggantikan
  - menggemukkan
  - menggosok
8. Words that have a silent 'h' when the letter 'h' appears at the end of a syllable and before a consonant (morphological coding):
- pahlawan
  - dahsyat
9. Words that have a double letter with the addition of the suffix 'kan' + stem ending with a final 'k' (morphological coding):
- menaikkan
10. Words with the prefix 'meng' and the suffix 'kan' without double letters (phonological coding):
- meningkatkan
  - menceritakan
  - mengucapkan
  - menghijaukan

## Session 1 and 2

1. Words with the prefix 'ber' where 'r' is often not pronounced in spoken Malay i.e.

('ber' + stem beginning with a consonant) (morphological coding):

- bermain
- bersama
- berjumpa
- berkumpul

2. Words with the prefix 'ber' where 'r' is pronounced in spoken Malay i.e. ('ber' +

stem beginning with a vowel) (phonological coding):

- beradik
- berikut
- berasal
- beraneka

3. 'be' words that are non-verbs or non-nouns (phonological coding):

- besar
- beku
- belum

4. Words that end with the silent 'r' (morphological coding):

- pelajar
- pasar
- gambar

5. Words that end with the 'r' + suffix 'an' (phonological coding):
  - tawaran
  - pendengaran
  
6. Words that have a regular phonetic spelling (phonological coding):
  - buku
  - ikan
  
7. Words that have a double letter with the additions of the prefix 'meng' + stem beginning with 'g' (morphological coding):
  - menggambarkan
  - mengghaibkan
  
8. Words that have a silent 'h' when the letter 'h' appears at the end of a syllable and before a consonant (morphological coding):
  - mahkamah
  - mahkota
  
9. Words that have a double letter with the addition of the suffix 'kan' + stem ending with a final 'k' (morphological coding):
  - memperbaiki
  - mendudukkan
  - memasukkan
  - membalikkan
  - menunjukkan

10. Words with the prefix 'meng' and the suffix 'kan' without double letters

(phonological coding):

- menerangkan
- mengangkut
- mengejar

The morpheme test was a sub-test of the main spelling test. Owing to time constraints both sessions were conducted on the same day. A native Malay speaker using a pronunciation used in normal everyday speech dictated the sentences. This is to ensure that the speaker would not distort normal pronunciation of the words. The children were told that they would hear a word, then they will hear a sentence containing the word and then they will hear the word again. The children were then told that they would have to write down the word on the paper provided.

B. Oral Malay Phonological Awareness Task

(i) Swapping of Phonemes (Appendix J)

Refer to section 3.9.2.1

(ii) Identifying beginning and end phonemes (Appendix K)

Refer to section 3.9.2.2



C. Oral Malay Morphological Awareness Task

(i) Word Analogy Task (Appendix O)

The Malay Word Analogy task follows the same principles as the English Word Analogy task described in the previous section. (See Appendix O).

(ii) Word Classification Task (Appendix P)

The Malay Word Classification Task follows the same principles as the English Word Classification Task described in the previous section. (See Appendix P)

(iii) Productive Morphology (Appendix I)

**Rationale and Design**

The pseudoword sentence completion task was used to measure orthographic knowledge of pronounceable 'non-words'. The pseudowords formed for this task complies with Malay orthographic rules. They were composed of non-existing stems plus real Malay affixes. These tasks were based on Berko (1958).

The elicited pseudowords fell into two main categories. The first category of words tested two types of pseudowords with prefix 'ber': (1) 'r' pronounced ('ber' + stem beginning with vowel): and (2) 'r' not pronounced ('ber' + stem beginning with consonant). The second category of pseudowords tested double letters when a prefix or suffix is added. In such cases the prefix ends with the same letter as the first letter of the root word, for example, 'menggurus (meng + gurus) and cases where the suffix begins with the same letter as the last letter of the root word, for example, 'menunjukkan' (meninjuk + kan). Words without double letters using the same prefix and suffix were added as a control for this category.

## **Procedure**

The words were given in a sentence completion format (see Appendix I). The children were told that each sentence introduced a 'new' word that they had not heard before. This 'new' word was introduced in different forms, i.e. in either its root form + a real Malay affix. For example a 'new' word 'justa' was introduced as 'menjustakan' (men + justa + kan). The children were asked to fill in the blanks with a suitable form of the 'new' word based on the clues given in the previous sentence.

### English Spelling Accuracy

This variable was obtained by scoring the total number of correct items on the English Spelling Test (See Appendix A). The Cronbach's alpha obtained was .97.

### Malay Spelling Accuracy

This variable was obtained by scoring the total number of correct items on the Malay Spelling Test (See Appendix B). The Cronbach's alpha obtained was .95.

### D. Wechsler Intelligence Scale for Children – Revised (WISC-R)

Four measures from the WISC-R were used for the study. These were Vocabulary, Similarities, Digit Span and Coding (Kroese, Hynd, Knight, Hiemenz & Hall, 2000).

## **Vocabulary**

For this test the children were expected to provide the meanings of words from a word list comprising 32 items. For each item the researcher would ask, "What does \_\_\_\_\_ mean?" The children were required to provide the answer. The test was discontinued after five consecutive failures.

### **Similarities**

In this test two words were presented to the child for example 'wheel' and 'ball'. The child is then required to say how these two items are alike or the same. The test contained 17 pairs of words. The test was discontinued after three consecutive failures.

### **Digit Span**

There were two parts to this test – Digits Forward and Digit Backward. For Digit Forward the child listens to a sequence of numbers, for example, '3,8,6'. The child has to repeat the numbers he hears in the correct order. Digit Backward follows the same principle except this time the child has to say the numbers backwards. Each item has two trials. The test is discontinued after failure on both trials of any item.

### **Coding**

This test has two coding sheets. Coding Sheet A was used for the 7-year-olds, and Coding Sheet B was used for the 8-year-olds and 9-year-olds. For coding sheet A, the child is given a series of shapes with symbols associated with each shape. The child has to complete the sheet by matching the shape with the correct symbol. For Coding Sheet B, the child is given a series of numbers with symbols associated with each number. The child has to complete the sheet by matching the numbers with the correct symbols.

## **4.11 Summary**

This chapter discussed the research design and methodology of the main study. The main study was divided into three parts: the quantitative study I and the quantitative study II and III. The aim of all three studies were described. The research questions, sub questions and method for the studies were presented in tabulated form. The research design, participants,

schools, research tools, data analysis procedure were described. This was followed by the procedure of tasks used in the main study. Finally the control measures used in the study were described.

## CHAPTER 5

### FINDINGS AND DISCUSSION OF THE QUANTITATIVE STUDY I - PHONOLOGICAL AND MORPHOLOGICAL AWARENESS

#### 5.0 Introduction

The findings set out in this chapter are the results and discussion of the quantitative study I. This section would seek to answer the following research question:

Research Question 1

Do young Malay second language learners transfer phonological and morphological awareness from their L1 to their L2?

#### 5.1 Findings of the Quantitative Study

The findings will be presented in four parts: group differences, correlations, regression analysis and transfer from L2 to L1.

##### 5.1.1 Group Differences

Before analysis on the variables were conducted those who scored zero on the English spelling accuracy task were excluded from the analysis as these learners seemed to be having language problems. These children had learning difficulties and were treated as outliers and removed from the analysis.

A series of independent-samples t-test (all *2-tailed* probabilities) were conducted to compare the *means* of the different variables, namely Age, English spelling, English vocabulary, English phonological awareness, English morphological awareness, Malay vocabulary, Malay phonological awareness and Malay morphological awareness (See Table 5.1).

Table 5.1.

*Means (M), Standard Deviations (SDs), and t-test Results for Children in Year 1 and Year 2 (L1 → L2)*

Variable (max score)	Year 1		Year 2		<i>df</i>	<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Age in years	7.21	31	8.22	52	89	11.248	<.001
English Spelling (66)	5.68	5.71	27.13	15.65	89	8.792	<.001
English Vocabulary (32)	8.48	1.86	10.13	2.61	89	3.490	=.001
English PA (30)	14.90	7.26	23.04	6.77	87	5.472	<.001
English MA (25)	8.50	2.70	12.36	3.52	89	5.848	<.001
Malay Vocabulary (64)	17.19	8.53	23.70	9.47	88	3.418	=.001
Malay PA (20)	12.52	3.75	16.51	2.78	83	5.559	<.001
Malay MA (17)	6.66	2.51	8.36	2.88	89	3.002	=.003

As table 5.1 indicates, a significant difference was found between the performance of Year 1 and Year 2 students across all measures. Year 2 students performed at a higher level compared to Year 1 students, which is consistent with developmental patterns.

### **5.1.2 Correlations**

In order to determine the relationships among the variables, partial correlations were carried out (controlling for age). Table 5.2 shows partial correlations among all variables for Year 1 and Year 2 children. For tasks in English, English vocabulary was significantly associated with English spelling accuracy for the Year 1 children. A strong significant association was found between English vocabulary and English spelling accuracy for Year 2 children. This shows that children who were good at comprehension in English were also better spellers.

Table. 5.2

*Partial Correlations, Controlling for Age, Showing Relationships among Predictor Variables of English Spelling for Year 1 (above diagonal) and Year 2 (below diagonal)*

Variable	1	2	3	4	5	6	7
1.Eng Spell(66)	-	.482**	-.021	.125	.214	.519**	.260
2. Eng Vocab(32)	.553***	-	-.242	-.022	.193	.240	-.181
3. Eng PA(30)	.401**	.054	-	.332*	.031	.404*	.148
4. Eng MA(25)	.544***	.339*	.272	-	-.195	.338*	.116
5. Malay Vocab(64)	.035	-.039	-.030	.067	-	.326*	.154
6. Malay PA(20)	.660***	.454**	.516***	.154	.153	-	.136
7. Malay MA(17)	.050	.122	.080	.310*	.451**	-.017	-

Note. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ . Eng Spell = English Spelling; Eng Vocab =EnglishVocabulary; Eng PA= English Phonological Awareness; Eng MA = English Morphological Awareness; Malay Vocab = Malay Vocabulary; Malay PA = Malay Phonological Awareness; Malay MA = Malay Morphological Awareness

English phonological awareness was significantly associated with English spelling accuracy for the Year 2 children and not the Year 1 children. This shows that Year 1 children were not making use of their knowledge of phonemes in spelling English words because this awareness was perhaps not sufficiently developed and hence could not be transferred to help them in their English spelling.

A strong significant correlation was also observed between English morphological awareness and English spelling accuracy for the Year 2 children while no such association was observed for the Year 1 children. The Year 2 children were using their awareness of morphemes to spell English words. This is supported by the fact that the means and standard deviation in Table 5.1 indicate that Year 2 children performed significantly better in English vocabulary than the Year 1 children. Better knowledge of English words would lead to a better awareness of English morphemes.

The tasks in English provide support for the transfer of awareness skills from one language to facilitate performance on spelling accuracy in the same language.

For the Malay tasks, it was found that the Malay phonological awareness task was strongly associated with English spelling accuracy for children in Year 1 and Year 2. This shows that children with high levels of Malay phoneme awareness were able to use this knowledge to spell English words accurately. Malay phonological awareness was also moderately associated with English vocabulary in Year 2.

Malay phonological awareness was strongly associated with English phonological awareness. This relationship is expected as Malay and English share the same phonemes so that those who had a high level of Malay phonological awareness would be expected to have a high level of English phonological awareness. Knowledge of L1 phonemes help in comprehending L2 phonemes.

Malay phonological awareness was associated with English morphological awareness and Malay vocabulary in Year1 but not in Year 2. Malay morphological awareness was



associated to English morphological awareness in Year 2. Malay morphological awareness was also associated to Malay vocabulary in Year 2 but not in Year 1.

Since a number of significant relationships were observed, a series of hierarchical multiple regression analysis were conducted to explore further the relationship between phonological awareness and morphological awareness and English spelling accuracy.

### **5.1.3 Regression Analysis**

To clarify the extent to which children's English Spelling Accuracy can be predicted by English phonological awareness, Malay phonological awareness and English morphological awareness, and Malay morphological awareness, a series of separate hierarchical regression analysis was conducted using performance on English spelling accuracy task as the outcome variable for each age group. To predict overall English Spelling Accuracy in general, only control variables such as age and English vocabulary were added in the first block. In Block two (see Table 5.3) predictors such as English phonological awareness and Malay phonological awareness were added. In the second regression analysis, age and English vocabulary were again added in the first block and this time in block two English morphological awareness and Malay morphological awareness were added.

Table 5.3 shows that phonological awareness predicted unique variance of 22% in the Year 1 children,  $F(2,36) = 7.0, p < .01$ , and 23% in Year 2 children,  $F(2,38) = 9.5, p < .001$ . For Year 1 children, the  $\beta$  weight for Malay phonological awareness was significant ( $p = .001$ ). The  $\beta$  weight for English vocabulary was also significant ( $p = .003$ ). For the Year 2 children significant  $\beta$  weights were found for Malay phonological awareness ( $p = .009$ ) and English vocabulary ( $p < .001$ ). Malay phonological awareness accounted for a large proportion of unique variance in English spelling accuracy, 19%

in Year 1 children and 9% in Year 2 children. Table 5.3 shows that Malay phonological awareness predicts English spelling accuracy after controlling for the influence of age and English vocabulary in both Year 1 and Year 2.

Table 5.3

Regression Results for Phonological Awareness as a Predictor of English Spelling for Year 1 and Year 2

Year	<i>Std.β</i>	<i>t</i>	<i>Adj. R2</i>	<i>Δ R2</i>
<b>Year 1</b>				
1. Age	.056	.390	.169	.211*
Eng Vocab	.457	3.168**		
2. Eng PA(30)	-.106	-.680	.368.	.221**
Malay PA(20)	.538	3.503**		
<b>Year 2</b>				
1. Age	-.217	-1.660	.290	.324***
Eng Vocab	.548	4.193***		
2. Eng PA(30)	.169	1.288	.502	.225***
Malay PA(20)	.404	2.757**		

Note. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Table 5.4 shows that morphological awareness predicted unique variance of 13% in Year 1 children,  $F(2, 39) = 3.9, p < .05$  and 13% in Year 2 children,  $F(2, 42) = 5.0, p < .05$ . For Year 1 children the  $\beta$  weight for Malay morphological awareness was significant ( $p = .015$ ) while for Year 2 it was not. The  $\beta$  weight for English vocabulary for Year 1 children was also significant ( $p = .002$ ). The  $\beta$  weight for English morphological awareness for Year 2 was significant ( $p = .003$ ) while for Year 1 it was not. The  $\beta$  weight for English vocabulary for Year 2 was significant ( $p < .001$ ). Malay morphological awareness accounted for a large proportion of unique variance in English spelling accuracy, 11% in Year 1 children. English morphological awareness accounted for a large proportion of unique variance in English spelling accuracy, 12% in Year 2 children. Table 5.4 shows that Malay morphological awareness predicts English spelling accuracy after controlling for the influence of age and English vocabulary in Year 1 but not in Year 2.

Table 5.4.

Regression Results for Morphological Awareness as a Predictor of English Spelling for Year 1 and Year 2

Year		<i>Std.β</i>	<i>t</i>	<i>Adj. R2</i>	$\Delta R2$
<b>Year 1</b>					
1.	Age	.058	.419	.176	.214**
	Eng Vocab	.460	3.322**		
2.	Eng MA (25)	.102	.773	.277	.131*
	Malay MA(17)	.346	2.558*		
<b>Year 2</b>					
1.	Age	-.146	-1.179	.300	.331
	Eng Vocab	.571	4.607***		
2.	Eng MA(25)	.398	3.152**	.409	.129*
	Malay MA(17)	-.146	-1.221		

Note. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Although phoneme awareness has been found to be a predictor of English spelling in previous studies (see Yeong & Rickard Liow, 2011), Malay morphological awareness has not been found to be a predictor of English spelling in studies prior to the present one. The fact that Malay morphological awareness predicts English spelling is a finding that is thus far unique to this study.

The results of the hierarchical multiple regression analysis suggested that the Year 1 children seemed to be using Malay morphological awareness to help them spell English words as their English vocabulary was not as developed as the Year 2 children. They

seemed to be using some English morphological awareness to help them spell English words.

In Year 2 it seems to be the other way around. The children having developed a better knowledge of English words are now able to use their English morphological awareness to help them spell English words. Cross-language transfer seems to be less important with the older children as they depend less on their Malay morphological awareness to help them spell English words.

In Year 1 Malay phonological awareness seems to be playing a strong role in helping children spell English words. This cross-language transfer persists even among the Year 2 children. Children in Year 1, however, are using Malay morphological awareness to spell English words although this relationship does not persist in Year 2.

In Year 1 Malay phonological awareness seems to account for most of the variance. English morphological awareness and English phonological awareness does not seem to be important. In Year 2 English morphological awareness helps facilitate English spelling accuracy. Malay phonological awareness is also used to help the Year 2 children spell English words.

In summary the influence of Malay phonological awareness is substantial in both Year 1 and Year 2. Malay morphological awareness is important only in Year 1. Cross – language transfer seemed to be more important with the younger children and not as important with the older ones.

### 5.1.4 Transfer from L2 (English) to L1 (Malay)

#### Group Differences

So far the analysis has shown transfer taking place from L1 (Malay) to L2 (English). This study was designed to see if transfer takes place from L2 (English) to L1 (Malay). In order to look at group differences, a series of *independent-samples t- test* was conducted to compare the *means* of the different variables namely, age, Malay spelling, Malay vocabulary, Malay phonological awareness, Malay morphological awareness, English vocabulary, English phonological awareness and English morphological awareness. See Table 5.5 Only 40 children were included in the analysis for Year 1 as 10 subjects were recorded as missing values.

Table 5.5

*Means (M), Standard Deviations (SDs) and t – test Results for Children in Year 1 and Year 2 (L2 → L1)*

Variable (max scores)	Year 1 (n =40)		Year 2 (n = 50)		df	t	p
	M	SD	M	SD			
Age in years	7.23	.31	8.23	.51	88	10.799	<.001
Malay Spelling (65)	43.15	11.14	51.12	12.47	88	3.157	=.002
Malay Vocab (64)	18.18	8.72	24.4	10.13	87	3.051	=.003
Malay PA (20)	12.22	3.70	16.15	3.16	81	5.231	<.001
Malay MA (17)	6.64	2.43	8.40	2.84	87	3.082	=.003
Eng Vocab (32)	8.37	1.78	10.02	2.61	87	3.523	=.001
Eng PA (30)	15.59	6.54	22.74	6.37	85	4.956	<.001
Eng MA (25)	8.49	2.66	12.14	3.55	87	5.353	<.001

As table 5.5 indicates, a significant difference was found between the performance of Year 1 and Year 2 students across all measures.

Table 5.6

*Partial Correlations, Controlling for Age, Showing Relationships among Predictor Variables of Malay Spelling for Year 1 (above diagonal) and Year 2 (below diagonal)*

Variable	1	2	3	4	5	6	7
1.Malay Spell (65)	-	.065	.391*	.108	.191	.230	.367*
2.Malay Vocab (64)	-.051	-	.330	.088	.205	.155	-.169
3.Malay PA (20)	.819***	-.054	-	.059	.311	.488**	.472**
4.Malay MA (17)	-.017	.390**	.000	-	-.138	.131	.222
5.Eng Vocab (32)	.423**	-.088	.452**	.140	-	-.170	.051
6.Eng PA (30)	.453**	-.106	.538***	.086	.077	-	.333
7.Eng MA (25)	.168	.010	.177	.325*	.376*	.279	-

Note. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 5.6 shows partial correlations among all variables for Year 1 and Year 2 children. For the tasks in English, English vocabulary was significantly associated with Malay spelling accuracy for the Year 2 children but not the Year 1 children. In Table 5.2, English vocabulary was strongly associated with English spelling accuracy for both Year 1 and Year 2 children.

Similar to the results of the partial correlations reported in Table 5.2, English phonological awareness was significantly associated with Malay spelling accuracy for the Year 2 children but not the Year 1 children.

English morphological awareness was strongly associated with English spelling accuracy in Year 2. No such association was observed between English morphological awareness and Malay spelling accuracy in Year 2. However there was a moderate association between English morphological awareness and Malay spelling accuracy in Year 1.

For the Malay tasks, as expected, Malay phonological awareness was strongly associated with Malay spelling accuracy for the Year 2 children ( $r = .82$ ). Malay PA was moderately associated with Malay spelling accuracy for Year 1 ( $r = .39$ ). This would indicate that Malay PA was not developed sufficiently to play a strong role in helping Year 1 children to use it to spell Malay words but in Year 2 their knowledge of phonemes helped them to spell words on the Malay spelling test. Malay phonological awareness was also seen to play a strong role in helping Year 1 and Year 2 children spell English words.

Malay MA was also associated with Malay vocabulary in Year 2 which is expected as morpheme awareness increases as vocabulary knowledge expands. Malay PA was associated strongly with English PA in both Year 1 and Year 2. Table 5.2 reports similar results. Malay MA is associated with English MA in year 2 but not in Year 1.

Although there were some significant associations observed in the partial correlations, none of the equivalent regression models were significant for predicting Malay spelling accuracy, as such the results of the regression analysis for L2 to L1 are not reported here. Hence it can be concluded that the data of the quantitative study did not provide evidence of transfer from L2 (English) to L1 (Malay).



## 5.2 Discussion

This first section involves quantitative analysis for study I where transfer both within and across languages was investigated, this, mainly included transfer from L1 (Malay) to L2 (English). In this study the researcher investigated phonological awareness and morphological awareness as predictors of English spelling accuracy in two groups (Year 1 and Year 2) of Malay bilingual children. This study was a cross-sectional one. The first objective was to see if there was evidence of L1 → L2 transfer. This was done by examining phonological awareness and morphological awareness in Malay bilinguals and to see if this awareness was used to help children to spell words accurately on an English spelling test.

The first step was to conduct a series of *independent-samples t-test* to compare the *means* of the different variables, which included spelling, vocabulary and phonological and morphological awareness measures both in English and Malay. Next was to conduct *partial correlations* among all variables for Year 1 and Year 2 children. Since a number of significant associations were found in the *partial correlations* a series of *hierarchical multiple regression* analysis was conducted to examine the relationship between the predictor variables and the outcome variable English spelling accuracy.

The *partial correlations* showed a number of important associations. English phonological awareness was significantly associated with English spelling accuracy for Year 2 children but not in Year 1 children. Year 1 children were not making use of their knowledge of English phonemes in spelling English words because perhaps this awareness was not sufficiently developed and hence could not be transferred to help them in their English spelling. Cisero and Royer (1995) provide support for the above, when they discussed the development progression hypothesis which predicts that only

phonological awareness skills that have been sufficiently developed would transfer. The Year 2 children on the other hand were making use of their awareness of phonemes to help them spell English words. Year 2 children had, as expected, a higher level of phoneme awareness and this skill being sufficiently developed could lend itself to transfer and therefore could be used to help Year 2 children spell English words accurately.

A strong significant correlation was also observed between English morphological awareness and English spelling accuracy for the Year 2 children while no such association was observed for Year 1 children. This would seem to suggest that Year 2 signals the beginning of English morphology for the sample tested in this study. The Year 2 children had a better knowledge of English words being of a higher grade which would lead to a better awareness of English morphemes. This would suggest that a greater a child's awareness of morphemes, the more accurately he or she will spell (Casalis, Deacon & Pacton, 2011). Apel and Lawrence (2011) in their study of children with Speech Sound Disorder suggested that children who had difficulties with the representation and organisation of phonemes and phoneme units may also find it difficult to store and use morphological markers (as most morphological markers are individual phonemes or two-phoneme units). Therefore it follows that children who have a high level of phonological awareness would also have a better ability to store and use morphological markers. This is observed in the Year 2 children.

For the Malay tasks, it was found that the Malay phonological awareness task was strongly associated with English spelling accuracy for children in Year 1 and Year 2. Children with high levels of Malay phoneme awareness were able to use this knowledge

to spell English words accurately. This shows that phonological awareness is a language general ability that can be applied across languages (Yeong & Rickard Liow, 2012).

It is clear from the regression analysis that Malay phonological awareness predicted English spelling accuracy both in Year 1 and Year 2 whereas Malay morphological awareness only predicted English spelling accuracy among Year 1 children and not in Year 2 children. This finding is unique to this study as previous studies have not found that Malay morphological awareness predicts English spelling. This finding provides original data of cross linguistic transfer of morphological awareness between two languages for which empirical data was not available. This is also a significant finding as other studies have reported that morphological awareness is an important linguistic skill which is necessary for success in reading and spelling abilities (Carlisle, 2000). Apel and Lawrence (2011) in their study compared the morphological awareness abilities of children with speech sound disorder (SSD) and children with typical speech skills. They examined how morphological awareness ability predicted word-level reading and spelling performance. They found that morphological awareness was a significant predictor of reading and spelling for children with typical skills. For children with SSD morphological awareness ability was a significant predictor for the spelling task. Nunes et al. (2012) argue that children use morphemes in decoding and spelling. They found that the children's use of morphemes in decoding and spelling was a strong predictor of reading comprehension. They state that the knowledge of morphemes contributes to reading and spelling. These studies show that there is a strong relationship between morphological awareness and spelling. The present study shows in particular that Malay morphological awareness predicts English spelling accuracy.

Malay phonological awareness was responsible for a substantial part of the variance in English spelling accuracy. Previous studies have supported these findings. Yeong and Rickard Liow (2011) in their study on early spelling development in bilinguals found that English and Mandarin phonological processing skills predicted growth in English spelling sophistication for both the English–L1 and Mandarin–L1 children, leading the researchers to suggest that some kind of phonological processing e.g. phonological awareness, are language –general skills that can be applied across languages despite differences in phonology and orthography.

Results of the *hierarchical multiple regression* show that transfer investigated in this study is from Malay to English i.e. from the L1 to the L2. Yap, Rickard Liow, Jalil and Faizal (2010) argue that learners of both English and Malay do not process words in the two languages in the same way. Malay which has a transparent orthography with a simpler syllable structure requires the use of a sub-lexical route (assembled phonology) to process words in the language. English which has a deep orthography with complex syllables requires the use of a lexical route (addressed phonology) as well as a sub-lexical route to process words in the language. Studies show that transfer takes place from a transparent language to a less transparent language (Liow & Poon, 1998). In the current study it is more likely that transfer will take place from Malay to English. Yap et al. (2010) further showed that when 1510 English words were matched to their Malay counterparts a regression analysis showed that word length was seen to be a stronger predictor than frequency for both English lexical decision and speeded pronunciation. This result was consistent with their results for Malay performance. These findings led the researchers to suggest that the way people process this particular set of English words used in the study is the same as the way they process typical Malay words. Could

then the way of processing typical Malay words aid the way in which learners process high frequency English words?

An investigation into backward transfer from L2 (English) to the L1 (Malay) resulted in there being little evidence found in this study to suggest that this kind of transfer takes place. An examination of the *means* and subsequently *partial correlations* did produce some significant correlations but this did not persist in the *regression* analysis where the model proved to be insignificant. Bindman (1997) in her study found evidence for bidirectional transfer whereby children were able to transfer knowledge from Hebrew to English and from English to Hebrew. However, there was no evidence of transfer from L2 to L1 in quantitative study I.

### **5.3 Summary**

The findings set out in the chapter were the results and discussion of the quantitative study I. This chapter sought to answer the research question on whether young Malay second language learners were able to transfer phonological and morphological awareness from their L1 to their L2. The chapter provided evidence to indicate that transfer from the L1 to the L2 does occur.

## CHAPTER 6

### FINDINGS AND DISCUSSION OF THE QUANTITATIVE STUDY II

#### - PHONOLOGICAL AWARENESS

##### **6.0 Introduction**

The first section of this chapter describes descriptive statistics for the English phonological measures and the Malay phonological measures used in this study. The second section deals with the results and the third section deals with the discussion. This section would seek to answer the following research question:

Research Question 2

Does phonological awareness facilitate phonological spelling in both the L1 and the L2?

##### **6.1 Description of the sample and phonological measures**

###### **6.1.1 The Malay learners**

There were 152 Malay learners who participated in this study. A total of 50 learners were from Standard One (seven-year-olds), 50 learners were from Standard Two (eight-year-olds) and 52 learners were from Standard Three (nine-year-olds). For the purpose of statistical analysis, all three age groups were merged. The mean age and SD of the Malay learners is 8.2 years (SD = .94) The minimum age was 6.6 and the maximum age was 9.8. The range was 3.17.

## **6.1.2 Malay Phonological Measures**

This section describes descriptive statistics for the Malay phonological measures used in this study.

### **6.1.2.1 Malay Phonological Awareness Task**

This task consisted of the Malay Swapping of Phonemes task and Identifying Beginning and End Phonemes task. The distribution of scores is shown in Figure 6.1 below.

The task was relatively easy for most of the learners with 43% of all the learners scoring 17, 18, 19 or 20 (20 was the maximum score) and only 16% of the children scored 9 or less. The mean score is 15.2 (SD 3.62).

There were two extreme outliers in the distribution. These outliers were removed before proceeding with the analysis.

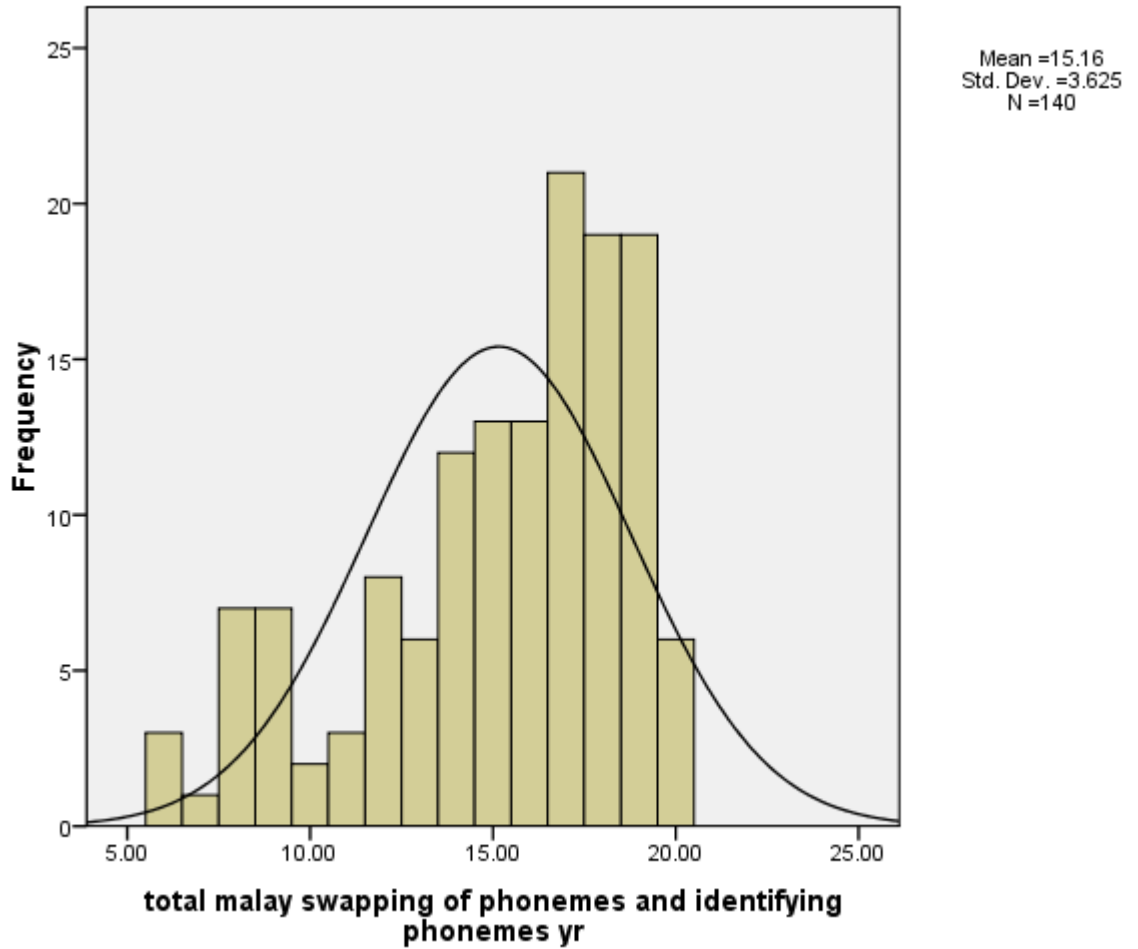


Figure 6.1: Malay Phonological Awareness

### 6.1.2.2 Malay Spelling Test

#### 6.1.2.2.1 Malay Phonological Spelling Test

This was an easy task for the majority of the learners with 88% of all the learners scoring 27, 28, 29 or 30 (30 was the maximum score). Thus a slight ceiling effect was observed. A possible explanation for this could be because Malay has a fairly regular grapheme - phoneme correspondence. Thus words are spelled the way they are pronounced. Therefore a majority of the learners did not have a problem with spelling these words.



The mean score was 28.6 (SD 1.8) and the distribution of scores is shown in Figure 6.2 below. As the distribution of scores were not normal the scores were transformed first using the ‘Reflect and Inverse Formula’ and then the ‘Reflect and Logarithm Formula’. The results of both transformations were not normal. There were a number of outliers and extreme outliers in the distribution. These were removed before proceeding with the analysis.

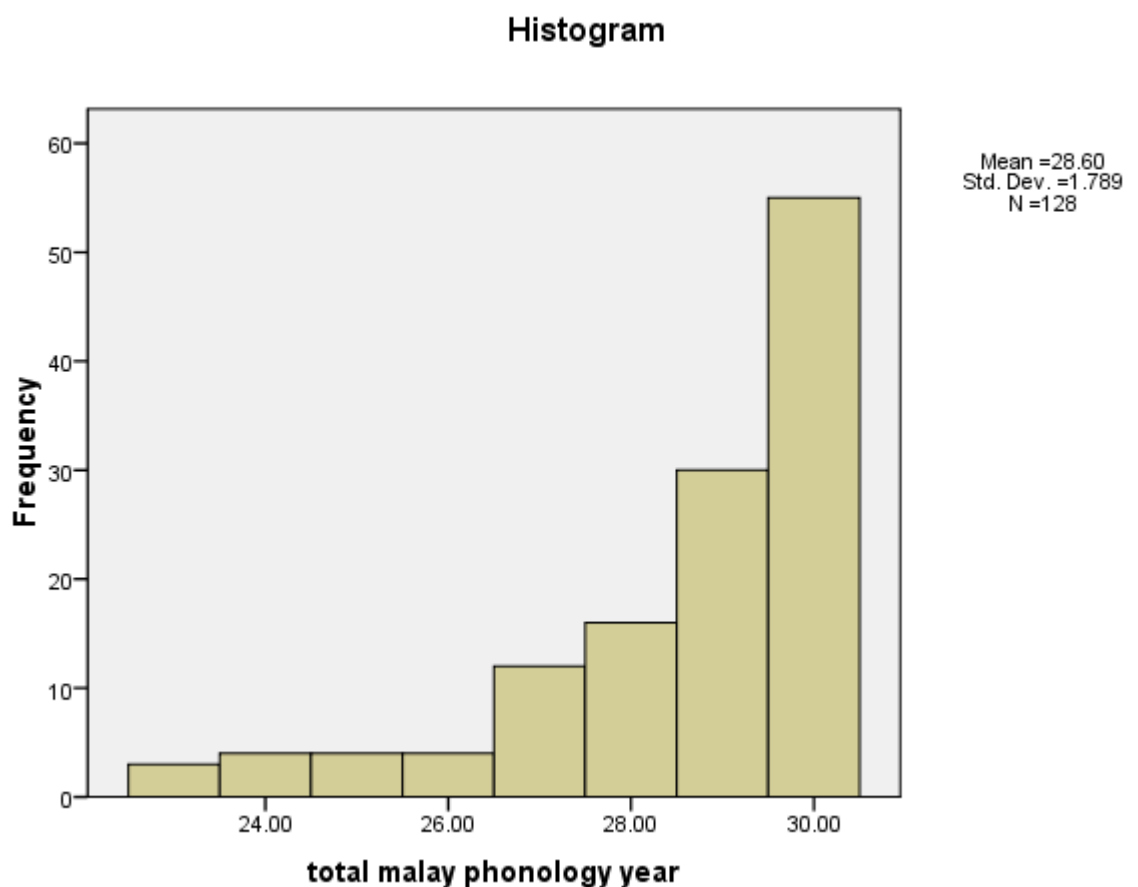


Figure 6.2: Malay Phonological Spelling

### 6.1.3 Malay Vocabulary (Control Measure)

This is a subtest of the *Wechsler Intelligence Scale for Children – (Revised, 1974)*. The children were instructed as follows: ‘I am going to say some words. Listen carefully and tell me what each word means.’ Each item was scored 0, 1 or 2, depending on the

accuracy of the response. The facilitator then proceeded with the words in the order listed. The test was discontinued after five consecutive failures. The maximum possible score was 64. The mean score was 9.9 (SD 4.85) and the score ranged between 1 and 19. The distribution of scores is shown in Figure 6.3 below.

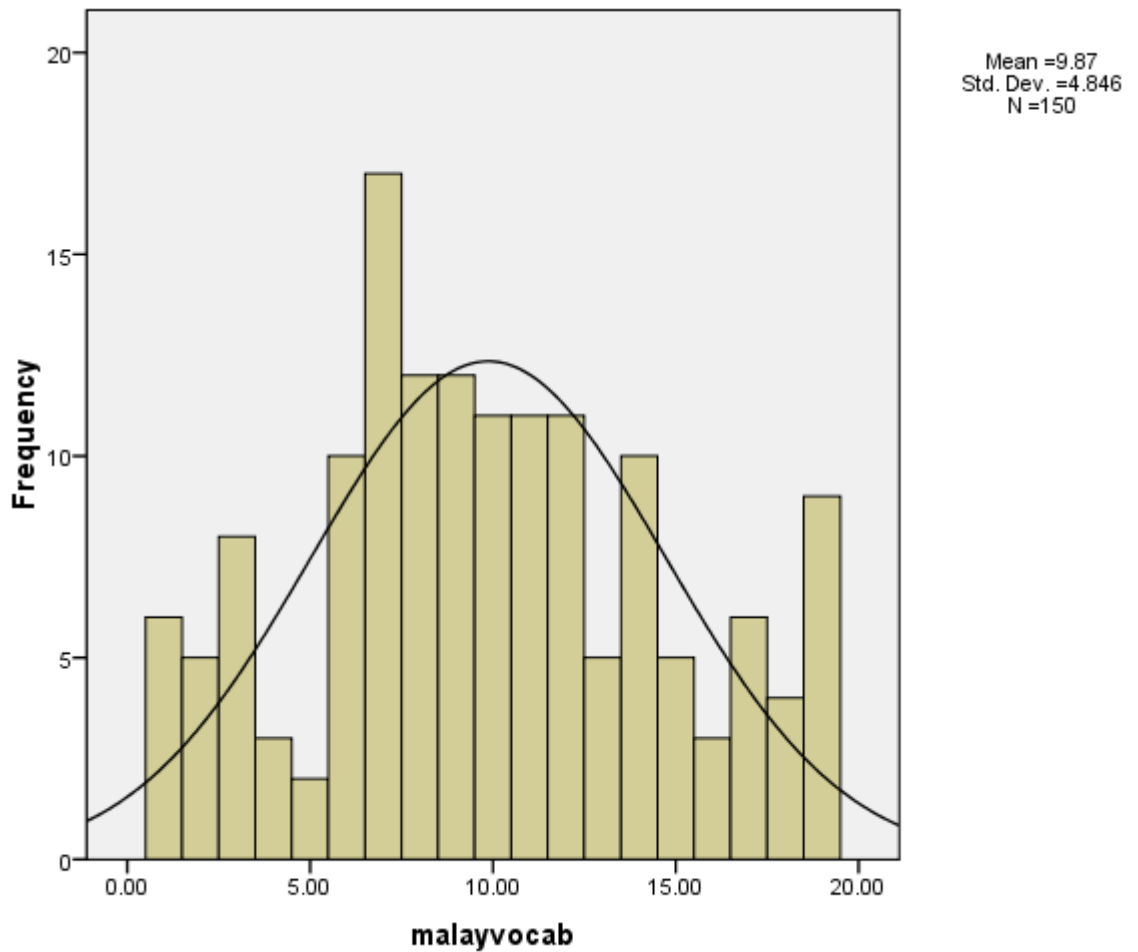


Figure 6.3: Malay Vocabulary

#### 6.1.4 Intelligence Quotient (IQ)(Control Measure)

A short form of the *Wechsler Intelligence Scale for Children – (Revised, 1974)* was used to compute IQ. Three subtests were used Similarities, Digit Span and Coding. The mean was 95.1 (SD 2.04 ). The distribution is shown in Figure 6.4 below.

There were two outliers in the distribution. These were not removed to maintain greater normality.

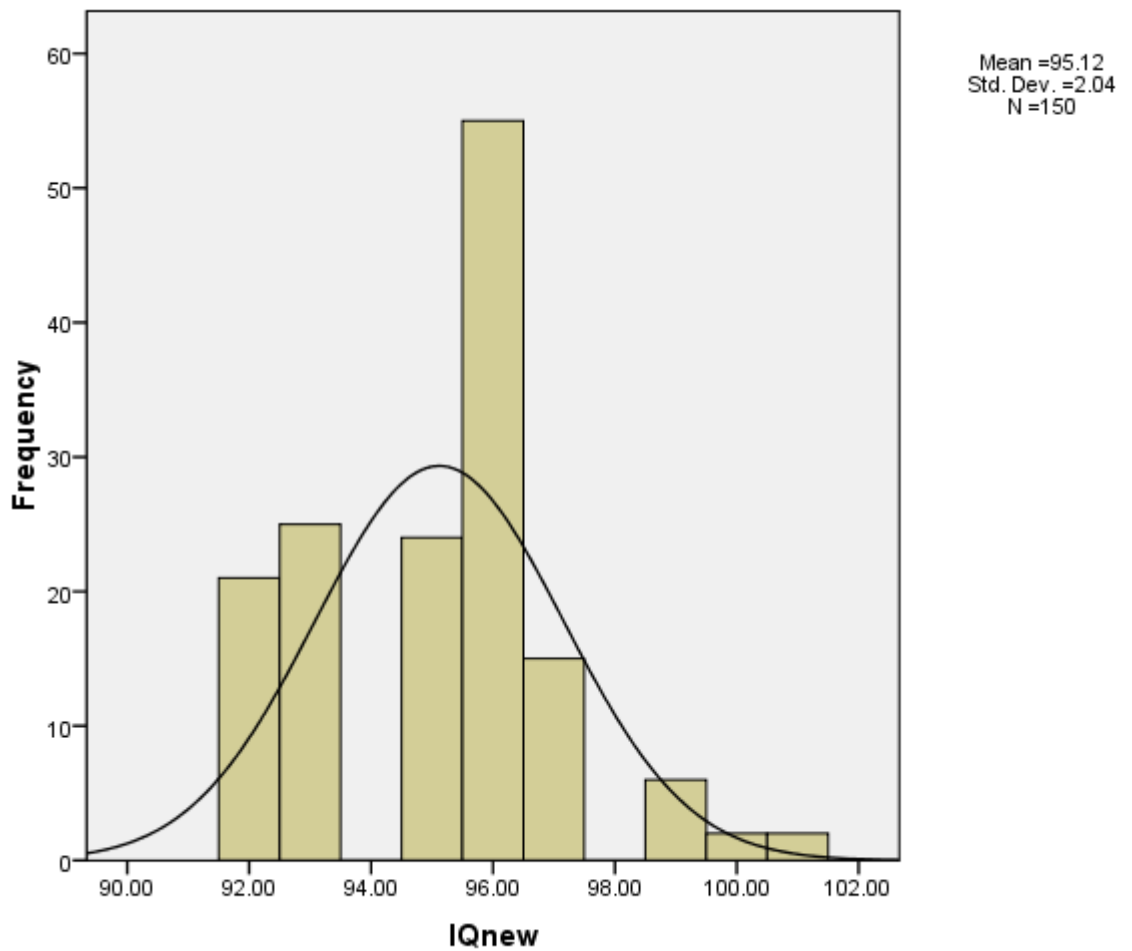


Figure 6.4: Intelligence Quotient

## 6.1.5 English Phonological Measures

### 6.1.5.1 English Phonological Awareness Task

This task consisted of the English Swapping of Phonemes task, English Identifying Beginning and End Phonemes and English Matching Phonemes.

The task was relatively easy for a majority of the learners. A total of 33% of all the learners scored 27, 28, 29 or 30 (30 was the maximum score). Only 8% of the children scored 9 or less. The mean score is 21.3 (SD 7.4). The distribution of the scores is shown below.

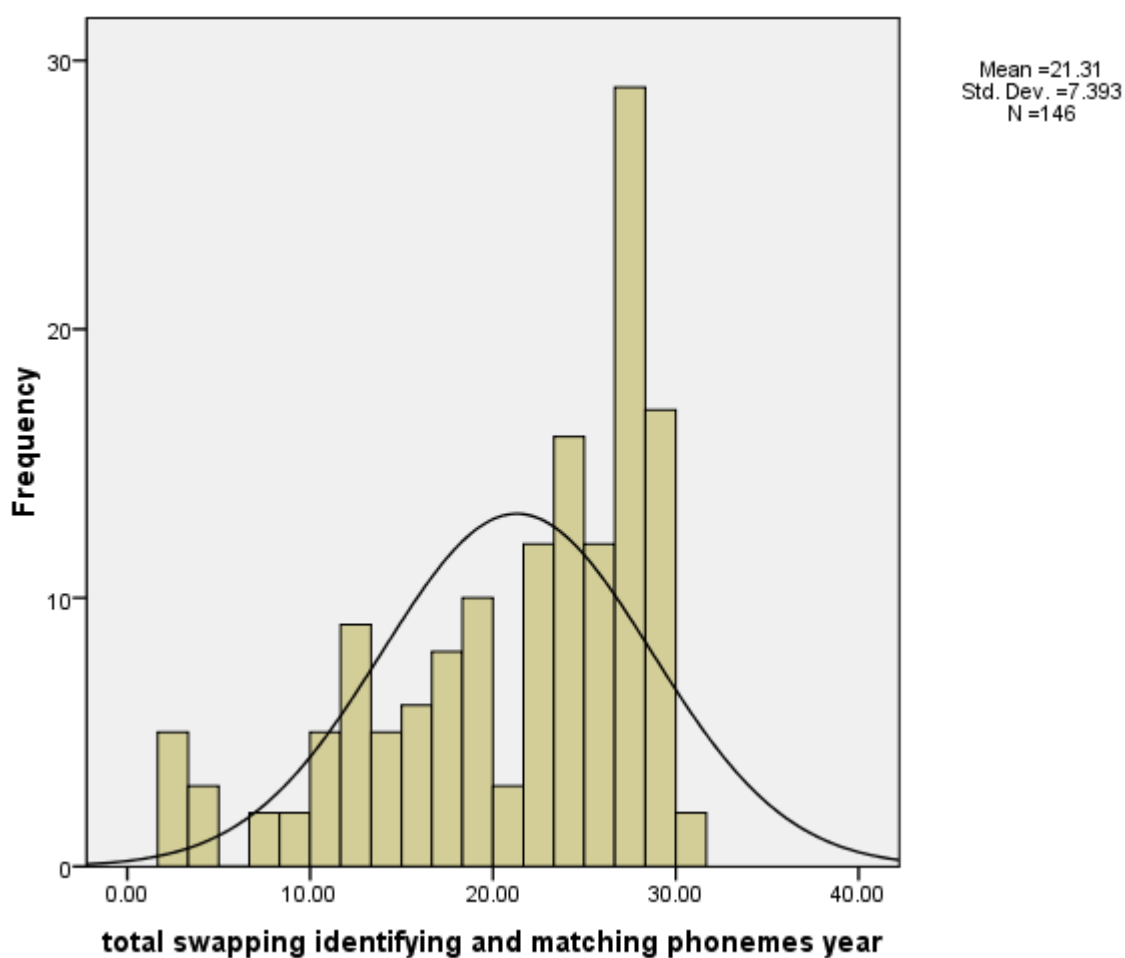


Figure 6.5: English Phonological Awareness

### 6.1.5.2 English Spelling Tests

#### 6.1.5.2.1 English Phonological Spelling Tests

This task was difficult for a majority of the learners. A total of 51% of all the children scored 20 and below (57 was the maximum score). None of the children scored 57. Only 3% scored 54, 55 or 56. The mean score was 23.4 (SD 13.5). The distribution of scores is shown in Figure 6.6 below.

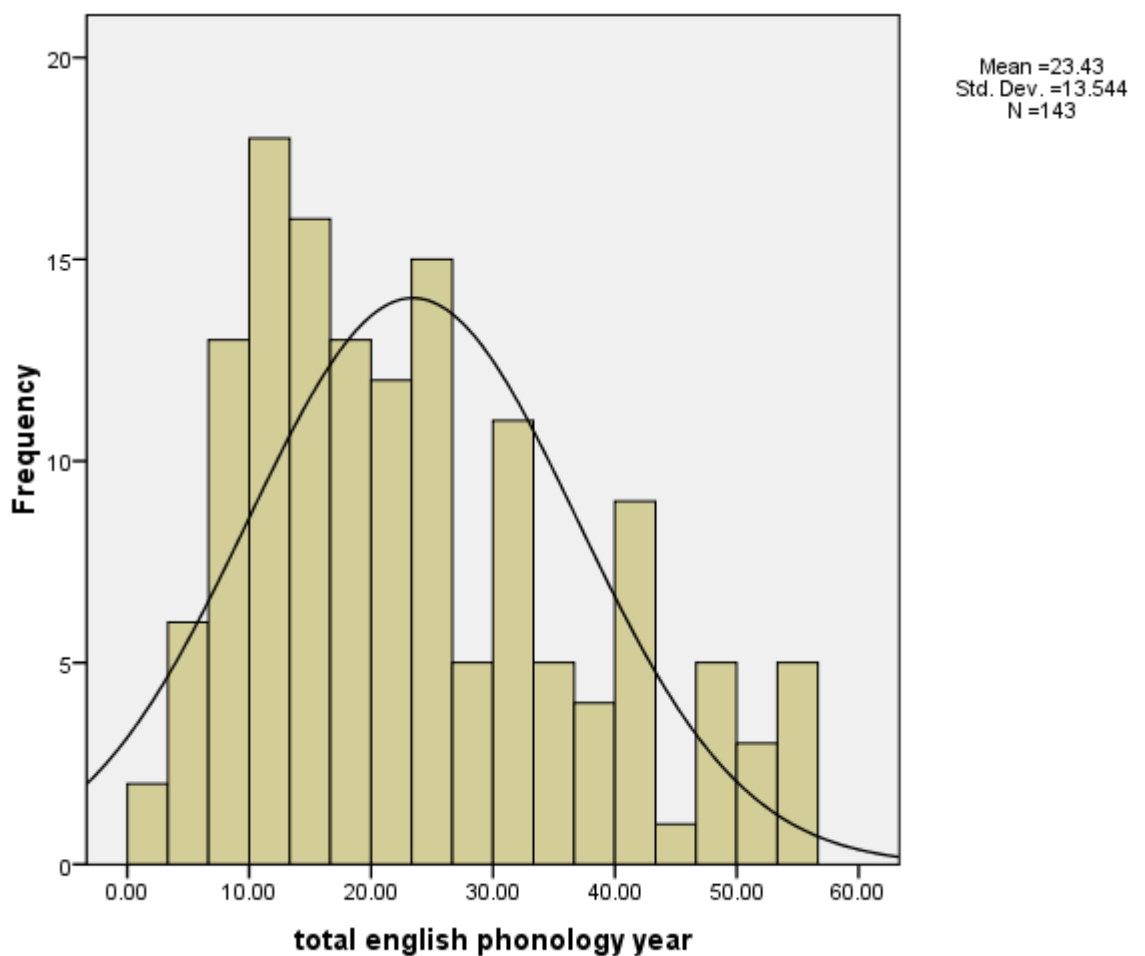


Figure 6.6: English Phonological Spelling

### 6.1.6 English Vocabulary (Control Measure)

The British Picture Vocabulary Scale (BPVS) Short Form was used as a control for English vocabulary. For this purpose, the raw scores were used, as standardized scores

were based on a target British population and so British norms were not suitable for a Malaysian sample.

The maximum score for this test was 32. The children scored a maximum of 14. The lowest score was 5. The mean score was 8.8 (SD 2.32). The distribution of scores is shown in Figure 6.7 below. There were a number of outliers in the distribution. These were changed to less extreme values as suggested by Pallant (2010).

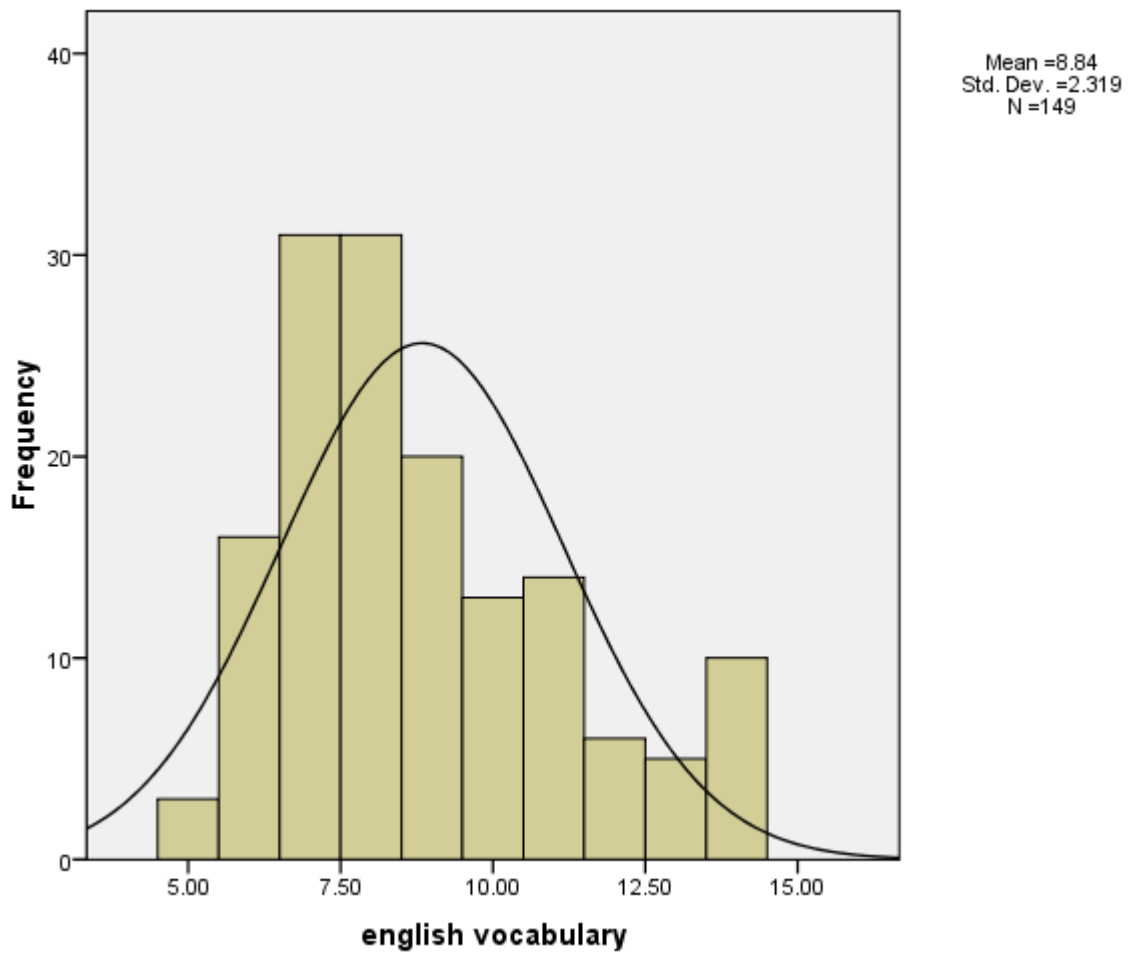


Figure 6.7: English Vocabulary

**RQ 2: Does phonological awareness facilitate phonological spelling in both the L1 and the L2?**

The study will seek to answer the research question using the following method:

- (i) By examining the relationship between Malay phonological awareness tasks and Malay phoneme spelling tests, this study will determine if there is transfer between phonological awareness in the first language and spelling of phonemes in the same language. A positive correlation between the awareness task and the spelling tests will indicate that transfer does take place.
- (ii) By examining the relationship between Malay phonological awareness tasks and English phoneme spelling test, this study will determine if there is transfer between phonological awareness in the first language and spelling of phonemes in the second language. A positive correlation between the awareness tasks and the spelling test will predict that transfer does occur.

## **6.2 Results**

**RQ 2: Does phonological awareness facilitate phonological spelling in both the L1 and the L2?**

This section will seek to address research question 2 through two sub questions:

- (a) Can phonological awareness in the L1 facilitate phonological spelling in the L1?
- (b) Can phonological awareness in the L1 facilitate phonological spelling in the L2?

(a) **Can phonological awareness in the L1 facilitate phonological spelling in the L1?**

As the distribution of phonological spelling in the L1 was not normal, this variable was transformed using the reflect and inverse formula but the distribution still remained not normal. The variable was also transformed using the reflect and logarithm formula and the distribution was not normal. Therefore as there was no other alternative, non-parametric statistics were used to analyse the data.

The relationship between phonological awareness in the L1, as measured by Malay Phonological Awareness and phonological spelling in the L1, as measured by Malay Phonological Spelling was investigated using Spearman's Rank Order Correlation. There was a medium positive correlation between the two variables  $\rho = .4$ ,  $n = 119$ ,  $p < .01$  with high levels of phonological awareness associated with high levels of phonological spelling.

The coefficient of determination was calculated to show how much variance phonological awareness in the L1 and phonological spelling in the L1 share. The two variables that correlate  $\rho = .4$  share  $(.4 \times .4 = .16)$  16 per cent of their variance. Phonological awareness in the L1 helps to explain 16 per cent of the variance in respondents' scores on phonological spelling in the L1. The positive correlation between the awareness task and the spelling test indicate that transfer does take place. This suggests that Malay children in this study were able to use their knowledge of Malay phonological awareness to help them spell Malay words that are spelled using a phonological strategy alone, i.e. spelled according to the way it is pronounced.



(b) **Can phonological awareness in the L1 facilitate phonological spelling in the L2?**

The relationship between phonological awareness in the L1 as measured by Malay Phonological Awareness and phonological spelling in the L2 as measured by English Phonological Spelling was investigated using Pearson Product moment Correlation Coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. There was a medium, positive correlation between two variables,  $r = .46$ ,  $n = 135$ ,  $p < .01$  with high levels of phonological awareness in the L1 associated with high levels of phonological spelling in the L2.

The coefficient of determination was calculated to show how much variance phonological awareness in the L1 and phonological spelling in the L2 share. The two variables that correlate  $r = .46$  share 21 per cent of their variance. Phonological awareness in the L1 helps to explain 21 per cent of the variance in respondents' scores on phonological spelling in the L2. The positive correlation between the awareness task and the spelling test indicate that transfer does take place.

Partial correlation was used to explore the relationship between phonological awareness in the L1 as measured by Malay Phonological Awareness and phonological spelling in the L2 as measured by English Phonological Spelling, while controlling for Malay vocabulary, English vocabulary, age and IQ. There was a medium positive partial correlation between phonological awareness and phonological spelling, controlling for Malay vocabulary, English vocabulary, age and IQ,  $r = .32$ ,  $n = 128$ ,  $p < .01$  with high scores of phonological awareness being associated with high scores of phonological spelling. An inspection of the zero order correlation ( $r = .45$ ) suggested that controlling for Malay vocabulary, English vocabulary, age and IQ had a small effect on the strength

of the relationship between these two variables. This indicates that cross language transfer does take place between phonological awareness in the L1 and phonological spelling in the L2. This shows that high levels of Malay phonological awareness are associated with high levels of English phonological spelling. In other words, children in this study were able to use their knowledge of Malay phonological awareness to spell regular words in English as these words can be spelled using a phonological strategy i.e. spelled according to the way it is pronounced.

### **6.3 Discussion of Results**

#### **Summary of results**

1. There was a significant within–language relationship between Malay phonological awareness and Malay phonological spelling.
2. There was a significant cross–language relationship between Malay phonological awareness and English phonological spelling. This relationship remained significant even when the child’s age, English vocabulary, Malay vocabulary and IQ were statistically controlled.

#### **RQ 2: Does phonological awareness facilitate phonological spelling in both the L1 and the L2?**

This discussion will seek to address the research question in two parts:

- (a) Can phonological awareness in the L1 facilitate phonological spelling in the L1?
- (b) Can phonological awareness in the L1 facilitate phonological spelling in the L2?

(a) **Can phonological awareness in the L1 facilitate phonological spelling in the L1?**

The data supported the hypothesis that phonological awareness in the L1 does facilitate phonological spelling in the L1. In Malay children, Malay phonological awareness does transfer in a positive manner to their Malay phonological spelling. In other words, Malay phonological awareness can be used to help the children spell Malay words that can only be spelled using a phonological strategy, i.e. spelled according to the way it is pronounced. Specifically, the results showed that the Malay speaker's phonological awareness as measured by Malay Phonological Awareness were associated with Malay phonological spelling word tasks. Children who had high levels of phoneme awareness in Malay seem to be better spellers of Malay words that are spelled by using a phonological strategy.

This result is consistent with Aidinis and Nunes' (2001) finding that syllable awareness and phoneme awareness made a significant and independent contribution to children's progress in spelling in Greek. The study showed that phonological awareness in the L1 made a significant and independent contribution to spelling in the L1. Aidinis and Nunes tested whether the phonological tasks were significantly correlated with spelling scores. There were high and significant intercorrelations across all the phonological scores with both the reading and spelling scores. For example, the correlation between an awareness measure, Initial Consonant Phoneme and Reading Spelling variable was strong ( $r=.71$ ). Although in the present study the correlation between the awareness task and the spelling measure was weaker ( $r = .40$ ) it still showed that there was a significant relationship between phoneme awareness in the L1 and spelling scores in the L1.

Fixed order multiple regression was carried out in the Aidinis and Nunes study which showed that all the phoneme and syllable tasks remained highly significantly ( $p < 0.01$ ) related to the children's reading and spelling scores. It was found that the best predictors of both outcome variables were the initial phoneme and the final syllable tasks, which accounted for 15.7% and 14.7% of the variance respectively in the prediction of spelling.

In the present study, one limitation of the examination of the relationship between phonological awareness and phonological spelling is that the distribution of scores for the spelling task was not normal so parametric tests could not be used to explore the relationship between these two variables. As such, it could not be determined if the significant correlation between the two variables would remain significant after controlling for age, IQ and Malay vocabulary.

(b) **Can phonological awareness in the L1 facilitate phonological spelling in the L2?**

The data supported the hypothesis that phonological awareness in the L1 does facilitate phonological spelling in the L2. Children who displayed a better knowledge of phonemes in Malay were also better spellers of English words that had a regular grapheme–phoneme correspondence. In Malay children, Malay phonological awareness does transfer in a positive manner to their English phonological spelling.

The strength of the relationship between Malay phonological awareness and English phonological spelling remained moderate even after controlling for Malay vocabulary, English vocabulary, age and IQ.

This shows that there is evidence of cross-language transfer between Malay phonological awareness and English phonological spelling.

This result is consistent with the findings of De Sousa, Greenop and Fry (2010) who found that the emergent bilingual Zulu – English speaker’s Zulu letter sound, Zulu syllable and Zulu rime detection phonological awareness levels were associated with English spelling word and non-word tasks. Correlation analysis showed that for emergent bilingual Zulu-English speakers, there were several significant associations between L1 Zulu phonological awareness and L2 English spelling measures. The results demonstrated that in emergent bilingual Zulu-English speakers, Zulu phonological processing skills were moderately, positively associated with English spelling skills.

Other studies have also reported similar cross-language patterns. Durgunoglu et al. (1993) showed that there is a relationship between phonological awareness in Spanish and word recognition in English. Children who could perform well on Spanish phonological awareness tests were more likely to be able to read English words and English-like pseudo words than were children who performed poorly on phonological awareness tests. Durgunoglu et al. concluded that phonological awareness was a significant predictor of performance on word recognition tests both within and across languages.

Cisero and Royer (1995) also provided further support for the transfer of phonological awareness across languages. The Cisero and Royer study was important in that they maintain that phonological awareness in one language would transfer to another language even when the learners have little or no experience with the second language. This would mean that L2 learners would get a head start in L2 learning just by virtue of

the fact that they have learned an L1. Would this mean that L2 learners will perform better than monolinguals in language learning? Bindman (1997) provides some support for this when she compared Hebrew learners learning English and monolingual English speaking learners. She found that Hebrew learners with a 'high' level of Hebrew scored higher than an age matched monolingual group on a morpho – syntactic task (English Oral Cloze task). The mean score for the monolinguals was 12 and the mean score for the Hebrew learners was 13. A t-test for unequal variances showed this difference to be significant ( $t = 3.36$ ;  $d.f. = 39.43$ ;  $p = .002$ )

De Sousa, Greenop and Fry (2010) argue whether linguistic processes are language universal or language specific. The fact that phonological awareness can transfer from a child's L1 to a child's L2 suggests that linguistic processes are language universal. This is further supported by Cummins (1991) who argues that a positive transfer of skills across languages would mean that skills from one language can facilitate acquisition in another language which in turn suggests the workings of universal processing mechanisms. The present study provides additional support for this argument by showing that transfer does take place between the awareness tasks in the L1 and spelling tasks in the L2.

#### **6.4 Summary**

The first part of the chapter provided the descriptive statistics for both phonological measures in English and Malay. The second part of the chapter describes the results followed by the third part which deals with the discussion. The discussion of results suggests that Malay phonological awareness facilitated phonological spelling in both the L1 and the L2. The children in this study were able to use their phonological awareness acquired from learning the Malay language to help them spell words in both

Malay and English. This is because children learning to read and write in languages that have a regular grapheme–phoneme correspondences are able to acquire phonological awareness and later use this knowledge to help them spell in their second language (Yeong and Rickard Liow, 2011) a claim substantiated by the current study.

## CHAPTER 7

### FINDINGS AND DISCUSSION OF THE QUANTITATIVE STUDY III

#### - MORPHOLOGICAL AWARENESS

##### **7.0 Introduction**

The first section of this chapter describes descriptive statistics for the English morphological measures and the Malay morphological measures used in this study. The second section deals with the results and the third section deals with the discussion.

This chapter will seek to answer the following research question:

Research Question 3

Does morphological awareness facilitate morphological spelling in both the L1 and the L2?

##### **7.1 Description of the morphological measures**

This section describes descriptive statistics for the morphological measures used in this study.

##### **7.1.1 Malay Morphological Measures**

Descriptive statistics for the Malay morphological measures are described below.

##### **7.1.1.1 Malay Morphological Awareness Task**

This task consisted of the Malay Word Analogy task and the Word Classification task. In both the Word Analogy task and the Word Classification task each correct grammatical form was given a score of one and all incorrect forms were given a score of zero. The Word Analogy task had eight items and the Word Classification task had nine items.



This task was considered difficult for the learners with 66% of the learners scoring 9 and below. No learner scored a maximum of 17. The mean score was 8.1(SD 3.05). The distribution of the scores is shown in Figure 7.1 below.

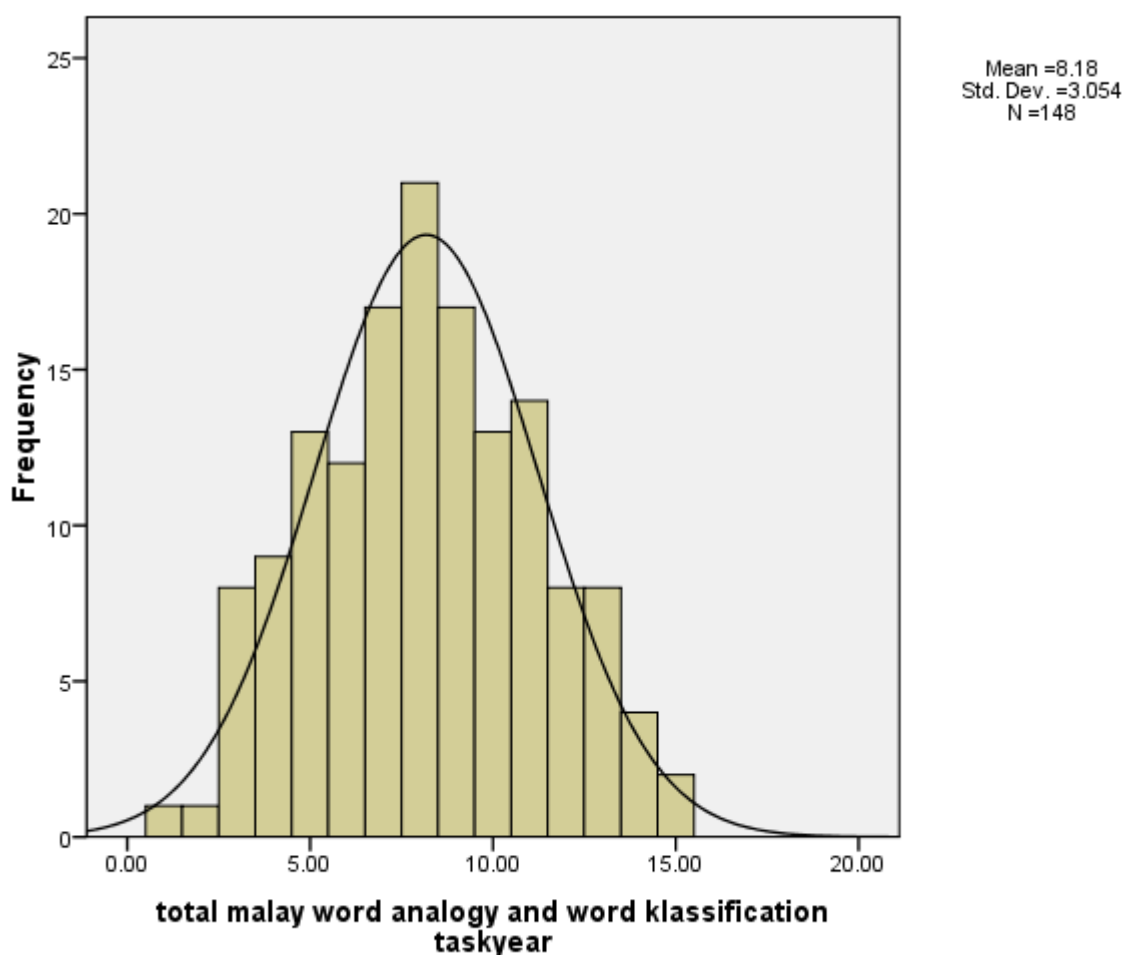


Figure 7.1: Malay Morphological Awareness

#### 7.1.1.2. Productive Morphology Task

The productive morphology task is also a Malay morphological awareness task.

In the main study, the productive morphology task was administered orally. The children were asked to produce nonsense words with real affixes after the root word, which was a pseudoword, given to them in context. This task was administered orally as results from the pilot study involving a written task were not encouraging (see 3.8 Aii)

Each pseudoword was scored for accuracy; a score of 1 was given if a child managed to produce the correct affix, a score of 0 was given for incorrect spellings and incorrect forms of the affix. A total score was obtained.

The maximum score for this task was 7. A total of 10% of the learners scored a maximum of 7 and 21% scored 2 or less with a majority falling in between the middle range of scores. This could be described as a challenging task for the learners. The mean score was 4.1 (SD1.80). The distribution of scores is shown in Figure 7.2 below.

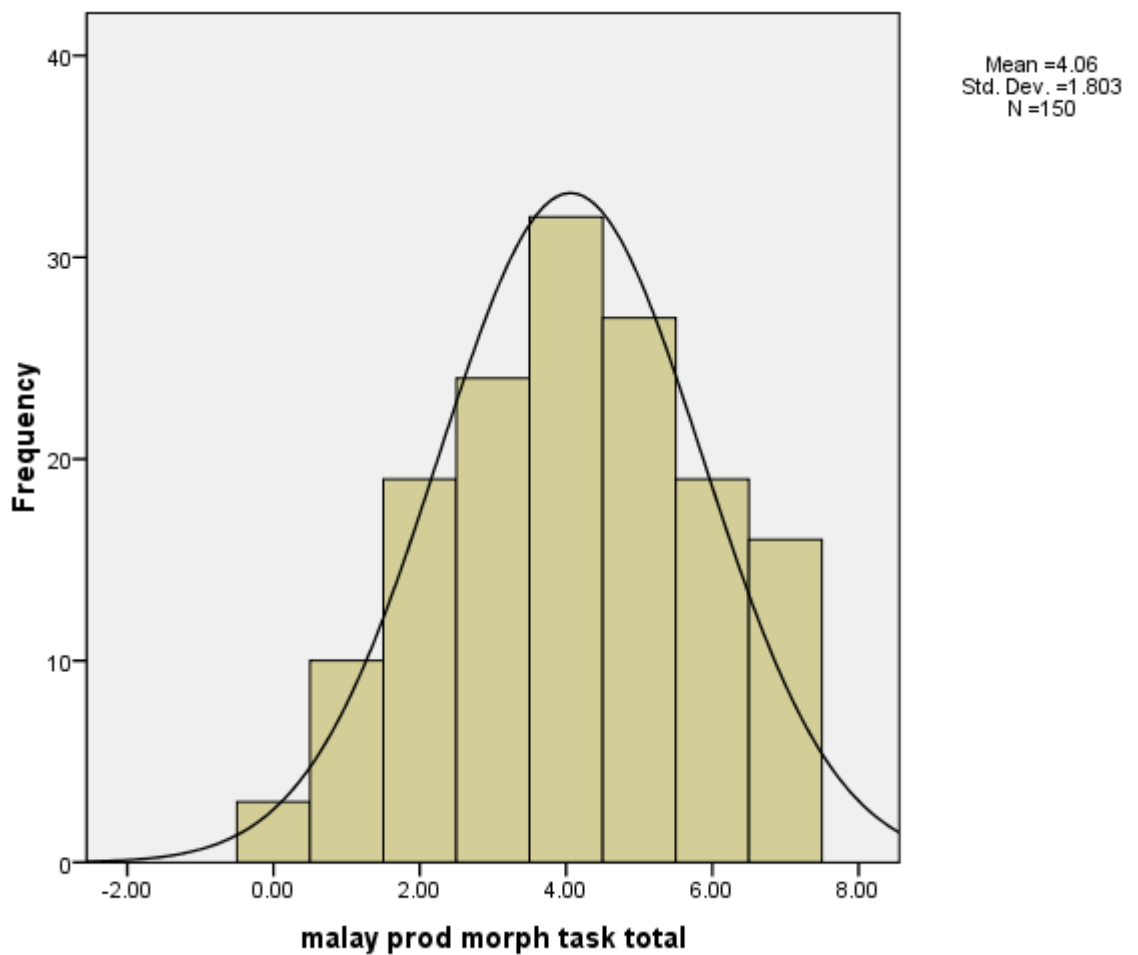


Figure 7.2: Productive Morphology

### 7.1.1.3. Malay Spelling Test

#### 7.1.1.3.1 Malay Morphological Spelling Test

Each word was scored for accuracy, a score of 1 was given for the correct spelling of the morpheme for each word and a score of 0 was given for incorrect spellings.

The maximum score for this test was 40. The lowest score obtained by the learners was 16, possibly suggesting that this was a fairly easy task for the learners. A total of 18% of the learners scored 38, 39 or 40. A total of 5% of the learners scored 16, 17, 18 or 19. The mean score was 31.8 (SD 6.3). The distribution of scores is shown in Figure 7.3 below. There were a total of seven outliers in the distribution. These were removed before proceeding with the analysis.

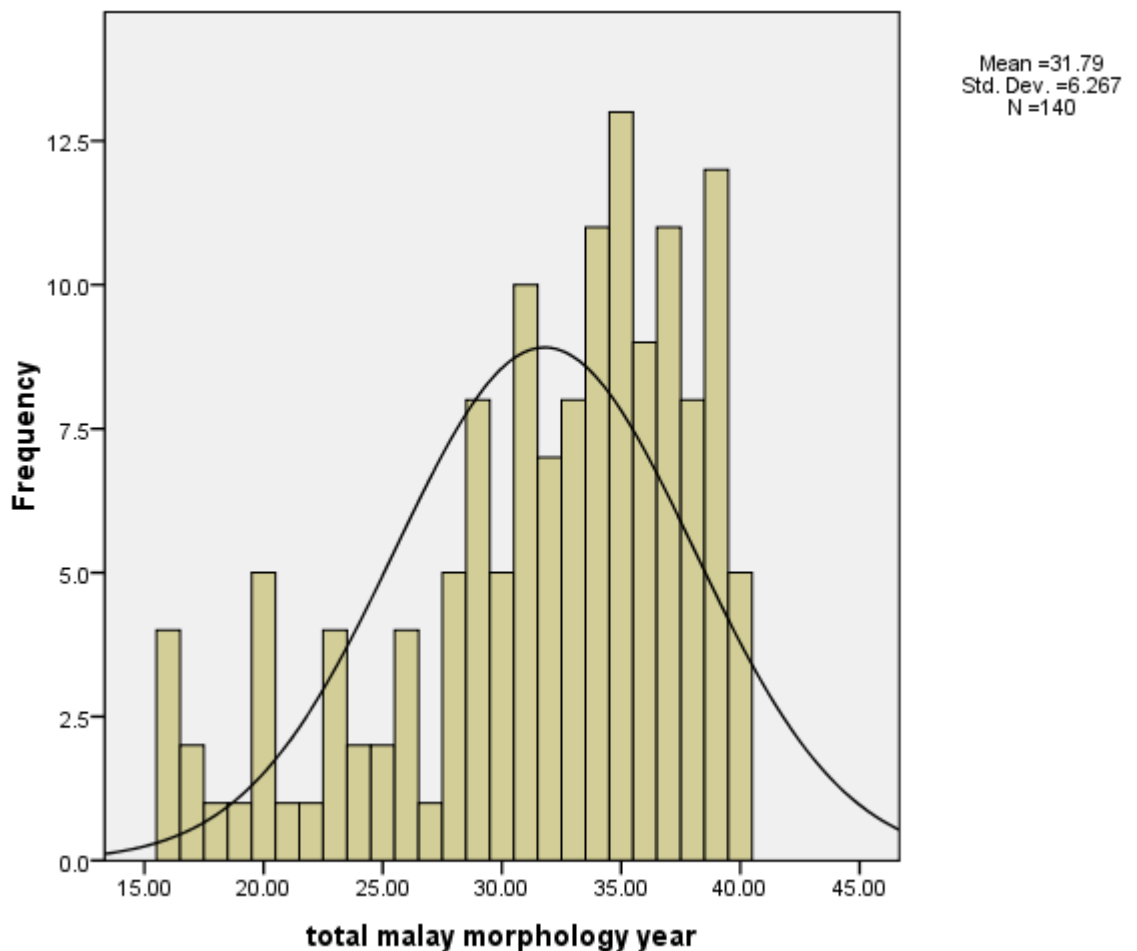


Figure 7.3: Malay Morphological Spelling

## 7.1.2 English Morphological Measures

### 7.1.2.1 English Morphological Awareness Task

This task consisted of the Word Analogy task, the Sentence Analogy task and the Word Classification task.

This was a challenging task for the learners. Only 6% of all the children scored 18, 19 or 20 (25 was the maximum score for this task). None of the children scored above 20.

It was found that 44% of the learners scored 9 or less. The mean score was 10.3 (SD 3.7). The distribution of scores is shown in Figure 7.4 below.

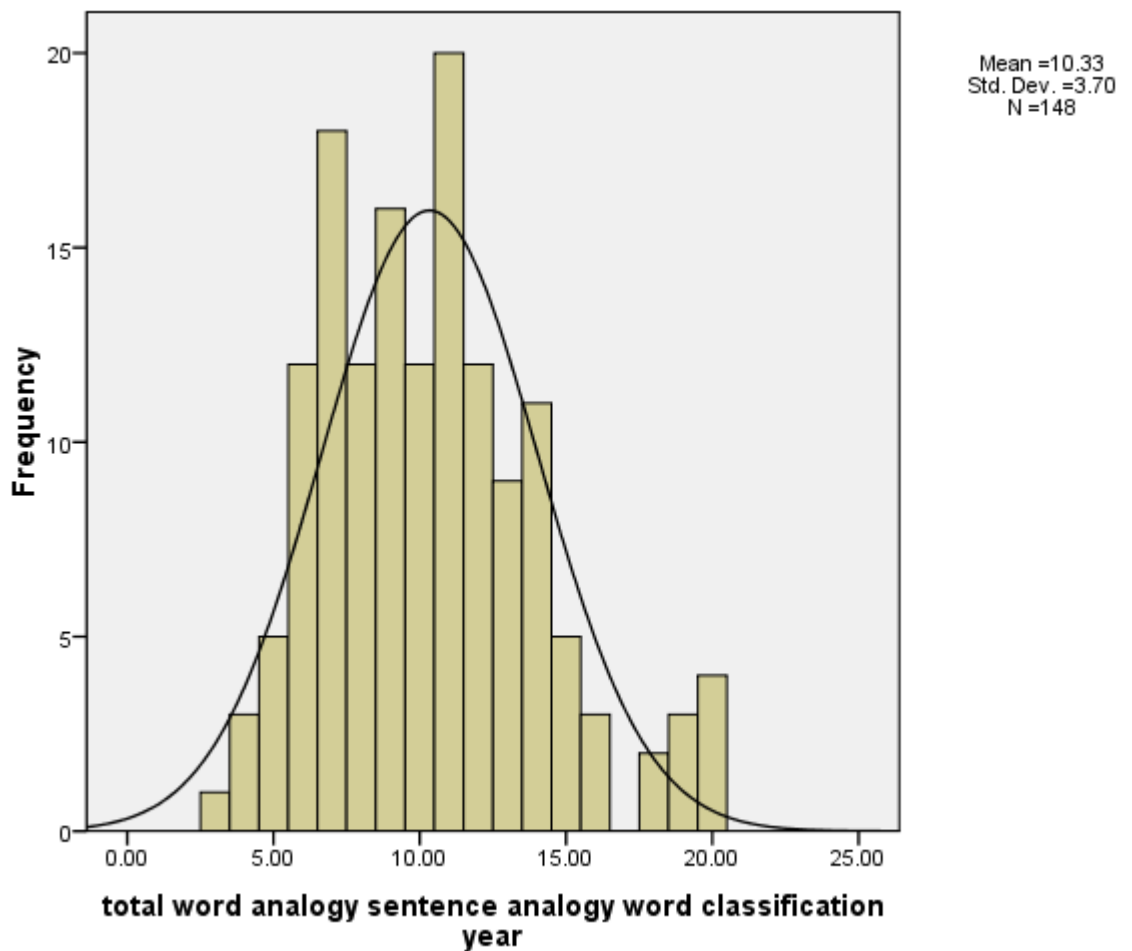


Figure 7.4: English Morphological Awareness

### 7.1.2.2 English Spelling Tests

#### 7.1.2.2.1 English Morphological Spelling Test

This was a difficult task for a majority of the learners. A total of 45% of the learners scored 9 or less. A total of 7% scored 32, 33, 34 or 35. No child scored the maximum of 48.

Each word was scored for accuracy; a score of 1 was given for the correct spelling of the morpheme for each word and a score of 0 was given for incorrect spelling. A total score was obtained.

Since the distribution of scores for English morphological spelling was not normal this variable was transformed using the 'Inverse Formula'. The resulting distribution was not normal. This variable was then transformed using the 'Logarithm Formula' and the resulting distribution of the data was normal. The distribution of scores is shown below.

There were a number of outliers in the distribution. As suggested in Pallant (2010) these scores were changed to a less extreme value. So that the child is included in the analysis but the score is not allowed to distort the statistics.

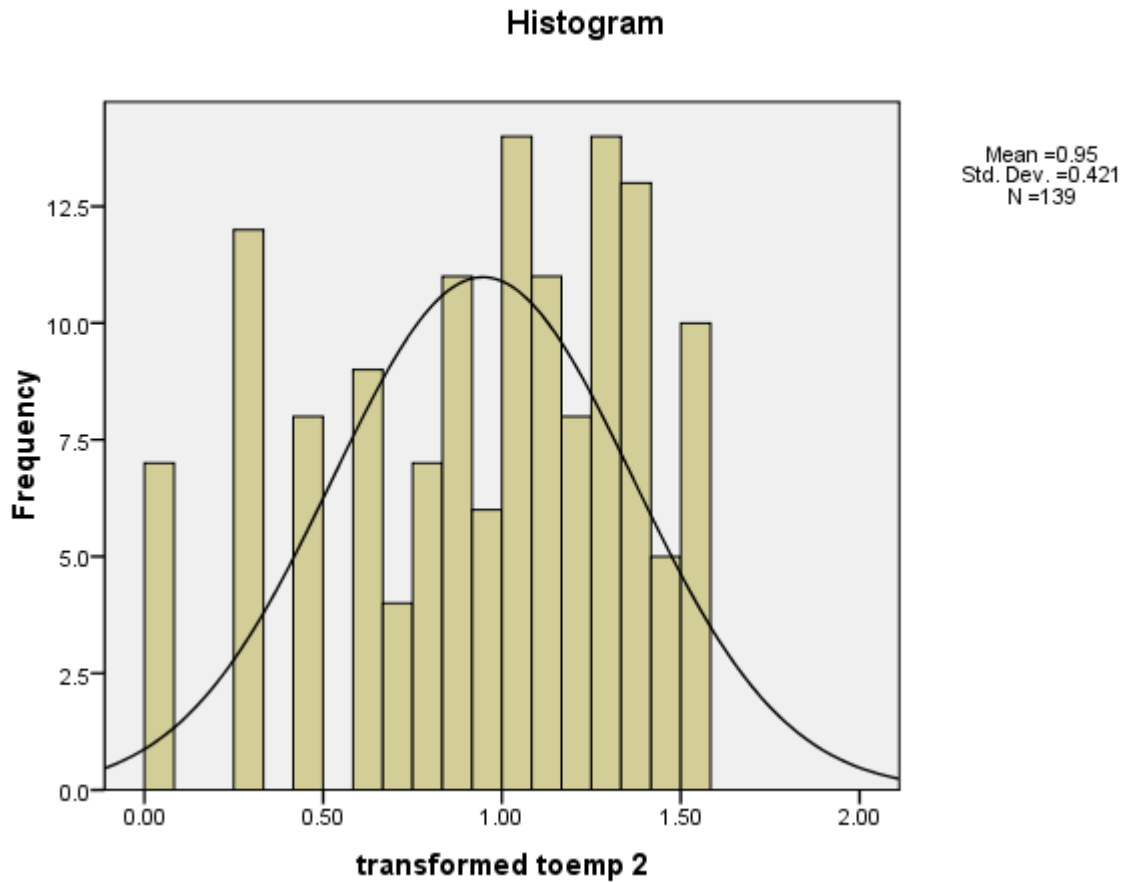


Figure 7.5: English Morphological Spelling

#### 7.1.2.2.2 Consistency of Stems of English Roots (Strict Criterion)

In this test, children were given two words that shared the same stem, for example, ‘know’ and ‘knowledge’. Scores were given based on whether they spelt the stems of the pairs of words given to them in the same way. Two methods of scoring were used for this task, a strict scoring method and a lenient scoring method. The strict criterion gave a score of 1 if the child spelt the stems of the pair of words correctly, and in the same way. All other spellings given were scored 0. The lenient scoring method will be explained in the next section.

The 7-year-olds found this task extremely difficult, with scores reaching floor levels. A total of 38% of all the children obtained a score of zero, with 5% obtaining a score of 8, 9 or 10. None obtained the maximum score of 11.

Since the distribution of total strict consistency was not normal, this variable was transformed using the 'Logarithm Formula'.

#### 7.1.2.2.3 Consistency of Stems of English Roots (Lenient Criterion)

The children were given two words that shared the same stem for example 'know' and 'knowledge'. The lenient criterion gave a score of 1 if the child spelt the stems of the words consistently even if incorrectly, in this case the child may have spelt the words using a phonological strategy. For example, if the child spelt the words 'know' and 'knowledge' as 'no' and 'noledge' here the child is awarded a score of one even if the child did not spell the words correctly, this is because the child spelt the words consistently using a phonological strategy, i.e. spelled according to the way the word is pronounced.

The children were better able to cope with this test. Only 1% obtained a score of zero. 24% scored 9, 10, or 11(11 was the maximum score for this test).The mean score was 6.1 (SD 2.66). The distribution of scores is shown below in Figure 7.6.

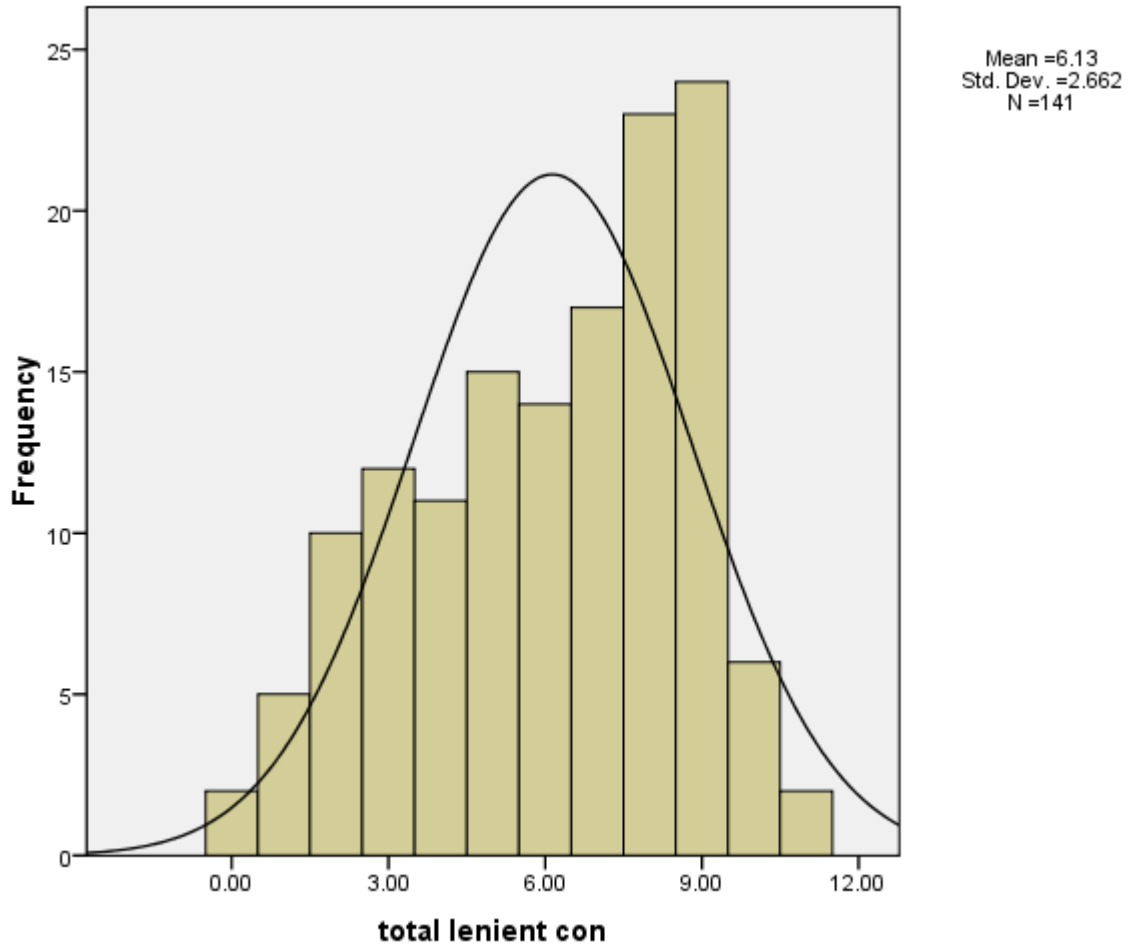


Figure 7.6: Consistency of Stems of English Roots (Lenient Criterion)

The study will seek to answer the following research question using the following method:

**RQ 3: Does morphological awareness facilitate morphological spelling in both the L1 and the L2?**

- (i) By examining the relationship between Malay morphological awareness tasks and Malay morpheme spelling tests, this study will determine if there is transfer between morphological awareness in the first language and spelling of morphemes in the same language. A positive correlation between the awareness task and the spelling test will indicate that transfer does take place.



- (ii) By examining the relationship between Malay morphological awareness tasks and English morpheme spelling test, this study will determine if there is transfer between morphological awareness in the first language and the spelling of morphemes in the second language. A positive correlation between the awareness tasks and the spelling test will predict that transfer does occur.
  
- (iii) By examining the correlations between English morphological awareness tasks and Malay morpheme spelling test, this study will determine if there is transfer between morphological awareness in the second language and the spelling of morphemes in the first language. A positive correlation between the awareness tasks and the spelling test will predict that transfer does occur.
  
- (iv) By examining the correlations between the performance on tests of morphological spelling in Malay and English by a group of Malay children learning English as a second language. A correlation between performance on the first and second language would suggest a transfer of linguistic knowledge between the languages, controlling for age and verbal IQ. A standardized WISC-R in Malay was used to control for vocabulary and the British Picture Vocabulary Test was used as a control for English Vocabulary. Three measures on the WISC-R was used to control for IQ.

## 7.2 Results

Below are the results that will seek to answer the following research question:

### **RQ 3: Does morphological awareness facilitate morphological spelling in both the L1 and the L2?**

This section will seek to address the research question in four parts:

- (a) Can morphological awareness in the L1 facilitate the spelling of morphemes in the L1?
- (b) Can morphological awareness in the L1 facilitate the spelling of morphemes in the L2?
- (c) Can morphological awareness in the L2 facilitate the spelling of morphemes in the L1?
- (d) Can the spelling of morphemes in the L1 facilitate the spelling of morphemes in the L2?

(a) **Can morphological awareness in the L1 facilitate the spelling of morphemes in the L1?**

Table 7.1 shows the correlation between measures of morphological awareness in the L1 and the spelling of morphemes in the L1.

Table 7.1: *Pearson Product-moment Correlation* Between Measures of Morphological Awareness in the L1 and the Spelling of Morphemes in the L1

	1	2	3
1. Malay Morphological Awareness Task	1	.45**	.11 p=.2
2. Malay Productive Morphology Task		1	.24**
3. Malay Spelling of Morphemes			1

\*\* p < .01 (2 – tailed)

**Relationship between Malay Morphological Awareness and Malay Spelling of Morphemes**

Even though the relationship between Malay Morphological Awareness and Malay Spelling of Morphemes is not significant, the r value is .11 which indicates some relationship even if it is only a weak one. This finding is unexpected. If the learners were not making use of their Malay morphological awareness in spelling Malay words it is probable that they depended largely on their phonological awareness to spell words in Malay.

## **Relationship between Malay Productive Morphology and Malay Spelling of Morphemes**

The coefficient of determination was calculated to show how much variance Malay Productive Morphology (an awareness measure) and the Malay Spelling of Morphemes share. The two variables that correlate  $r = .24$  share 5 per cent of their variance. Malay Productive Morphology (a pseudoword sentence completion task) helps to explain 5 per cent of the variance in respondents' scores on the Spelling of Morphemes in the L1. This shows that children with high levels of Malay morphological awareness were able to use this knowledge to spell Malay morphemes correctly. The positive correlation between the awareness task and the spelling test indicate that transfer does take place.

Partial correlation was used to explore the relationship between Malay Productive Morphology (as measured by Malay Productive Morphology Task) and Malay Spelling of Morphemes (as measured by Malay Spelling of Morphemes Task), while controlling for Malay vocabulary, age and IQ. As the results did not show any significance, the partial correlation was conducted once again this time with the control variables added individually. It was found that when Malay vocabulary was controlled on its own, the correlation was significant to a .05 level ( $p=.002$ ). Scores on Malay Productive Morphology were associated with scores of Malay Spelling of Morphemes even after controlling for Malay vocabulary.

When IQ was controlled for the p value was significant to a .05 level ( $p=.007$ ). However when age was controlled for the p value did not reach significance ( $p > .05$ )

(b) **Can morphological awareness in the L1 facilitate the spelling of morphemes in the L2?**

As the distribution of the spelling of morphemes in the L2 (as measured by English Spelling of Morphemes) was not normal, this variable was transformed using the Logarithm formula and the resulting distribution of the data was normal. Parametric statistics was then used to analyse the data.

The distribution of the total strict consistency (a spelling measure) was not normal, this variable was transformed using the Logarithm formula and the resulting distribution of the data was normal. Hence parametric statistics was then used to analyse the data.

Table 7.2 : *Pearson Product- moment Correlation* Between Measures of Morphological Awareness in the L1 and Spelling of Morphemes in the L2

	1	2	3	4	5
1. Total Malay Morph Aw	1	.45**	.31**	-.04	.39**
2. Malay Productive Morphology		1	.38**	.06	.34**
3. English Spelling of Morphemes			1	.82**	.63**
4. Total Strict Consistency				1	.49**
5. Total Lenient Consistency					1

\*\* p < .01 (2-tailed) Total Malay Morph Aw = Total Malay Morphological Awareness

### **Relationship between Malay Morphological Awareness and English Spelling of Morphemes**

Partial correlation was used to explore the relationship between Morphological Awareness in the L1 (as measure by Malay Morphological Awareness) and Spelling of Morphemes in the L2 ( as measured by English Spelling of Morphemes), while controlling for English vocabulary and age. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. The relationship remained significant,  $r = .17$ ,  $p < .05$ .

### **Relationship between Malay Productive Morphology and English Spelling of Morphemes**

Partial correlation was used to explore the relationship between the awareness measure, Malay Productive Morphology (as measured by Malay Productive Morphology Task) and Spelling of Morphemes in the L2 ( as measured by English Spelling of Morphemes), while controlling for English vocabulary and age. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. The correlation was not significant  $p = .06$

As the results did not show significance, the partial correlation was run once again, however this time with the control variables added individually. It was found that scores on Malay Productive Morphology were associated with scores of Spelling of Morphemes in the L2 even after controlling for age,  $p$  was significant to a .05 level ( $p < .05$ ). When English vocabulary was controlled for, the  $p$  value was significant to a .01 level ( $p < .01$ ).

### **Relationship between Malay Morphological Awareness and Lenient Consistency**

Partial correlation was used to explore the relationship between Malay Morphological Awareness (as measured by Malay Morphological Awareness) and Lenient Consistency (as measured by Total Lenient Consistency, a spelling measure), while controlling for Malay vocabulary, English vocabulary, age and IQ. There was a small positive partial correlation between Malay Morphological Awareness and Lenient Consistency, controlling for Malay vocabulary, English vocabulary, age and IQ,  $r = .23$ ,  $n = 132$ ,  $p < .01$  ( $p = .007$ ) with high scores of Malay Morphological Awareness being associated with high scores of Lenient Consistency. An inspection of the zero order correlation ( $r = .39$ ) suggested that controlling for Malay vocabulary, English vocabulary, age and IQ had a small effect on the strength of the relationship between these two variables. This indicates that cross language transfer does take place between morphological awareness in the L1 and morphological spelling in the L2. This shows that children with high levels of Malay morphological awareness were able to use this knowledge to spell English words that share the same root.

### **Relationship between Malay Productive Morphology and Lenient Consistency**

Partial correlation was used to explore the relationship between Malay Productive Morphology (as measured by Malay Productive Morphology, an awareness measure) and Lenient Consistency (as measured by Total Lenient Consistency, a spelling measure), while controlling for Malay vocabulary, English vocabulary, age and IQ. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. The correlation did not reach significance  $p > .05$ .

As the results did not show any significance, the partial correlation was run once again this time with the control variables added individually. It was found that when Malay

vocabulary was controlled on its own, the correlation was significant to a .01 level. When English vocabulary was controlled for, p was significant where  $p < .01$ . When IQ was controlled for the p value was significant to a .01 level. However when age was controlled for the p value did not reach significance ( $p > .05$ ).

(c) **Can morphological awareness in the L2 facilitate the spelling of morphemes in the L1**

**Relationship between English Morphological Awareness and Malay Spelling of Morphemes**

The relationship between morphological awareness in the L2 (as measured by English Morphological Awareness) and the spelling of morphemes in the L1 (as measured by Malay Spelling of Morphemes) was investigated using Pearson Product moment Correlation Coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. There was a small, positive correlation between two variables,  $r = .2$ ,  $n = 143$ ,  $p < .05$  with high levels of morphological awareness in the L2 associated with high levels of spelling of morphemes in the L1.

The coefficient of determination was calculated to show how much variance morphological awareness in the L2 and spelling of morphemes in the L1 share. The two variables that correlate  $r = .2$  share four per cent of their variance. Morphological awareness in the L2 helps to explain four per cent of the variance in respondents' scores on spelling of morphemes in the L1. The positive correlation between the awareness task and the spelling test indicate that transfer does take place.

Partial correlation was used to explore the relationship between English Morphological Awareness (as measured by English Morphological Awareness Task) and Spelling of



Morphemes in the L1 ( as measured by Malay Spelling of Morphemes, a spelling measure), while controlling for Malay vocabulary, English vocabulary, age and IQ. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. The correlation did not reach significance,  $p > .05$ .

As the results did not show significance, the partial correlation was run once again, however this time with the control variables added individually. It was found that scores on English Morphological Awareness were associated with scores of Spelling of Morphemes in the L1 even after controlling for Malay vocabulary where  $p$  was significant to a .01 level ( $p < .01$ ).

When English vocabulary was controlled for the  $p$  value was significant to a .05 level ( $p < .05$ ). When IQ was controlled for the  $p$  value was significant where  $p < .05$ . When age was controlled for the  $p$  value did not reach significance where  $p > .05$ .

(d) **Can the spelling of morphemes in the L1 facilitate the spelling of morphemes in the L2?**

Table 7.3 show correlations between spelling of morphemes in the L1 and spelling of morphemes in the L2.

Table 7.3 : *Pearson Product- moment Correlation Between Spelling of Morphemes in the L1 and Spelling of Morphemes in the L2*

	1	2	3	4
1. English Spelling of Morphemes	1	82**	63**	43**
2. Total Strict Consistency		1	49**	31**
3. Total Lenient Consistency			1	32**
4. Malay Spelling of Morphemes				1

\*\* p < .01 (2 – tailed)

### **Relationship between Malay Spelling of Morphemes and English Spelling of Morphemes**

The coefficient of determination was calculated to show how much variance English Spelling of Morphemes and Malay Spelling of Morphemes share. The two variables that correlate  $r = .43$  share 18 per cent of their variance. Malay Spelling of Morphemes helps to explain 18 per cent of the variance in respondents' scores on English Spelling of Morphemes. The positive correlation between the two spelling tests indicate that transfer does take place.

Partial correlation was used to explore the relationship between Spelling of Morphemes in the L1 (as measured by Malay Spelling of Morphemes) and Spelling of Morphemes in the L2 (as measured by English Spelling of Morphemes), while controlling for Malay vocabulary, English vocabulary, age and IQ. Preliminary analyses were performed to ensure that there were no violation of the assumptions of normality and linearity. There was a small positive partial correlation between Spelling of

Morphemes in the L1 and Spelling of Morphemes in the L2, controlling for Malay vocabulary, English vocabulary, age and IQ,  $r = .28$ ,  $n = 124$ ,  $p < .01$  ( $p = .001$ ) with high scores of Malay Spelling of Morphemes being associated with high scores of English Spelling of Morphemes. An inspection of the zero order correlation ( $r = .43$ ) suggested that controlling for Malay vocabulary, English vocabulary, age and IQ had a some effect on the strength of the relationship between these two variables. This indicates that cross language transfer does take place between morphological spelling in the L1 and morphological spelling in the L2.

### **Relationship between Total Strict Consistency and Malay Spelling of Morphemes**

Next the researcher would like to examine the relationship between Total Strict Consistency (an English spelling measure) and Malay Spelling of Morphemes. The coefficient of determination was calculated to show how much variance Total Strict Consistency and Malay Spelling of Morphemes share. The two variables that correlate  $r = .31$  share 9 per cent of their variance. Malay Spelling of Morphemes helps to explain 9 per cent of the variance in respondents' scores on Total Strict Consistency.

Partial correlations was used to explore the relationship between Spelling of Morphemes in the L1 (as measured by Malay Spelling of Morphemes) and Strict Consistency (as measured by Total Strict Consistency) while controlling for Malay vocabulary, English vocabulary, Age and IQ. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. There was a strong positive partial correlation between Spelling of Morphemes in the L1 and Strict Consistency controlling for Malay vocabulary, English vocabulary, Age and IQ,  $r = .45$ ,  $n = 80$ ,  $p < .01$  with high scores of Malay Spelling of Morphemes being associated with high scores of Strict Consistency.

## **Relationship between Total Lenient Consistency and Malay Spelling of**

### **Morphemes**

The relationship between Total Lenient Consistency and Malay Spelling of Morphemes was investigated. The coefficient of determination was calculated to show how much variance Total Lenient Consistency and Malay Spelling of Morphemes share. The two variables that correlate  $r = .32$  share 10 per cent of their variance. Malay Spelling of Morphemes helps to explain 10 per cent of the variance in respondents' scores on Total Lenient Consistency.

Partial correlations was used to explore the relationship between Spelling of Morphemes in the L1 (as measured by Malay Spelling of Morphemes) and Lenient Consistency (as measured by Total Lenient Consistency) while controlling for Malay vocabulary, English vocabulary, Age and IQ. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. The correlation was not significant.

As the results did not show any significance, the partial correlation was run once again this time with the control variables added individually. It was found that scores of Spelling of Morphemes in the L1 were associated with scores of English Lenient Consistency even after controlling for Malay vocabulary  $p < .01$ . When English vocabulary was controlled for  $p < .01$ . When IQ was controlled for  $p < .01$ . When age was controlled for the  $p$  value did not reach significance  $p > .05$ .

### 7.3 Discussion of Results

#### Summary of Results

1. There was no significant relationship between Malay morphological awareness and Malay spelling of morphemes.
2. There was a significant *within-language* relationship between Malay productive morphology (an awareness measure) and Malay spelling of morphemes. However this relationship did not remain significant after the child's age was statistically controlled for.
3. There was a significant cross-language relationship between Malay morphological awareness and lenient consistency (an English spelling measure). This relationship remained significant even when the child's age, English vocabulary, Malay vocabulary and IQ were statistically controlled.
4. There was a significant cross-language relationship between English morphological awareness and Malay spelling of morphemes. However this relationship did not remain significant after controlling for age
5. There were significant cross-language relationships between Malay spelling of morphemes and English spelling of morphemes. In general, these relationships remained significant even when age, IQ, Malay vocabulary and English vocabulary were controlled for.

This discussion will seek to address research question 3 (see section 7.0) through four sub questions:

- (a) Can morphological awareness in the L1 facilitate the spelling of morphemes in the L1?
- (b) Can morphological awareness in the L1 facilitate the spelling of morphemes in the L2?
- (c) Can morphological awareness in the L2 facilitate the spelling of morphemes in the L1?
- (d) Can the spelling of morphemes in the L1 facilitate the spelling of morphemes in the L2?
- (a) **Can morphological awareness in the L1 facilitate the spelling of morphemes in the L1?**

To answer this question two morphological awareness tasks were correlated with a single spelling test. The Malay morphological awareness task was correlated with the Malay spelling of morphemes test and the productive morphology task was correlated with the Malay spelling of morphemes test.

The Malay morphological awareness task comprised the Malay word analogy and the Malay word classification task. The correlation between Malay morphological awareness and Malay spelling of morphemes was a weak one which did not reach significance,  $r = .11$ ,  $p > .05$

The productive morphology task was then correlated with the Malay spelling of morphemes. The correlation was significant,  $r = .24$ ,  $p < .01$ . The strength of the correlation was small although when the coefficient of determination was calculated the two variables were seen to share five per cent of their variance. This shows that there is some evidence of transfer between Malay productive morphology and Malay spelling of morphemes. Malay morphological awareness is associated with Malay spelling scores providing evidence that there is transfer within languages.

This is consistent with the findings of Ramirez, Chen, Geva and Kiefer (2010) who reported moderate to high correlations between morphological awareness and reading measures within and across languages. Spanish word reading was strongly correlated with Spanish morphological production,  $r = .75$ . The correlations were less strong between English word reading and English morphological production,  $r = .52$

Ramirez et al. (2010) also provided strong evidence of cross-linguistic transfer of morphological awareness between Spanish and English. The two Spanish morphological awareness measures explained a significant amount of variance (about 5%) in English word reading. This provides support for the present study which also shows that morphological awareness measures explained a significant amount of variance (5%) in Malay spelling of morphemes.

Nunes, Bryant and Bindman (1997) in their longitudinal study showed that there is a strong link between children's initial grammatical awareness (morpheme awareness) and their subsequent success in the spelling of the '-ed' morpheme. This shows a within languages transfer between English morpheme awareness and English morpheme spelling.

In their study Nunes et al. showed that the children's awareness of morphology is a strong predictor of children's ability to spell words that cannot be spelled using a phonological route alone. Nunes et al. examined the spelling of words that ended in two sounds /t/ and /d/ some of the words, for example, the '-ed' past regular verb were spelled morphologically and not phonetically. For example, the word 'kissed' is spelled with an '-ed' at the end of the word although the end sound is a /t/. The study (Nunes et al., 1997) showed that as children became more aware of morphology they were able to use the '-ed' spelling correctly.

The above shows that children with a high level of morphological awareness were also better spellers of morphemes

(b) **Can morphological awareness in the L1 facilitate the spelling of morphemes in the L2?**

To answer this question two morphological awareness tasks were correlated with three spelling tests:

1. Malay morphological awareness was correlated with English spelling of morphemes.
2. Malay productive morphology was correlated with English spelling of morphemes.
3. Malay morphological awareness was correlated with strict consistency (an English spelling measure).
4. Malay productive morphology was correlated with strict consistency.



5. Malay morphological awareness was correlated with lenient consistency (an English spelling measure).
6. Malay productive morphology was correlated with lenient consistency.

The Malay Morphological Awareness task consisted of the Malay Word Analogy task and the Malay Word Classification task. There was a medium correlation between Malay Morphological Awareness and English Spelling of Morphemes which was significant,  $r = .31$ ,  $p < .01$ . There was also a medium correlation between Malay Productive Morphology and English Spelling of Morphemes which was significant,  $r = .38$ ,  $p < .01$ . Both these correlations show that there is cross – language transfer between the L1 and the L2.

The relationship between Malay Morphological Awareness and English Spelling of Morphemes was further explored by controlling for age and English vocabulary. The relationship remained significant,  $r = .17$ ,  $p < .05$ .

The relationship between Malay Productive Morphology and English Spelling of Morphemes was explored by controlling for age and English vocabulary. In this instance the relationship missed remaining significant with  $r = .16$ ,  $p = .06$

Malay Morphological Awareness did not correlate with strict consistency. The correlation between Malay Productive Morphology and Strict Consistency did not reach significance.

There was a significant cross-language relationship between Malay Morphological Awareness and Lenient Consistency (an English spelling measure). This relationship remained significant even when age, English vocabulary, Malay vocabulary and IQ were statistically controlled,  $r = .23$ ,  $n = 132$ ,  $p < .01$ .

The data supported the hypothesis that morphological awareness in the L1 does facilitate the spelling of morphemes in the L2. In Malay children Malay Morphological Awareness does transfer in a positive manner to their English spelling. Specifically, the results showed that the Malay speaker's Morphological Awareness as measured by the Malay Word Analogy task and the Malay Word Classification task were associated with English Lenient Consistency. The results also showed that children who had high levels of Morphological Awareness in Malay seem to be better spellers of English words.

There was also a positive correlation between Malay Productive Morphology and Lenient Consistency although this relationship failed to remain significant after controlling for Malay vocabulary, English vocabulary, age and IQ.

Most of the correlations between the awareness measures and the spelling measures were significant. This shows that there is cross- language transfer between the measures.

Of all the relationships explored between Malay morphological awareness and English spelling of morphemes the one that is of interest to this study is the relationship between Malay morphological awareness and the spelling task, Lenient Consistency. This relationship remained significant even after controlling for age , English vocabulary, Malay vocabulary and IQ. This showed that high levels of Malay morphological

awareness are associated with high levels English spelling. Malay children in this study seem to be using their knowledge of Malay morphology to help them spell English words that share the same root.

This finding is consistent with that of Nunes and Bryant's (2009) investigation that found that children will be better learners of L2 morphology if they are more aware of morphology in their L1.

Castro, Nunes and Strecht-Ribeiro (cited in Nunes & Bryant, 2009) provided support for the findings of the present study when they investigated whether Portuguese children's awareness of morphology in Portuguese was a predictor of their English learning after one year of instruction. They found that the children's verbal ability measured in Portuguese was significantly related to their English scores (it explained 34% of the variance in the children's English scores). This showed that there is evidence that children's awareness of morphology in their native language is related to their L2 learning.

(c) **Can morphological awareness in the L2 facilitate the spelling of morphemes in the L1?**

The findings supported the hypothesis that morphological awareness in the L2 does facilitate the spelling of morphemes in the L1. There was a small positive correlation between English morphological awareness (which consisted of Word Analogy, Sentence Analogy and Word Classification) and Malay Spelling of Morphemes. The two variables share 4% of their variance.

This is consistent with the findings of Bindman (2004) where she examines the relationship between L2 morpho-syntactic awareness and L1 morphological spelling. She found that the Hebrew Roots task correlated with three English grammatical awareness measures. It correlated most strongly with Sentence Analogy (.51,  $p < .001$ ) and Word Analogy (.53,  $p < .001$ ).

(d) **Can the spelling of morphemes in the L1 facilitate the spelling of morphemes in the L2?**

To answer this question a single Malay spelling task was correlated with three English spelling tasks. The Malay Spelling of Morphemes task was correlated with the English Spelling of Morphemes task. The Malay Spelling of Morphemes task was correlated with English Strict Consistency (a spelling measure). The Malay Spelling of Morphemes task was correlated with English Lenient Consistency (a spelling measure). The data supported the hypothesis that the Spelling of Morphemes in the L1 does facilitate the Spelling of Morphemes in the L2. Malay Spelling of Morphemes correlated strongly with English Spelling of Morphemes. This relationship remained significant after controlling for Malay vocabulary, English vocabulary, age and IQ.

The Malay Spelling of Morphemes task correlated with English Strict Consistency. This relationship remained significant after controlling for Malay vocabulary, English vocabulary, age and IQ.

The Malay Spelling of Morphemes task correlated with English Lenient Consistency. The relationship did not remain significant after controlling for Malay Vocabulary, English Vocabulary, age and IQ.

These findings are supported by a study carried out by De Sousa, Greenop & Fry (2010) in which it was found that in emergent bilingual Zulu-English speaking children, Zulu(L1) spelling word and non-word tasks were moderately positively associated with English (L2) spelling word and non-word tasks. They conclude that children who were good at spelling tasks in Zulu and English were also more likely to be good spellers irrespective of which language was utilized.

#### **7.4 Summary**

The first section of this chapter described the descriptive statistics for both English and Malay morphological measures. The second section dealt with the results and the third section dealt with the discussion.

Only three relationships show that there is cross-language transfer between morphological awareness and morphological spelling, i.e. from the L1 → L2. The first is when Malay morphological awareness is associated with Lenient Consistency (an English spelling measure that scored the child's ability to spell words that share the same root). This shows that children were able to use their knowledge of Malay morphological awareness to help them spell English words on a test.

The second relationship is when Malay spelling of morphemes is associated with English spelling of morphemes. This shows that children who were good at spelling in their L1 are probably also good at spelling words in their L2. Previous studies provide support for this. If their first language is Malay then they would use a phonological strategy to spell Malay words (as Malay has a transparent orthography). They would probably use the same strategy to help them spell English words.

The third relationship is when Total Strict Consistency (an English spelling measure) is associated with Malay spelling of morphemes. Here again there is evidence that Malay children in this study who are good spellers in their L1 are also good spellers in their L2.

Here we can conclude that there is evidence that morphological awareness in the L1 does facilitate morphological spelling in the L2.

## **CHAPTER 8**

### **CONCLUSION**

#### **8.0 Introduction**

This chapter has three sections. Section 8.1 will summarise findings pertaining to the conclusion of the quantitative analysis for study I. Section 8.2 presents findings pertaining to the conclusions of the quantitative analysis for study II and III. This section will compare the conclusions of all the quantitative studies. Section 8.3 deals with implications and directions for future research.

#### **8.1 Quantitative Analysis for Study I**

In the early age group i.e. the seven-year-olds, it was found that cross-language transfer took place from L1 to the L2. Both Malay phonological awareness and Malay morphological awareness in the Year 1 children were used to help these children spell in the L2. The Year 2 children however yielded different results. While Malay phonological awareness was still used by the Year 2 children to help them spell English words in the L2 accurately, Malay morphological awareness was no longer used to help these children spell English words in the L2. Instead the Year 2 children were seen to use their English morphological awareness to help them spell words on the English Spelling Test. Since they now had access to English morphological awareness they no longer made use of their Malay morphological awareness to spell in the L2.

This study shows that Malay phonological awareness is used by Malay children to help them spell English words accurately. This study also shows that Malay morphological awareness is used by Malay children to help them spell English words accurately. This finding is unique to this study as previous studies have not shown this. Even the pilot

study conducted for this current study showed that learners were using Malay morphological awareness to help them spell English words correctly.

This study also showed that there was no evidence of transfer from the L2 to the L1. As discussed earlier, literature on transfer show that it is more likely that transfer will take place from the L1 to the L2 where the L1 has a transparent orthography and the L2 has a less transparent orthography.

## **8.2 Quantitative Analysis for Study II and III**

In the quantitative analysis for study II and III it was found that there was a significant within-language relationship between Malay phonological awareness and Malay phonological spelling. Hence there was transfer from the L1 to the L1, showing that children who had high levels of Malay phonological awareness seemed to be better spellers of Malay words that had a regular grapheme – phoneme correspondence.

Malay phonological awareness was also associated with English phonological spelling. This showed that children were able to use their awareness of Malay phonemes to spell regular words in English. This cross-language relationship remained significant even when the child's age, English vocabulary, Malay vocabulary and IQ were controlled. This is also supported by Rickard Liow and Poon (1998) who found that learners who had Bahasa Indonesia as their L1 had exposure to a transparent alphabetic script and thus could perform well on spelling regular words but did not do so well on the irregular word spelling.

The issue on whether linguistic processes are language universal or language specific was also addressed in the quantitative study I which showed that Malay phonological awareness could be used to help children spell words in the L2 (English) accurately.



The fact that both the quantitative studies I and II showed that phonological awareness could be transferred from the L1 to the L2 provides strong evidence that phonological awareness is a language universal ability that can be applied across languages.

There also was a significant cross-language relationship between Malay morphological awareness and lenient consistency (an English spelling measure which tested the child's ability to recognise that words like 'know' and 'knowledge' share the same stem). This relationship was a strong one as it remained significant even when age, English vocabulary Malay vocabulary and IQ were controlled. The Quantitative analysis for study I showed that Malay morphological awareness was used to help Year 1 children to spell words on the English spelling accuracy test. However this relationship did not persist with the Year 2 children. The Quantitative analysis for study II and III provide stronger evidence that a cross-language relationship exists when all three age groups were analysed together. The data does support the hypothesis that morphological awareness in the L1 does facilitate the spelling of morphemes in the L2. Children who had high levels of morphological awareness in Malay seem to be able to spell English words that require lexical processing in order to spell the words accurately.

It was also found in the quantitative study III that Malay spelling of morphemes were associated with English spelling of morphemes. This relationship remained significant after controlling for Malay vocabulary, English vocabulary, age and IQ. Previous studies provide support for this association as De Sousa, Greenop and Fry (2010) found that the Zulu(L1) spelling word task were moderately associated with English (L2) spelling word task. The investigators concluded that children who were good at spelling tasks in Zulu would more likely be good at spelling tasks in English. Similar to the findings of De Sousa et al. (2010) on performance on spelling tasks, the current study

finds that children who were good spellers on the Malay spelling tasks would also more likely be good spellers on the English spelling tasks. The qualitative analysis of the present study also showed that there was transfer from L2 to the L1 though this relationship was a weak one.

In conclusion the findings of this study are important, especially as they provide original data of crosslinguistic transfer of phonological and morphological awareness between two languages for which empirical data was not available.

### **8.3 Implications and Directions for Future Research**

If phonological awareness and morphological awareness can be transferred to help Malay children spell better in English as can be seen from this study, this then can have implications for the way these subjects are taught in schools. These findings would imply that it does not matter if English is introduced into the school curriculum later than Malay. What seems to be important is to allow the children to receive a good grounding in the Malay language as this will help them later when they learn English (L2).

Another implication is that phonological awareness and morphological awareness seem to help children learn an L2. As such it would be beneficial if educational planners would incorporate training in morpheme and phoneme awareness in the school syllabus as this will help the children learn their L2 more structurally.

Some directions for future research would be to recommend that qualitative data be included as it may provide important insights into how L1 linguistic skills affect L2 learning.

Another suggestion would be that a longitudinal study be undertaken. This would allow the same children who at Time 1 were seven-year-olds to be tested again at Time 2 when they would be in their second year of schooling. In this way the researcher will be able to follow the development of a child's spelling performance over a period of two years. It would also be advantageous if a larger sample of children were tested. A larger sample would also help when undertaking regression analysis.

Also in a longitudinal study the researchers can carry out intervention training where children are given phoneme and morpheme training and it could then be seen if this will improve spelling scores. Nunes and Bryant (2009) observe that intervention studies in the area of phoneme training have been highly successful. They claim that "teaching children about sounds in words and about grapheme-phoneme relations radically improves their reading and spelling (2009:217)

Nunes and Bryant (2009) also found that morphological teaching can have an impact on the child's ability to read and spell in a language. The authors conclude that they are "reasonably confident that children will lose no ground in learning to read and to spell and will probably gain a great deal by being taught about morphemes" (2009:220).

It would not be surprising if an awareness of morphemes and phonemes would not only lead Malay children to be better aware of their first language i.e. the Malay language but also find that this knowledge would help them learn their second language i.e. the English language.

## REFERENCES

- Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- Aidinis, A., & Nunes, T. (2001). The role of different levels of phonological awareness in the development of reading and spelling in Greek. *Reading and Writing: An Interdisciplinary Journal*, 14(1-2), 145 -177.
- Apel, K., & Lawrence, J. (2011). Contributions of Morphological Awareness Skills to Word - Level Reading and Spelling in First - Grade Children With and Without Speech Sound Disorder. *Journal of Speech, Language and Hearing Research*, 54, 1312 - 1327.
- Baskaran, L. (1987). *Aspects of Malaysian English Syntax*. PhD, University of London, London.
- Berko, J. (1958). The child's learning of English morphology. *Word*, 14, 150-177
- Bindman, M. (1997). *Relationships between metalinguistic and spelling development across language: Evidence from English and Hebrew*. PhD, Institute of Education, University of London
- Bindman, M. (2004). Grammatical awareness across languages and the role of social context : Evidence from English and Hebrew. In T. Nunes & P. Bryant (Eds.), *Handbook of children's literacy* (pp. 691 - 710 ). Dordrecht: Kluwer Academic Publishers.
- Bradley, L., & Bryant, P. E. (1983). Categorising sounds and learning to read - a causal connection. *Nature*, 301, 419 - 421.
- Bryant, P., Nunes, T., & Aidinis, A. (1999). Different morphemes, same spelling problems: cross-linguistic developmental studies. In M. Harris & G. Hatano (Eds.), *Learning to read and write: a cross-linguistic perspective*. Cambridge: Cambridge University Press
- Carlisle, J. F. (1995). Morphological awareness and early reading achievement. In L. B. Feldman (Ed.), *Morphological aspects of language processing* (pp. 189 - 209). Hillsdale, NJ: Erlbaum.
- Carlisle, J. F. (2000). Awareness of the structure and meaning of morphologically complex words: impact on reading. *Reading and Writing: An Interdisciplinary Journal*, 12, 169-190.
- Casalis, S., Deacon, S. H., & Pacton, S. (2011). How specific is the connection between morphological awareness and spelling? A study of French children. *Applied Psycholinguistics*, 32, 499 - 511.
- Cazden, C. R. (1974). Play with language and metalinguistic awareness : One dimension of language experience. *The Urban Review*, 7, 28-29.

- Chaiyanara, P.M. (2001). *Fonetik dan Fonologi Bahasa Melayu*. Singapura: Wespac Consult Centre.
- Christensen, L. (2007). *Experimental Methodology*. New York: Pearson International.
- Cisero, C. A., & Royer, J. M. (1995). The development and cross - language transfer of phonological awareness *Contemporary Educational Psychology*, 20(3), 275 – 303
- Creswell, J. W. (2009). *Research Design: Qualitative and Quantitative Approaches*. California: Sage Publications, Inc.
- Cummins, J. (1991). Language and literacy acquisition in bilingual contexts. *Journal of Multilingual and Multicultural Development*, 10, 17 - 31.
- DaFontoura, H. A., & Siegel, L. (1995). Reading syntactic and working memory skills of bilingual Portuguese-Canadian children. *Reading and Writing: An Interdisciplinary Journal*, 7, 139-153.
- Deacon, S. H., Kirby, J. R., & Casselman - Bell, M. (2009). How robust is the contribution of morphological awareness to general spelling outcomes. *Reading Psychology*, 30(4), 301 - 318.
- Defior, S. (2004). Phonological Awareness and Learning to Read: A Cross-Linguistic Perspective. In T. Nunes & P. Bryant (Eds.), *Handbook of Children's Literacy*. Dordrecht, the Netherlands: Kluwer Academic Publishers.
- DeSousa, D. S., Greenop, K., & Fry, J. (2010). The effects of phonological awareness of Zulu - speaking children learning to speak in English: A study of cross-language transfer. *British Journal of Educational Psychology*, 80(4), 517 - 533.
- DiPietro, R. J. (1968). *Language Structure in Contrast*. Rowley, Massachusetts: Newbury House.
- Durgunoglu, A., Nagy, W., & Hancin - Bhatt, B. (1993). Cross - language transfer of phonological awareness. *Journal of Educational Psychology*, 85(3), 453 - 465.
- Ellis, R. (1994). *The study of second language acquisition*. Oxford: Oxford University Press.
- Gallagher, A. and Frederickson, N. (1995) The Phonological Assessment Battery (PhAB): an initial assessment of its theoretical and practical utility. In N. Frederickson and R. Reason (Eds), *Phonological Assessment of Specific Learning Difficulties*. *Educational and Child Psychology*, 12(1), 53–67.
- Gomez, C., & Reason, R. (2002). Cross - linguistic transfer of phonological skills: A Malaysian perspective. *Dyslexia*, 8, 22 - 33.
- Goswami, U. (1999). The relationship between phonological awareness and orthographic representation in different orthographies. In M. Harris & G. Hatano (Eds.), *Learning to Read or Write: A Cross-Linguistic Perspective*. Cambridge: Cambridge University Press.

- Hunter, J., Yule, W., Urbanowicz, M. A., & Lansdown, R. (1989). Cross-Validation of Short Forms of the WISC-R in two British Samples. *British Journal of Educational Psychology*, 59, 366-371.
- Karim, H. A. (2012, 23 October). Focus Equally on Bahasa Malaysia and English, *New Straits Times*.
- Karim, N. S. (1995). *Malay Grammar for Academics and Professionals*. Kuala Lumpur: Dewan Bahasa dan Pustaka.
- Klifman, T. (1990). *Predictive Validity of the Cognitive Ability Scales*. M.A. Thesis, Central Michigan University.
- Kroese, J.M., Hynd, G.W., Knight, D.F., Hiemenz, J.R., & Hall, J. (2000). Clinical appraisal of spelling ability and its relationship to phonemic awareness, phonological memory, and reading in reading disabled, ADHD, and normal children. *Reading and Writing: An Interdisciplinary Journal* 13,105-131.
- Lado, R. (1957). *Linguistics Across Cultures*. Ann Arbor: University of Chicago Press.
- Lee, L. W., & Ong, S. L. (2006). *Phonological Awareness and its Relationship to Word Recognition in the Malay Language*. Paper presented at the Malaysian Research Group International Conference Manchester, United Kingdom.
- Liow, S. J. R. (2012). Diversity in Bilingual Children's Spelling Skill Development: The case of Singapore. In H. Winkler & P. Padakannaya (Eds.), *Handbook of South and Southeast Asian Psycholinguistics*. Cambridge: Cambridge University Press.
- Liow, S. J. R., & Lee, L. C. (2004). Metalinguistic awareness and semi - syllabic scripts: Children's spelling errors in Malay. *Reading and Writing: An Interdisciplinary Journal* 17, 7 -26.
- Liow, S. J. R., & Poon, K. (1998). Phonological Awareness in Multilingual Chinese Children. *Applied Psycholinguistics*, 19, 339 - 362.
- Littlewood, W. T. (1978). *Foreign and Second Language Learning : Language Acquisition Research and its Implications for the Classroom*. Cambridge: Cambridge University Press.
- Mehrens, W. A., & Lehmann, I. J. (1978). *Measurement and Evaluation in Education and Psychology*. New York: Holt Rinehart and Winston
- Mora, J. K. (2010). *Teaching for transfer: A guide to effective biliteracy instruction*. Philadelphia, PA: Caslon Publishing
- Muter, V., & Diethelm, K. (2001). The contribution of phonological skills and letter knowledge to early reading development in a multilingual population. *Language Learning*, 51(2), 187 - 219.
- Ng, C.L.Y. (2013, 7 September). English Proficiency Recognised in Blueprint, *The Star*

- Nunes, T., & Bryant, P. (2004). *Handbook of Children's Literacy*. Dordrecht, the Netherlands: Kluwer Academic Publishers.
- Nunes, T., & Bryant, P. (2009). *Children's Reading and Spelling - Beyond the First Steps*. U.K.: Wiley - Blackwell.
- Nunes, T., Bryant, P., & Barros, R. (2012). The Development of Word Recognition and its Significance for Comprehension and Fluency. *Journal of Educational Psychology*. Retrieved from
- Nunes, T., Bryant, P., & Bindman, M. (1997). Morphological spelling strategies: developmental stages and processes. *Developmental Psychology*, 33, 637-649.
- Nunes, T., Bryant, P., & Bindman, M. (2006). The effects of learning to spell on children's awareness of morphology. *Reading and Writing: An Interdisciplinary Journal*, 19, 767-787.
- Nunes, T., & Hatano, G. (2004). Morphology, Reading and Spelling: Looking Across Languages. In T. Nunes & P. Bryant (Eds.), *Handbook of Children's Literacy*. Dordrecht, the Netherlands: Kluwer Academic Publishers.
- Odlin, T. (1989). *Language Transfer: Cross-linguistic influence in language learning*. Cambridge: Cambridge University Press.
- Omar, A. H. (1992). *The Linguistic Scenery in Malaysia*. Kuala Lumpur: Dewan Bahasa dan Pustaka.
- Othman, Z., & Atmosumarto, S. (2007). *Colloquial Malay*. U.K.: Routledge.
- Pallant, J. (2010). *SPSS Survival Manual*. Berkshire: Open University Press.
- Ramirez, G., Chen, X., Geva, E., & Kiefer, H. (2010). Morphological awareness in Spanish - speaking English language learners: Within and cross language effects on word reading. *Reading and Writing: An Interdisciplinary Journal*, 23(3-4), 337-358.
- Rego, L. L. B. (1999). Phonological Awareness, Syntactic Awareness and Learning to Read and Spell in Brazilian Portuguese. In M. Harris & G. Hatano (Eds.), *Learning to Read and Write: A Cross-Linguistic Perspective*. Cambridge: Cambridge University Press.
- Retrieved from <http://www.scribd.com/doc/22256848/Experimental-Research>
- Rickard, S. (1999). Reading skill development in bilingual Singaporean children. In M. Harris & G. Hatano (Eds.), *Learning to Read and Write: A Cross-Linguistic Perspective*. Cambridge: Cambridge University Press.
- Rispens, J. E., McBride - Chong, C., & Reitsma, P. (2008). Morphological awareness and early and advanced word recognition and spelling in Dutch. *Reading and Writing: An Interdisciplinary Journal*, 21(6), 587 - 607.

- Saiegh-Haddad, E., & Geva, E. (2008). Morphological awareness phonological awareness and reading in English - Arabic bilingual children. *Reading and Writing: An Interdisciplinary Journal*, 21(5), 481 - 504.
- Sapsford, R., & Jupp, V. (1998). *Data Collection and Analysis*. London: Sage Publications Ltd.
- Seliger and Shohamy Retrieved from <http://www.scribd.com/doc/22256848/Experimental-Research>
- Siegel, L. (2004). Bilingualism and reading. In T. Nunes & P. Bryant (Eds.), *Handbook of Children's Literacy*. Dordrecht, the Netherlands: Kluwer Academic Publishers.
- Singson, M., Mahony, M., & Mann, V. (2000). The relation between reading ability and morphological skills: Evidence from derivational suffixes. *Reading and Writing: An Interdisciplinary Journal*, 12, 219-252.
- Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, D.C.: National Academy Press.
- Teoh, B. S. (1994). *The Sound System of Malay Revisited*. Kuala Lumpur: Dewan Bahasa dan Pustaka.
- Torgesen, J. K., Wagner, R. K., Rashotte, C. A., Burgess, S. R., & Hecht, S. A. (1997). Contributions of phonological awareness and rapid automatic naming ability to the growth of word-reading skills in second to fifth - grade children. *Scientific Studies of Reading*, 1(2), 161 - 185.
- Treiman, R. (2004). Phonology and Spelling. In T. Nunes & P. Bryant (Eds.), *Handbook of Children's Literacy*. Dordrecht, the Netherlands: Kluwer Academic Publishers.
- Treiman, R., & Zukowski, A. (1991). Levels of phonological awareness. In S. Brady & D. Shankweiler (Eds.), *Phonological Processes in Literacy*. Hillsdale, NJ: Erlbaum.
- Wechsler, D. (1974). *Wechsler Intelligence Scale for Children - Revised*. New York: Psychological Corporation.
- Wong, R., & James, J. (2004). Malaysia. In H. W. Kam & R. Wong (Eds.), *Language Policies and Language Education*. Singapore: Marshall Cavendish International.
- Yap, M. J., Rickard Liow, S., Jalil, S., & Faizal, S. S. (2010). The Malay Lexicon Project: A database of lexical statistics for 9592 words. *Behavior Research Methods*, 42(4), 992 - 1003.
- Yeong, S. H. M., & Rickard Liow, S. (2011). Cognitive - Linguistic Foundations of Early Spelling Development in Bilinguals. *Journal of Educational Psychology*, 103(2), 470 - 488.



Yeong, S. H. M., & Rickard Liow, S. (2012). Development of phonological awareness in English - Mandarin bilinguals: A comparison of English - L1 and Mandarin - L1 kindergarten children. *Journal of Experimental Child Psychology, 112*(111 - 126).

## **APPENDICES**

## APPENDIX A

### English Spelling Test Session One

Listen to the teacher. You will hear a word then a sentence containing the word and finally the word again. Write down the word in the paper provided.

Instructions to the teacher : Give the children 40 seconds to write down the underlined word in the paper provided.

#### **Session 1 :**

1. gold : My granddad has a gold watch : gold
2. naughty : When I'm naughty my mum tells me off : naughty
3. left : I left the house at 9 o' clock : left
4. length : You can measure length with a ruler : length
5. who : Who is at the door ? : who
6. field : The cow was eating grass in the field : field
7. know : I know how to read : know
8. build : If you build a house with bricks, it will be strong : build
9. boat : They rowed the boat across the river : boat
10. teach : Will you teach me a new game ? : teach
11. sword : The knight killed the dragon with his sword : sword
12. sold : The shop sold pens and pencils : sold
13. heard : I heard it on the radio : heard
14. talk : You mustn't talk in the library : talk
15. slept : I slept well last night : slept
16. ground : I fell on the ground and hurt my knee : ground
17. magician : The magician pulled a rabbit out of his hat : magician

18. when : When will lunch be ready? : when
19. paint : I like to paint pictures : paint
20. laughed : They all laughed at the joke.: laughed
21. bird : The bird flew away : bird
22. comb : I comb my hair every morning : comb
23. sweat : In very hot weather you sweat a lot : sweat
24. belt : You wear a belt to keep your trousers up : belt
25. killed : The cat caught a bird and killed it. : killed
26. strength : She used her strength to lift the heavy box : strength
27. treasures : Aladdin's cave was full of treasures : treasures
28. iron : I iron my clothes to make them smooth : iron
29. worm : The worm wriggled in the earth : worm
30. soft : The cat's fur was very soft : soft
31. opened : She opened the door and walked in : opened
32. where : Where are you going ? : where
33. half : I cut the apple in half : half
34. why : Why did you do that ? : why
35. hearts : The Queen of Hearts baked some tarts : hearts
36. next : Next week I might go to see 'Jurassic Park ' : next
37. knot : I tied a knot in my shoelaces : knot
38. which : Which way shall we go ? : which
39. meaty : The advertisement said the dog food was meaty : meaty
40. special : My best friend is my special friend : special

## English Spelling Test Session Two

Listen to the teacher. You will hear a word then a sentence containing the word and finally the word again. Write down the word in the paper provided.

Instructions to the teacher : Give the children 40 seconds to write down the underlined word in the paper provided.

### Session 2

1. learned : When I started school, I learned to read : learned
2. treasure : The pirates sailed the seas looking for treasure : treasure
3. sweaty : When I run about in the sun I get all sweaty : sweaty
4. except : Everyone except me went swimming : except
5. sent : I sent a letter to my friend : sent
6. lost : I lost my bat at the playground : lost
7. knowledge : My knowledge of dinosaurs is great : knowledge
8. strong : If you drink milk , you will grow up to be strong : strong
9. filled : I filled my glass with orange juice : filled
10. covered : I covered myself up with a blanket : covered
11. specialness : There was a specialness about the new girl in school : specialness
12. heart : My heart was beating fast : heart
13. meat : I went to the butcher's to buy some meat : meat
14. held : I held the money in my hand : held
15. called : I called her name out loud : called
16. what : What are you doing? : what
17. naughtiness : My little sister was full of naughtiness : naughtiness
18. dressed : I got dressed very quickly this morning : dressed

19. stopped : Suddenly, the rain stopped and the sun shone : stopped
20. long : The rope was very long : long
21. kissed : My grandma kissed me on the cheek : kissed
22. found : I found 50 cents in the street : found
23. magic : The magic word is abracadabra : magic
24. told : The teacher told us to be quiet : told
25. felt : I felt ill : felt
26. cold : The weather was very cold yesterday : cold

## APPENDIX B

### Malay Spelling Test Session One Designed for the Pilot Study

Sila dengar dengan teliti. Anda akan mendengar sebuah perkataan, diikuti oleh sebuah ayat yang mengandungi perkataan yang tersebut. Selepas itu anda akan mendengar perkataan itu sekali lagi. Sila tulis perkataan yang anda dengar diatas kertas yang dibekalkan.

#### Session 1

1. besar : Rumah baru Ali adalah besar : besar
2. berikut : Berikut adalah keputusan UPSR tahun 1994 : berikut
3. berjumpa : Saya berjumpa dengan doktor apabila jatuh sakit : berjumpa
4. mahkamah : Peguam merujuk perkara itu ke mahkamah : mahkamah
5. pasaran : Pasaran terbesar bagi getah asli adalah di Amerika Syarikat : pasaran
6. tawaran : Tawaran tuan tidak dapat di terima : tawaran
7. berasal : Buah kiwi berasal dari negara New Zealand : berasal
8. gambar : Kami telah mengambil sebuah gambar keluarga : gambar
9. bermahkota..: Raja-raja yang bermahkota telah memilik Agung yang baru:  
bermahkota
10. berwarna : Baju baru Sofiah berwarna merah : berwarna
11. begar : Budak itu berperangai begar : begar
12. berkumpul : Murid-murid berkumpul untuk perhimpunan : berkumpul
13. saluran : Permohonan itu dibuat melalui saluran rasmi : saluran
14. kahwin : Dia sudah kahwin dan sekarang tinggal di Kuala Lumpur : kahwin
15. beransur-ansur : Hutang itu di bayar beransur-ansur : beransur-ansur
16. belum : Rumah itu belum di bina : belum

17. pelajaran : Ahmad sangat suka pelajaran Bahasa Inggeris : pelajaran
18. beraneka : Di Malaysia ada kebudayaan yang beraneka jenis : beraneka
19. gambaran : Dia memberikan gambaran yang jelas tentang peristiwa itu : gambaran
20. menggemukkan : Salmah menggemukkan anaknya dengan memberinya banyak kuih. : menggemukkan
21. bermain : Budak-budak itu suka bermain dekat sungai : bermain
22. beradik : Ahmad dan Ramli adalah adik-beradik : beradik
23. pasar: Kami pergi ke pasar pada setiap hari Rabu : pasar
24. bebas : Dia sekarang menjadi seorang yang bebas : bebas
25. beku : Daging itu beku : beku
26. dahsyat : Saya melihat kemalangan jalanraya yang dahsyat :dahsyat
27. betul : Jawapan yang diberi oleh murid itu adalah betul : betul
28. pelajar : Pelajar dari kelas 2B telah menang hadiah buku : pelajar
29. pendengaran : Pendengarannya kurang baik : pendengaran
30. bersama : Ali keluar bersama dengan Ahmad : bersama
31. berjalan : Mereka berjalan ke sekolah setiap hari : berjalan
32. berisi : Botol itu berisi dengan gula-gula : berisi
33. kepahlawanan : Kita puji Rizal kerana semangat kepahlawanannya : kepahlawanan
34. membaiki : Dia sedang membaiki keretanya : membaiki
35. memasukkan : Dia memasukkan buku itu ke dalam beg : memasukkan



## Malay Spelling Test Session Two Designed for the Pilot Study

### Session 2

Sila dengar dengan teliti. Anda akan mendengar sebuah perkataan, diikuti oleh sebuah ayat yang mengandungi perkataan yang tersebut. Selepas itu anda akan mendengar perkataan itu sekali lagi. Sila tulis perkataan yang anda dengar diatas kertas yang dibekalkan.

1. manis : Buah oren yang saya beli sungguh manis : manis
2. mengucapkan : Saya mengucapkan terima kasih kepada murid-murid darjah enam : mengucapkan
3. menggunakan : Saya menggunakan minyak sayur-sayuran : menggunakan
4. rahsia : Apakah rahsia kejayaan kamu ? : rahsia
5. mengingatkan : Tolong mengingatkan Faizal membeli tiket-tiket : mengingatkan
6. mengangkut : Ia menolong ibu bapanya mengangkut kayu api : mengangkut
7. buku : Buku yang saya beli sangat mahal : buku
8. menggosok : Azlina menggosok baju dia setiap minggu : menggosok
9. menggantikan : Minyak menggantikan arang sebagai sumber tenaga : menggantikan
10. salur : Salur makanan di huraikan oleh cikgu : salur
11. pahlawan : Pahlawan tanah air sangat di puji : pahlawan
12. menggambarkan : Aishah menggambarkan suasana yang meriah di kenduri : menggambarkan
13. menceritakan : Siti menceritakan bagaimana dia telah nampak satu kemalangan : menceritakan
14. mengejar : Kucing gemar mengejar tikus : mengejar
15. tidak : Saya tidak akan membeli baju dari kedai itu : tidak
16. ikan : Kami boleh menangkap ikan dari sungai itu : ikan

17. mendahsyatkan : Keadaan yang sebenarnya sangat mendahsyatkan hatinya : mendahsyatkan
18. pejabat : Pejabat saya adalah di Kuala Lumpur : pejabat
19. menaikkan : Pekedai itu menaikkan harga barang-barangnya : menaikkan
20. kecil : Adik kecil saya suka makan gula-gula : kecil
21. menghijaukan : Kami menyokong 'Rancangan Menhijaukan Bumi : menghijaukan
22. mahkota : Mahkota negeri telah menyistiharkan hari cuti umum : mahkota
23. mengghaibkan : Ali mengghaibkan diri selepas tindakan mahkamah : mengghaibkan
24. menunjukkan : Jadual itu menunjukkan keuntungan bersih bagi tahun 1990 : menunjukkan
25. membalikkan : Dia membalikkan buku itu ke perpustakaan : membalikkan
26. mendudukkan : Hartini mendudukkan anak patungnya di atas kerusi : mendudukkan
27. mengkahwinkan : Akhir tahun ini, ia hendak mengahwinkan anaknya : mengahwinkan
28. bermahkamah : Bandar itu tidak bermahkamah : bermahkamah
29. menerangkan : Cikgu menerangkan peraturan peperiksaan kepada murid-murid : menerangkan
30. tawar : Dia menuang air teh tawar dari teko : tawar
31. mendengar : Saya mendengar orang mengetuk pintu : mendengar

## APPENDIX C

### Productive Morphology Task / Sentence Completion Task of Malay Non-Words

#### Designed for the Pilot Study

1. Di belakang rumah saya ada beberapa runda. Ada runda kelapa, runda rambutan dan runda durian. Tetapi di belakang rumah Hasnah kawasannya lapang dan tidak \_\_\_\_\_.

*Answer* : berunda

*Malay real word* : tidak berpokok (without trees)

(Behind my house there are some runda. There are coconut runda, rambutan runda and durian runda. Behind Hasnah's house is vacant land with no \_\_\_\_\_.)

2. Azlin golak makanan untuk keluarganya setiap hari. Dia suka \_\_\_\_\_ makanan seperti kari rendang dan ayam goreng.

*Answer* : menggolak

*Malay real word* : memasak (to cook)

(Azlin golak food for her family everyday. She likes \_\_\_\_\_ food like rendang curry and fried chicken.)

3. Encik Halim mempunyai kaki yang besar. Dia memakai bona yang \_\_\_\_\_ besar.

*Encik Halim* \_\_\_\_\_ *merah*.

*Answer* : berbona

*Malay real word* : berkasut (is wearing shoes)

(Mr. Halim has big feet. He wears bona that are big. Mr. Halim \_\_\_\_\_  
red.

4. Ini ialah Encik Hanif. Ia menghata buku-bukunya. Dia kemudian menyuruh isterinya \_\_\_\_\_ kembali buku-buku tersebut

*Answer* : menghatakan

*Malay real word* : menyusunkan (to rearrange)

(This is Mr. Hanif. He menghata his books. He later told his wife to \_\_\_\_\_ again the books.)

5. Nizar mengkalogkan sebuah basikal kepada anaknya. Nizar \_\_\_\_\_ bahawa dia akan membeli basikal itu pada akhir bulan ini.

*Answer* : berkalog

*Malay real word* : berjanji (promised)

(Nizar mengkalogkan a bicycle to his son. Nizar \_\_\_\_\_ that he will buy a bicycle at the end of the month.)

6. Sharma suka utas cincin yang besar. Dia sedang \_\_\_\_\_ cincin pada jarinya.

*Answer* : mengutaskan

*Malay real word* : memakaikan (wearing)

(Sharma likes utas a big ring. She is \_\_\_\_\_ a ring on her finger.)

7. Salmah memberi anaknya banyak duit. Dia suruh anaknya \_\_\_\_\_ wang itu di sebuah bank. Kini anaknya sudah menjusta sebanyak lima ratus ringgit.

*Answer* : menjustakan

*Malay real word* : menyimpan (to save)

(Salmah gave her child a lot of money. She told her daughter \_\_\_\_\_  
the money in a bank. Now her daughter has menjuta 500 dollars.)

8. Siti menyeduskan buku-buku yang perlu di ambil ke sekolah. Sekarang Siti sudah \_\_\_\_\_ untuk hari pertamanya di sekolah.

*Answer* : bersedus

*Malay real word* : bersedia)

(Siti menyeduskan the books which she had to take to school. Now Siti is  
\_\_\_\_\_ for her first day at school.)

## APPENDIX D

### Malay Word Analogy Task Designed for the Pilot Study

1. kebun : pekebun  
(garden) (gardener)  
(Noun) (Noun)  
nasihat : \_\_\_\_\_ Answer : penasihat  
(advice) (an adviser)  
(Noun) (Noun)
2. bukit : berbukit  
(hill) : (hilly)  
(Noun) (Adjective)  
Kecantikan : \_\_\_\_\_ Answer : cantik  
(beauty) (beautiful)  
(Noun) (Adjective)
3. tinggal : meninggalkan  
(lives) (leaves)  
(Verb) (Verb)  
jalan : \_\_\_\_\_ Answer : menjalankan  
(walk) (drives)  
(Verb) (Verb)

4. main : permainan  
(play) (game)  
(Verb) (Noun)

nilai : \_\_\_\_\_ Answer : penilaian  
(assess) (assessment)  
(Verb) (Noun)

5. warna : mewarnakan  
(colour) (to colour)  
(Noun) (Verb)

gambar : \_\_\_\_\_ Answer : menggambarkan  
(picture) (to depict)  
(Noun) (Verb)

6. pukul : memukul  
(beat) (to beat)  
(Verb) (Infinitive Form)

\_\_\_\_\_ : menjahit Answer : jahit  
(to sew) (sew)  
(Infinitive Form) (Verb)

7.    baca               :       membaca  
      (read)               (to read)  
      (Verb)               :       (Infinitive Form)

      susun :       \_\_\_\_\_       Answer : menyusun  
      (arrange)               (to arrange)  
      (Verb)               (Infinitive Form)

8.    pakai               :       memakai  
      (wear)               (to wear)  
      (Verb)               (Infinitive Form)

      kejar               :       \_\_\_\_\_       Answer : mengejar  
      (chase)               (to chase)  
      (Verb)               (Infinitive Form)



## APPENDIX E

### Swapping Phonemes Task Designed for the Main Study

- |     |        |        |
|-----|--------|--------|
| 1.  | book   | hand   |
| 2.  | pen    | tin    |
| 3.  | top    | car    |
| 4.  | hat    | ball   |
| 5.  | bottle | cake   |
| 6.  | zip    | dig    |
| 7.  | glue   | crow   |
| 8.  | fish   | hill   |
| 9.  | tree   | fruit  |
| 10. | cook   | hammer |
| 11. | rabbit | bell   |
| 12. | lamp   | room   |

## APPENDIX F

### Identifying Beginning and End Phonemes Task Designed for the Main Study

- |     |         |         |
|-----|---------|---------|
| 1.  | button  | curtain |
| 2.  | star    | car     |
| 3.  | rock    | book    |
| 4.  | belt    | bus     |
| 5.  | desk    | door    |
| 6.  | window  | waves   |
| 7.  | flower  | fire    |
| 8.  | sparrow | stripes |
| 9.  | kettle  | kite    |
| 10. | nail    | heel    |

## APPENDIX G

### Matching Tasks Designed for the Main Study

- |    |       |   |                   |
|----|-------|---|-------------------|
| 1. | pat   | = | fig, pass, bid    |
| 2. | bat   | = | pack, sleep, bull |
| 3. | kill  | = | hid, lap, key     |
| 4. | fill  | = | set, bag, fan     |
| 5. | choke | = | chip, stage, ten  |
| 6. | meal  | = | laze, date, mark  |
| 7. | thick | = | sing, work, thing |
| 8. | sung  | = | meet, fire, sand  |

## APPENDIX H

### Malay Spelling Test Session One Designed for the Main Study

Sila dengar dengan teliti. Anda akan mendengar sebuah perkataan, diikuti oleh sebuah ayat yang mengandungi perkataan yang tersebut. Selepas itu anda akan mendengar perkataan itu sekali lagi. Sila tulis perkataan yang anda dengar diatas kertas yang dibekalkan.

#### Session 1

1. besar : Rumah baru Ali adalah besar : besar
2. berikut : Berikut adalah keputusan UPSR tahun 1994 : berikut
3. berjumpa : Saya berjumpa dengan doktor apabila jatuh sakit : berjumpa
4. mahkamah : Peguam merujuk perkara itu kepada mahkamah : mahkamah
5. pasaran : Pasaran terbesar getah asli adalah dari Amerika Syarikat : pasaran
6. tawaran : Tawaran tuan tidak dapat di terima : tawaran
7. berasal : Buah kiwi berasal dari negara New Zealand : berasal
8. gambar : Kami telah mengambil sebuah gambar keluarga : gambar
9. bermahkota : Raja-raja yang bermahkota telah memilik Agung yang baru :  
bermahkota
10. berwarna : Baju baru Sofiah berwarna merah : berwarna
11. begar : Budak itu berperangai begar : begar
12. berkumpul ∴ Murid-murid berkumpul untuk perhimpunan : berkumpul
13. saluran : Permohonan itu dibuat melalui saluran rasmi : saluran
14. kahwin : Dia sudah kahwin dan sekarang tinggal di Kuala Lumpur : kahwin
15. beransur-ansur : Hutang itu di bayar secara beransur-ansur : beransur-ansur
16. belum : Rumah itu belum di bina : belum

17. pelajaran : Ahmad sangat suka akan pelajaran Bahasa Inggeris : pelajaran
18. beraneka : Di Malaysia terdapat kebudayaan yang beraneka jenis : beraneka
19. gambaran : Dia memberikan gambaran yang jelas tentang peristiwa itu :  
gambaran
20. menggemukkan : Salmah menggemukkan anaknya dengan memberinya banyak  
kuih. : menggemukkan
21. bermain : Budak-budak itu suka bermain badminton : bermain
22. beradik : Ahmad dan Ramli adalah adik-beradik : beradik
23. pasar : Kami pergi ke pasar pada setiap hari Rabu : pasar
24. bebas : Dia sekarang menjadi seorang yang bebas : bebas
25. beku : Daging itu beku : beku
26. dahsyat : Saya melihat kemalangan jalanraya yang dahsyat :dahsyat
27. betul : Jawapan yang diberi oleh murid itu adalah betul : betul
28. pelajar : Pelajar dari kelas 2B telah menang hadiah buku : pelajar
29. pendengaran : Pendengarannya kurang baik : pendengaran
30. bersama : Ali keluar bersama dengan Ahmad : bersama
31. berjalan : Mereka berjalan ke sekolah setiap hari : berjalan
32. berisi : Saya seorang yang berisi : berisi
33. kepahlawanan : Kita puji Rizal kerana semangat kepahlawanannya: kepahlawanan
34. membaiki : Dia mahu membaiki hubungannya dengan ayah dia :  
membaiki
35. memasukkan : Dia memasukkan buku itu ke dalam beg : memasukkan

## Malay Spelling Test Session Two Designed for the Main Study

### Session 2

Sila dengar dengan teliti. Anda akan mendengar sebuah perkataan, diikuti oleh sebuah ayat yang mengandungi perkataan yang tersebut. Selepas itu anda akan mendengar perkataan itu sekali lagi. Sila tulis perkataan yang anda dengar diatas kertas yang dibekalkan.

1. manis : Buah oren yang saya beli sungguh manis : manis
2. mengucapkan : Saya mengucapkan terima kasih kepada murid-murid darjah enam : mengucapkan
3. menggunakan : Saya menggunakan minyak zaitun : menggunakan
4. rahsia : Apakah rahsia kejayaan kamu? : rahsia
5. mengingatkan: Sila mengingatkan Faizal supaya tidak lupa membeli tiket : mengingatkan
6. mengangkut : Ia menolong ibu bapanya mengangkut kayu api : mengangkut
7. buku : Buku yang saya beli itu sangat mahal : buku
8. menggosok : Azlina menggosok bajunya setiap minggu : menggosok
9. menggantikan : Minyak menggantikan arang sebagai sumber tenaga : menggantikan
10. salur : Salur makanan di huraikan oleh cikgu Sains kita : salur
11. pahlawan : Pahlawan tanah air sangat dipuji : pahlawan
12. menggambarkan : Aishah menggambarkan suasana yang meriah di kenduri tersebut : menggambarkan
13. menceritakan : Siti menceritakan bagaimana dia telah menyaksikan kemalangan itu : menceritakan
14. mengejar : Kucing gemar mengejar tikus : mengejar
15. tidak : Saya tidak akan membeli baju dari kedai itu : tidak

16. ikan : Kami boleh menangkap ikan di sungai itu : ikan
17. kedahsyatan : Pengalamannya telah menggambarkan kedahsyatan peperangan itu :  
kedahsyatan
18. pejabat : Pejabat saya terletak di Kuala Lumpur : pejabat
19. menaikkan : Pekedai itu menaikkan harga barang-barangnya : menaikkan
20. kecil : Adik kecil saya suka makan gula-gula : kecil
21. menghijaukan : Kami menyokong 'Rancangan Menhijaukan Bumi : menghijaukan
22. mahkota : Mahkota negeri telah menyistiharkan hari cuti umum : mahkota
23. mengghaibkan : Ali mengghaibkan diri selepas tindakan mahkamah :  
mengghaibkan
24. menunjukkan : Jadual itu menunjukkan keuntungan bersih bagi tahun 1990 :  
menunjukkan
25. membalikkan : Ali akan membalikkan kuih itu setelah masak : membalikkan
26. mendudukkan : Hartini mendudukkan anak patungnya di atas kerusi :  
mendudukkan
27. mengkahwinkan : Akhir tahun ini, ia hendak mengahwinkan anaknya :  
mengahwinkan
28. menerangkan : Cikgu menerangkan peraturan peperiksaan kepada murid-murid :  
menerangkan
29. tawar : Buaya hidup di air tawar : tawar
30. mendengar : Saya mendengar irima yang sungguh sedap itu : mendengar

## APPENDIX I

### Productive Morphology Task Designed for the Main Study

1. Husal dari ladang getah Pak Ali lumayan. Pokok-pokok getah di ladang Pak Ali \_\_\_\_\_ lebih banyak susu getah tahun ini.

Answer: menghusalkan

2. Azlin golak makanan untuk keluarganya setiap hari. Dia suka \_\_\_\_\_ makanan seperti kari rending dan ayam goreng.

Answer: menggolak

3. Encik Halim mempunyai kaki yang besar. Dia memakai bona yang besar. Encik Halim \_\_\_\_\_ merah.

Answer: berbona

4. Ini Encik Hanif. Ia menghata buku-bukunya. Dia kemudian menyuruh isterinya \_\_\_\_\_ kembali buku-buku tersebut.

Answer: menghatakan

5. Abu melukis gurusan di dalam buku latihannya. Dia kemudian \_\_\_\_\_ seluruh muka surat.

Answer: mengguruskan, menggurus

6. Sharma suka utas cincin yang besar. Dia sedang \_\_\_\_\_ Cincin pada jarinya.

Answer: mengutaskan



7. Salmah member anaknya banyak duit. Dia suruh anaknya menjustakan duit itu di sebuah bank. Kini anaknya sudah \_\_\_\_\_ sebanyak lima ratus ringgit.

Answer: menjusta

8. Halim meninjuk kepada lukisan itu. Dia \_\_\_\_\_ bahawa lukisan itu adalah palsu.

Answer: meninjukan

## APPENDIX J

### Oral Malay Phonological Awareness Task

#### Malay Swapping of Phonemes Task Designed for the Main Study

- |     |         |            |        |          |
|-----|---------|------------|--------|----------|
| 1.  | bilik   | (room)     | mangga | (mango)  |
| 2.  | siku    | (elbow)    | lari   | (run)    |
| 3.  | batu    | (stone)    | rambut | (hair)   |
| 4.  | kaca    | (glass)    | botak  | (bald)   |
| 5.  | tulang  | (bone)     | pokok  | (tree)   |
| 6.  | tali    | (string)   | gua    | (cave)   |
| 7.  | bahu    | (shoulder) | tayar  | (tyre)   |
| 8.  | jarring | (net)      | buta   | (blind)  |
| 9.  | cuka    | (vinegar)  | dawai  | (wire)   |
| 10. | guru    | (teacher)  | gangsa | (bronze) |

## APPENDIX K

### Malay Identifying Beginning and End Phonemes Task Designed for the Main Study

1.	bayar	(pay)	bebas	(free)
2.	padang	(field)	pedas	(hot)
3.	nangka	(fruit)	negeri	(state)
4.	milik	(owner)	bilik	(room)
5.	sultan	(ruler)	sekolah	(school)
6.	pisau	(knife)	putus	(break)
7.	kubis	(cabbage)	nenas	(pineapple)
8.	muzium	(museum)	monogram	(monogram)
9.	getah	(rubber)	gajah	(elephant)
10.	gaji	(salary)	janji	(promise)

## APPENDIX L

### English Word Analogy Task Designed for the Main Study

1. length - long  
width - \_\_\_\_\_  
(wide)

2. sing - sang  
ring - \_\_\_\_\_  
(rang)

2. glad - gladness  
beautiful- \_\_\_\_\_  
(beauty)

4. Sing - singer  
dance - \_\_\_\_\_  
(dancer)

3. run - ran  
see - \_\_\_\_\_  
(saw)

6. give - gave  
tell - \_\_\_\_\_  
(told)

4. train - trainer  
manage - \_\_\_\_\_  
(manager)

8. fight - fought  
buy - \_\_\_\_\_  
(bought)

## APPENDIX M

### English Sentence Analogy Task Designed for the Main Study

1. Ahmad likes Yati. Ahmad liked Yati.  
Ahmad knows Yati. Ahmad \_\_\_\_\_ Yati.  
(knew)
  
2. Latif spoke to Swee Leng. Latif speaks to Swee Leng.  
Latif wrote to Swee Leng. Latif \_\_\_\_\_ to Swee Leng.  
(writes)
  
3. Nadia shook her head. Nadia shakes her head.  
Johan drank a cup of tea. Johan \_\_\_\_\_ a cup of tea.  
(drinks)
  
4. The balls falls to the floor. The ball fell to the floor.  
Fatimah rides the bicycle. Fatimah \_\_\_\_\_ the bicycle.  
(rode)
  
5. The little girl is waving to her friend. The little girl waved to her friend.  
The kite is flying high in the park. The kite \_\_\_\_\_ high in the park.  
(flew)

6. Mariam is baking a cake.

Mariam baked a cake.

Maria is cooking a meal.

Maria \_\_\_\_\_ a meal.

(cooked)

7. Tim sat on the grass.

Tim sits on the grass.

Tim hit the ball.

Tim \_\_\_\_\_ the ball.

(hits)

8. She sleeps on the sofa.

She slept on the sofa.

She takes her medicine.

She \_\_\_\_\_ her medicine.

(took)

## APPENDIX N

### English Word Classification Task Designed for the Main Study

#### 1. Nouns

1<sup>st</sup> set of words

tree, school, chair,

2<sup>nd</sup> set of words

pen            small

Noun         Adjective

#### 2. Adjective

1<sup>st</sup> set of words

hungry,       clever,       big,

2<sup>nd</sup> set of words

lorry         red

Noun         Adjective

#### 3. Verbs

1<sup>st</sup> set of words

climbing,    buying,    sitting,

2<sup>nd</sup> set of words

blackboard       bake

Noun             Verb

4. Adjective

1<sup>st</sup> set of words

green            new            pretty

2<sup>nd</sup> set of words

angry                    egg

Adjective                Noun

5. Nouns

1<sup>st</sup> set of words

bread            window            cat

2<sup>nd</sup> set of words

cave            sit

Noun            Verb

6. Verbs

1<sup>st</sup> set of words

sing,            clap,            sew,

2<sup>nd</sup> set of words

shake            hair

Verb            Noun



7. Nouns

1<sup>st</sup> set of words

apple, socks, eye,

2<sup>nd</sup> set of words

book heavy

Noun adjective

8. Adjective

1<sup>st</sup> set of words

old, cold, shiny,

2<sup>nd</sup> set of words

taxi sharp

Noun Adjective

9. Nouns

1<sup>st</sup> set of words

Boy vegetable hat,

2<sup>nd</sup> set of words

listen jungle

Verb Noun

## APPENDIX O

### Malay Word Analogy Task Designed for the Main Study

1. kebun : pekebun  
(garden) (gardener)  
(Noun) (Noun)
- nasihat : \_\_\_\_\_ Answer: penasihat  
(an adviser)  
(Noun)
2. bukit : berbukit  
(hill) (hilly)  
(Noun) (Adjective)
- kecantikan : \_\_\_\_\_ Answer: cantik  
(beauty) (beautiful)  
(Noun) (Adjective)
3. tinggal : meninggalkan  
(lives) (leaves)  
(Verb) (Verb)
- jalan : \_\_\_\_\_ Answer: menjalankan  
(walk) (drives)  
(Verb) (Verb)

4. main : permainan  
(play) (game)  
(Verb) (Noun)

nilai : \_\_\_\_\_ Answer: penilaian  
(assess) (assessment)  
(Verb) (Noun)

5. warna : mewarnakan  
(colour) (to colour)  
(Noun) (Verb)

gambar : \_\_\_\_\_ Answer: menggambarkan  
(picture) (to depict)  
(Noun) (Verb)

6. pukul : memukul  
(beat) (to beat)  
(Verb) (Infinitive Form)

\_\_\_\_\_ : menjahit Answer: jahit  
(to sew) (sew)  
(Infinitive Form) (Verb)

7.     **baca**            :     **membaca**  
      (read)                (to read)  
      (Verb)                (Infinitive Form)

**susun**            :    \_\_\_\_\_     **Answer:    menyusun**  
      (arrange)                (to arrange)  
      (Verb)                (Infinitive Form)

8.     **pakai**            :     **memakai**  
      (wear)                (to wear)  
      (Verb)                (Infinitive Form)

**kejar**            :    \_\_\_\_\_     **Answer:    mengejar**  
      (chase)                (to chase)  
      (Verb)                (Infinitive Form)

## APPENDIX P

### Malay Word Classification Task Designed for the Main Study

#### 1. Nouns

1<sup>st</sup> set of words

rumah

kereta

topi

2<sup>nd</sup> set of words

buku

cantik

noun

verb

#### 2. Adjectives

1<sup>st</sup> set of words

gembira

manis

gemuk

2<sup>nd</sup> set of words

payung

sejuk

noun

adjective

#### 3. Verbs

1<sup>st</sup> set of words

berjalan

membeli

membaca

2<sup>nd</sup> set of words

sekolah

lihat

noun

verb

4. Adjectives

1<sup>st</sup> set of words

laju

terang

kecil

2<sup>nd</sup> set of words

berat

kotak

adjective

noun

5. Nouns

1<sup>st</sup> set of words

beg

lampu

kerusi

2<sup>nd</sup> set of words

jalanraya

tidur

noun

verb

6. Verbs

1<sup>st</sup> set of words

menari

memakan

menjahit

2<sup>nd</sup> set of words

duduk

gelas

verb

noun

7. Adjectives

1<sup>st</sup> set of words

pendek

cepat

bising

2<sup>nd</sup> set of words

sungai

sibuk

noun

adjective

8. Nouns

1<sup>st</sup> set of words

bukit

pembaris

kasut

2<sup>nd</sup> set of words

telefon

mahal

noun

adjective

9. Noun

1<sup>st</sup> set of words

pintu

meja

almari

2<sup>nd</sup> set of words

jawab

guru

verb

noun