ABSTRACT

This is a case study on morphological awareness in reading comprehension ability of a 14:6 year-old Chinese dyslexic adolescent with a reading age of 12:1 years. The purpose of this study is to examine whether awareness of morphological knowledge helps to improve the reading comprehension ability of the ESL dyslexic adolescent. It also examines the effectiveness of a remedial intervention programme that focuses on morphological awareness training. The first objective of the study is to compare the morphological knowledge of the subject before and after the morphological awareness training. The second objective is to compare the reading comprehension ability of the subject before and after the morphological awareness training.

The researcher conducted questionnaires with the subject, his parents and teacher before carrying out the remedial intervention programme (morphological awareness training). Morphological awareness tests were adapted from Carlisle's (2000) and adopted from Stanfa's (2010) studies. Three types of Morphological Awareness Tests were used; the Word Reading Test (WRT), Test of Morphological Structure (TMS) and Dynamic Assessment Task of Morphological Analysis (DATMA). TMS was divided into derivation and decomposition task. The Reading Comprehension Test was adapted from a Form 2 textbook from the Ministry of Education, Malaysia. The data collected was analyzed qualitatively and quantitatively.

The findings indicated that the morphological awareness training affects the morphological knowledge of the ESL dyslexic adolescent. However, the morphological awareness training does not affect the reading comprehension ability of the subject. The lack of effect on the reading comprehension ability could be due to the limitation of the use of taught morphologically complex words in the reading comprehension test. This study recommends that further research on awareness of morphological knowledge

could be conducted using bigger sample in Malaysian classrooms. More research can also be done on the use of computer and information technology programs in morphological awareness training.

ABSTRAK

Ini ialah satu kajian kes tentang kesedaran morfologi dalam kebolehan membaca pemahaman ke atas seorang remaja cina yang mengidap disleksia yang berumur 14:6 tahun di mana tahap umur bacaannya 12:1 tahun. Tujuan kajian ini ialah untuk mengkaji sama ada kesedaran morfologi membantu dalam meningkatkan kebolehan membaca pemahaman Bahasa Inggeris bagi seorang remaja disleksia yang belajar Bahasa English sebagai bahasa kedua (ESL). Kajian ini juga mengkaji keberkesanan program intervensi pemulihan yang berasaskan pada latihan kesedaran morfologi. Objektif pertama kajian ini ialah untuk mengkaji pengetahuan morfologi seorang remaja disleksia sebelum dan selepas latihan kesedaran morfologi. Objektif kedua ialah untuk mengkaji kebolehan membaca pemahaman Inggeris seorang remaja disleksia sebelum dan selepas latihan kesedaran morfologi.

Penyelidik telah melakukan soal selidik dengan subjek, ibu bapa dan gurunya sebelum melakukan program intervensi pemulihan (latihan kesedaran morfologi) dengan subjek. Ujian kesedaran morfologi ialah disesuaikan daripada kajian-kajian Carlisle (2000) dan diambil daripada Stanfa (2010). Tiga jenis Ujian Kesedaran Morfologi yang telah digunakan ialah Ujian Membaca Perkataan (WRT), Ujian Struktur Morfologi (TMS) and Penilaian Dinamik Analisis Morfologi (DATMA). TMS telah dibahagikan kepada tugas pengimbuhan dan penguraian. Ujian Membaca Pemahaman telah disesuaikan dari buku teks Tingkatan 2, Kementerian Pendidikan Malaysia. Data yang dikumpul telah dianalisis secara kualitatif dan kuantitatif.

Penemuan kajian ini menunjukkan bahawa latihan kesedaran morfologi membawa kesan positif kepada pengetahuan morfologi remaja disleksia ESL ini. Walau bagaimanapun, kajian ini mendapati latihan kesedaran morfologi tiada kesan terhadap kebolehan membaca pemahaman subjek. Kekurangan keberkesanan atas kebolehan

membaca pemahaman boleh dikata disebabkan oleh had penggunaan perkataan morfologi kompleks yang telah diajar dalam ujian membaca pemahaman. Kajian ini mencadangkan bahawa penyelidikan lanjut tentang pengetahuan kesedaran morfologi pada masa hadapan boleh dilakukan dengan kumpulan sampel yang lebih besar dalam kelas-kelas sekolah Malaysia. Lebih banyak penyelidikan juga boleh dilakukan dengan penggunaan program-program teknologi komputer dan maklumat dalam latihan kesedaran morfologi.

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TABLE OF CONTENT

CHAPTER 2 LITERATURE REVIEW

APPENDICES

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

The establishment of the Dyslexia Association of Malaysia (DAM) in 1993 suggests that the awareness about the need to look into the welfare of individuals with dyslexia in Malaysia had already taken root in this country in the early 1990s itself. However, to date, statistics on the prevalence of this disability in the Malaysian population is not available. Gomez (2004) confirms that despite pilot studies and small scale researches conducted to understand this phenomenon in Malaysia, an understanding about the size of the problem has yet to be obtained. The provision of services by the Malaysian Ministry of Education (MOE) through the Special Education Department shows a recognition of the problem and parental awareness about the need to seek support. Thus, providing support for such children is a research area that needs to be explored.

According to Sariah Amirin (Wong, 2009), the president of the Dyslexia Association of Malaysia (DAM) which is a non-governmental organization (NGO), 80% of children with dyslexia cannot read. She also said those who are able to read usually have problems in understanding the content. This is due to their poor short-term memory or comprehension skills. Hence, dyslexic children who are able to decode and read the words that they see do not mean that they are able to understand and extract the information from the text.

Reading is one of the skills that is required in the study of language. Like other countries, it is a crucial skill in the education system of Malaysia (Awang Bolhasan,

2009). The Malaysian primary school system requires our students to master the 3M skills (“Membaca” (Reading), “Menulis” (Writing) and “Mengira” (Arithmetic)). Hence, the reading skill is an essential skill besides writing and arithmetic in the Malaysian education system. Students are also required to master more than one language in their secondary and tertiary education and reading ability is the fundamental key to achieving success from primary to tertiary education level (Palany, 2006). Thus, reading is a vital element throughout the school career for all students.

Irlen (1991) stated that reading is a common problem faced by dyslexics. She mentioned that the common difficulties they faced are when they are working with symbols, letters, or numbers. With the reading difficulties that they have, the dyslexics most likely omit, distort or add words while reading. Many dyslexics are unaware of the underlying problem instead of they just show a lack of interest in any reading tasks.

Children who have dyslexia might get frustrated, angry, or sad because reading and spelling are so difficult ("How do kids with dyslexia feel?," n.d.). Irlen (1991) explained that dyslexics seem to have low self-esteem if they do not see themselves as normal. They may suffer from socialization skills and failure in school, thus, these make them very concerned about their future. According to Irlen (1991), many dyslexics actually have average or above average intellectual abilities. Their intellectual strengths and capabilities need to be explored so that they are able to live normally just like people who are not dyslexic.

According to Laws of Malaysia, Act 685 (2008), Part IV stated promotion and development of the quality of life and wellbeing of persons with disabilities: Persons with disabilities shall have the right to access to public facilities, amenities and services and buildings, access to public transport facilities, access to education, access to

employment, access to information, communication and technology, access to cultural life, access to recreation, leisure and sport. With the equal opportunities are given to persons with disabilities, dyslexics are able to participate and contribute to this society as others do.

According to Lum (2011), 95% of dyslexic children have good responses toward educational interventions and these are reflected in their reading and writing progress. Another 5% continue to experience difficulties and more intensive efforts and long-term supports are needed. This statement is supported by Sariah Amirin's reports on DAM centers which achieve a success rate of 90%. The remaining 10% is usually associated with other learning factors such as Autism and Attention Deficit Hyperactive Disorder (ADHD) (Arfah, 2012). As pointed out by Sariah Amirin in online newspaper ("Kelas Disleksia di 12 sekolah," 2012) about 300,000 dyslexic children lack proper learning facilities in Malaysia. She also added that this issue could bring a great impact on the socioeconomic aspect of the country if this category of children is not provided with suitable and proper teaching facilities and remediation. At the end of 2010, DAM implemented some special education classrooms in schools in Pahang, Kuala Lumpur, Perak, Pulau Pinang, Melaka and Kedah.

To date, there are 9 DAM centres in Malaysia (Ampang, Titiwangsa, USJ, Shah Alam, Penang, Ipoh, Kuantan, Langkawi and Johor) providing intensive training in Bahasa Malaysia, English and Mathematics for dyslexics ("DAM Centres," n.d.). The association facilitates transition for dyslexics from the centres to regular schools. Normally, a three-month course training is provided for dyslexics. After three months, they can continue their schooling in their previous schools or enter one of the 44 primary schools or 16 secondary schools with special programmes for students with dyslexia. (Arfah, 2012).

Although MOE has introduced more special programmes in schools for dyslexics, the demands for more special programmes are still very high. The students with varying degrees of dyslexia are put into the same classroom handled by two teachers (Low, 2010). According to Arfah (2012), there are 12,076 special education teachers in Malaysia as of August 2010. These teachers always handle a class of about 40 specialized students. The lack of special education teachers in the field of dyslexia has slowed down the progress of development.

Other than the efforts by the MOE and Non-Governmental Organisations (NGOs), some private training centres such as homeschooling centres have also set up some classes focusing on learning disabilities programmes. Lak (2009) stated that some Malaysians are turning to homeschooling for a variety of reasons. She said that children with learning disabilities can perform better with homeschooling where more attention are given than going to school. The homeschooling system has provided some alternative choices of learning systems especially for those with learning disabilities.

In Malaysia, dyslexics can be registered under the Department of Social Welfare of Malaysia to enjoy the privileges given by the government. This department provides the registration for persons with disabilities (Orang Kurang Upaya, OKU). According to the Persons with Disabilities Act 2008,

> "person with disabilities include those who have long term physical, mental, intellectual, or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society." (English translated)
>
> ("Laws of Malaysia, Act 685, Persons with disabilities act," 2008, p.9)

Learning disabilities (Masalah Pembelajaran) is one of seven categories for OKU. According to 'Garis Panduan Pendaftaran Orang Kurang Upaya',

> Learning disabilities mean that the intellectual functioning of the brain is not symmetrical with the chronological age. Those who are grouped in this category have Global Developmental Delay (GDD), Down Syndrome and low intelligence level. This category also included the conditions where individual learning abilities are affected. For example, Autism (Autistic Spectrum Disorder), Attention Deficit Hyperactivity Disorder (ADHD) and Specific Learning Difficulty (i.e., Dyslexia, Dyscalculia and Dysgraphia). (English translated.)
>
> (Jabatan Kebajikan Masyarakat, 2011, p.5)

With the help from the Department of Social Welfare, dyslexics can benefit in terms of different aspects of social functions and facilities to minimize the difference that they may encouter.

1.1 Definition of Dyslexia

According to the British Dyslexia Association (2007), dyslexia is defined as:

> A specific learning difficulty that mainly affects the development of literacy and language related skills. It is likely to be present at birth and to be life-long in its effects. It is characterized by difficulties with phonological processing, rapid naming, working memory, processing speed, and the automatic development of skills that may not match up to an individual's other cognitive abilities.
>
> ("British Dyslexia Association, definition of dyslexia.," 2007)

There are different definitions given by different researchers from different perspectives. For example, Wagner (1971) described dyslexia as "a disturbed function of the symbolic and perceptual abilities, manifested in poor reading which is much below the expected grade level for a particular age of the child" (p.21).

According to Peer and Reid (2001), "dyslexia is best described as a combination of abilities and difficulties which affect the learning process in reading, spelling, writing, and sometimes numeracy" (p.2). He also mentioned other associated weaknesses which

have been identified are short-term memory, speed of processing, sequencing, spoken language , auditory and /or visual perception and motor skills.

Payne and Turner (1999) stated that dyslexia is defined in many different ways according to different professionals who are working with dyslexics. That includes doctors, psychologists, linguistics and teachers. Different professionals define dyslexia from a different perspective. Since both Payne and Turner are teachers, they have chosen the definition that focused on how the condition affects a child's learning which is "children who have difficulties in reading, writing, spelling or manipulating number, which are not typical of their general level of performance…"(p.3).

1.2 Statement of the Problem

For young dyslexics, the phonics-based training with multisensory teaching is a fundamental before they proceed to the next stage of learning ("Orton Gillingham multisensory phonics programmes," n.d.). For the dyslexics who have mastered the phonological stage, the awareness of morphological training helps to explore from another perspective to see how the morphological awareness could help them in reading comprehension (Casalis, Cole & Sopo, 2004).

Although, some studies revealed that the morphological awareness training in helping dyslexics read comprehension is an alternative learning strategy, very few morphological awareness studies involved morphological awareness training conducted for dyslexics. For example, Elbro and Arnbak (1996) studied morpheme analysis for word recognition in reading in dyslexia and Elbro & Arnbak (2000) studied the effect of morphological awareness training on reading and spelling skills of young dyslexics in Denmark; Berninger et al. (2008) conducted studies on reading, word decoding and

spelling with students with dyslexia in the United States; Katz and Carlisle (2009) studied on teaching struggling readers from upper elementary to read and understand words.

Hence, the current study is to address the lack of literature on morphological awareness studies on dyslexics in Malaysia and to explore from another perspective, how morphological awareness could help dyslexics in reading comprehension.

1.3 Purpose and Objectives

The purpose of this study is to examine whether awareness of morphological knowledge helps to improve the reading comprehension ability of an ESL (English as a Second Language) dyslexic. It also examines the effectiveness of a remedial intervention programme that targets morphological awareness.

Objectives:

1. To compare the morphological knowledge of a dyslexic before and after the morphological awareness training.

2. To compare the reading comprehension ability of a dyslexic before and after the morphological awareness training.

Research Questions:

1. How does the morphological awareness training affect the morphological knowledge of the selected ESL dyslexic?
2. How does the morphological awareness training affect the reading comprehension ability of the selected ESL dyslexic?

1.4 Significance of the Study

This case study of a dyslexic adolescent is significant as it contributes to the limited literature on the training of morphological knowledge to improve reading comprehension ability of dyslexics in Malaysia. Morphological awareness training can raise the awareness of morphology among ESL dyslexics and enable them to decode unknown words for reading comprehension. Hence, morphological awareness training can be a useful strategy to improve their reading comprehension abilities.

1.5 Limitations of the Study

There is only one subject in this study and the data collection is over a period of three months. Hence, the results cannot be generalized across all other ESL dyslexic learners.

The main problem faced in the course of this study was the difficulty in eliciting detailed information about the subject's learning experiences. The dyslexic himself was very reluctant to participate in many learning activities, thus, the expected outcomes were little. The researcher tried to adapt the activities by including more multimedia elements.

1.6 Summary

In Malaysia, awareness of dyslexia is growing. Many intervention programmes and facilities have been introduced in training centres and some schools in many states in this country to help the dyslexics. However, there is still a need to promote the development of service provision for dyslexics in Malaysia, especially, through co-operation from government organisations and the society. The study of morphological awareness among dyslexics is a new aspect to be explored in Malaysia. This study hopes to explore and investigate the role of morphological awareness training in the reading comprehension ability of an ESL dyslexic.

Chapter 2 will discuss previous morphological awareness studies that have been done on dyslexics and non-dyslexics in several countries.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter introduces the characteristics of dyslexia, the causes of dyslexia, the definitions of morphology, types of morphemes, the role of morphological awareness in reading comprehension, the role of teaching morphological awareness in reading, three morphological awareness tests, the studies on dyslexia in Malaysia and the remedial intervention programme- morphological awareness training.

2.1 The Characteristics of Dyslexia

Apart from experiencing difficulties in reading, writing and spelling, Irlen (1991) said "dyslexics have difficulty following directions, telling time, or finding places without getting lost. They might have problems with memory, coordination, depth perception, and discerning left from right"(p.97).

Furthermore, Texas Education Agency (2010) stated the main difficulty of dyslexics is phonemic awareness whereby, they have problems in identifying the sounds of the phonemes and syllables. Besides that, single-word decoding, fluency in reading and ability in spelling also seem difficult for dyslexics The dyslexics also have difficulties in reading comprehension or written abilities. The South Dakota Department of Education (2010) mentioned these difficulties happen despite age, level of education, cognitive abilities, or family backgrounds of the dyslexics. These setbacks are often inherited in the family history.

According to Peer (2001, p.3), the general areas that are affected include:

a) Processing at speed;

b) Misunderstanding complicated questions although knowing the answer;

c) Finding the holding of a list of instructions in memory difficult, although can perform all tasks;

d) Occasionally, name finding.

The types of problems experienced in reading might be:

a) Hesitant and labored reading, especially reading out loud;

b) Omitting or adding extra words;

c) Reading at a reasonable rate, but with a low level of comprehension;

d) Failure to recognize familiar words;

e) Missing line or reading the same line more than once;

f) Losing the place or using a finger or marker to keep the place;

g) Difficulty in pinpointing the main idea in a passage;

h) Finding difficulty in the use of dictionaries, directories or, encyclopedias.

(Peer, 2001, p.3-4)

2.2 The Causes of Dyslexia

According to Peer (2000) dyslexia happens despite intellectual ability, the learning environment, experience, the teacher or the way of teaching. It is independent of socio-economic or language background.

Irlen (1991) says that the dyslexic's brains are different from a normal person. People who have better development on their left side of the brain than the right side, seem to have better language skills. However, in the case of dyslexics, both sides of the brains seem to have been equally developed. Experts believe this causes the struggle between the left side and the right side of the brain to process the information during the language processing takes places, thus, leading to the difficulties in reading. She also mentioned that the dyslexics who have better development in their right-brains often perform better in creative arts, sports, and other spatial-based activities. This feature is proven in the evidence of the dyslexia handbook for teachers and parents from South Dakota Department of Education (2010), which mentioned that the anatomical and brain imagery studies show differences in the brains of dyslexics and non-dyslexics in terms of the development and the functions.

Lum (2011) explained the phonological processing impairment theory affects reading and writing of dyslexics. Reading and writing requires the ability to recognise the letters in a word, identify from the letters to phonemes, and then put them together to form a word. This phonological processing is believed to be impared in dyslexics. Lum continued to explain the evidence from magnetic resonance imaging (MRI) that there is less activity in the left hemisphere of the brain in dyslexics which involved in producing, analysing and identifying written words when they read. He also pointed out that the MRI has shown that the activity in the cerebellum (at the lower back of the brain) of dyslexics is different from those without dyslexia. The cerebellum is known to be important to the language processing, coordination and assessment of time. This is help to explain why dyslexics have difficulties with coordination and time management.

2.3 Morphology

The term *morphology* was put together by Johann Wolfgang von Goethe (1749-1832) in the early nineteenth century, in a biological context. “In linguistics, *morphology* refers to the mental system involved in word formation or to the branch of linguistics that deals with words, their internal structure, and how they are formed” (Aronoff & Fudeman, 2011, p.1-2). The origin of morphology is from Greek, where: *morph*-means “shape or form”, and *ology*-means “the study of”. Hence morphology is the study of form or forms.

2.3.1 Morphemes

“Morphemes are the smallest recurrent meaningful units of a language. Here, “the smallest” refers to the fact that a morpheme cannot be broken down further into other meaningful units” (Rowe & Levine, 2009, p.87). For example, the word *car* /kär/ cannot be broken down further into other smaller meaningful units. This is because the separate parts equal the meaning of the original word which is “car”. So /kär/ is a morpheme.

2.3.2 Types of Morphemes

2.3.2.1 The Roots

Katamba and Stonham (2006) defined a root as the core and base word which cannot be broken down into any smaller parts and has nothing attached to it. It is the part that will always exist with various forms of a lexeme. As an example, “*talk*” is a root and it could be formed in some other word sets with the core lexeme “*talk”* such as “*talk, talks, talking* and *talked*.”

2.3.2.2 The Free Morphemes

Many words contain a root standing on its own. A free morpheme is the root which is able to stand on its own independently. For example: "*male*", "*car*" and "*rice*" (Katamba & Stonham, 2006). Parker and Riley (2005) added there could be lexical or grammatical types of free morphemes such as lexical (e.g., "*serve*", "*press*") or grammatical (e.g., "*at*", "*and*").

2.3.2.3 The Bound Morphemes

A morpheme which cannot stand alone as a word is a bound morpheme. Similar to the free morpheme, it may be lexical (e.g., "*duce*" as in *produce* and *reduce*) or grammatical (e.g., plural as in *cars* and *snacks*) (Parker & Riley, 2005).

Types of Bound morphemes:

a) Derivational Morphemes:

A derivational morpheme may change the lexical category of a form. For example, the word changed from a lexical category (part of speech) to another lexical category when joined by the "*–or*" as in "*actor*". In this case, "act" means "to perform" while "actor" means "performer". Or, it might change the meaning of the word when joined with the *dis-* in "*disclose*". "*Disclose*" and "*close*" are opposite in meaning. (Rowe & Levine, 2009)

b) Inflectional Morphemes:

"Morphemes that serve only as a grammatical function and do not change the essential meaning or lexical category of a word are called inflectional morphemes" (Rowe &

Levine, 2009, p.91). The "*–s*" in *dogs* changes the singular (*dog*) to plural (*dogs*). Thus, the "*–s*" is an inflectional suffix called a plural marker. There are eight inflectional bound morphemes, and they are all suffixes, as listed in Table 2.1:

Table 2.1: Eight inflectional bound morphemes

The plural marker (*-s*)	The pens are on the table.
The possessive (*-'s* and *-s'*)	It was Andrew's car. They are the boys' toys.
The third person, present singular (*-s*)	He always comes home late.
The comparative (*-er*)	This milk is fresher than that.
The superlative (*-est*)	This is the freshest milk.
The progressive (*ing*)	He is walking down the street.
The past tense (*-ed*)	She arrived late.
The past participle (*-en*)	Jim has beaten his opponents.

(Adopted from Rowe & Levine, 2009, p.91)

2.3.2.4 The Affixes

An affix is a morpheme that only is attached to a root or stem or base (Katamba & Stonham, 2006). In fact, affixes are bound morphemes. None of the affixes can stand on its own, like "*-s*" or "*-ed*" or "*-al*". Below are two common basic types of affixes:

a) Prefixes

An affix that is attached before a root (stem or base) word is a prefix. For example, "*im-*", "*ex-*" and "*pro-*": "*im-port*", "*ex-port*", "*pro-voke*".

b) Suffixes

An affix that is attached after a root (or stem or base) word is a suffix. For example, "*-ly*", "*-er*", "*-ist*", "*-s*", "*-ing*" and "*-ed*": "*kind-ly*", "*wait-er*", "*book-s*", "*walk-ed*", "*vocal-ist*", "*play-ing*", "*mat-s*", "*jump-ed*".

2.3.2.5 The Compound Words

English creates new words by combining old words. “For instance, *blackbird* is clearly formed from the adjective *black* and the noun *bird*. However, a blackbird is a different entity from the true meaning of a black bird. Here, *blackbird* denotes a particular bird species which is not just any bird which happens to be black; however, on the contrary the female blackbirds are brown in colour, but a black bird has to be black in colour. Hence, the expression *blackbird* is a type of ‘bird’, just like the *crow*, but it happens to consist of two words. It is therefore called a compound word.” (Radford, Atkinson, Britain, Clahsen, & Spencer, 1999, p.163)

2.3.2.6 The Morphologically Complex Words

A word that is made up of two or more morphemes is called a morphologically complex word. A complex word may consist of a base or root word and one or more affixes ("Complex word," n.d.).

Usually the morphologically complex words are made up of derivational and root morphemes. For example, “*slowly”* is made up of root morpheme *slow* and derivational morpheme “*–ly*”.

2.3.3 Morphological Awareness

Morphological awareness refers to “conscious awareness of the morphemic structure of words and their ability to reflect on and manipulate that structure.” (Carlisle, 1995, p.194). Hence, it is very important in developing reading-related skills.

Kieffer and Lesaux (2008) mentioned that morphological awareness refers to students' understanding of the structure of words as a combination of meaningful units, known as morphemes (p.784). It can be manifested when the reader is able to decompose the morphologically complex words into constituent morphemes or vice versa. Moreover, the reader has the ability to recognize the morphological relationship between words.

2.4 Reading

Smith (2004) mentioned that many books on reading often defines reading with formal statements like "reading is extracting information from print" (p.179). He stated that reading is not just a visual activity and both visual information and nonvisual information are essential for reading. Reading is not an instantaneous process because the brain cannot immediately make sense of the visual information on print in a page. In fact, "the eyes will move in saccades, pausing at certain fixations to compose visual information" (p.179). Thus, Smith added that reading is not just decoding the print but there is a combination of the visual and nonvisual experience, whereby, the situational context of the information can be related to the background knowledge of the reader. Smith (2004) also stated that slow reading interferes with comprehension. This is because "reading is accelerated not by increasing the fixation rate but by reducing dependency on visual information, mainly through making use of meaning of the words" (p.94). This statement helps to explain the reading rate cause difficulties in reading comprehension.

2.4.1 Reading Comprehension

Harris and Hodges (2005) defined reading comprehension as "Intentional thinking during which meaning is constructed through interactions between text and reader" (p.207).

Tovani (2000) stated that it is important to understand how to construct the meaning from the print if the teachers want to improve their students' comprehension capability. Decoding is not a comprehending process. Hence, reading must be about thinking and constructing meaning of the words in the print.

2.4.2 Struggling Readers in Reading Comprehension

Walker (2008) mentioned that rather than actively constructing meaning, struggling readers perpetually read with one or more of the following characteristics (p.10):

(a) They over rely on a single information source;

(b) They read difficult text with little or no elaboration of content and strategies;

(c) They read without monitoring meaning, resulting in passive reading; and

(d) They define reading as a failure situation and decrease their engagement.

With the characteristics mentioned above, dyslexic readers are passive in reading and they lack learning strategies that can help them to learn better if compared to non-dyslexic learners.

Simmons and Singleton (2000) in their reading comprehension study of dyslexic students in higher education revealed that although the ability to answer literal questions

was similar for dyslexic and non-dyslexic students, the performance of the dyslexic students was poorer in inferential questions.

Simmons and Singleton found the poor lexical automaticity of students which they have more difficulties in making inferences when processing complex text and their impaired working memory as possible cause of the reading comprehension difficulty among dyslexic students.

2.5 Morphological Awareness and Reading Comprehension

Carlisle's study (2000) investigated the 3rd and 5th graders on the relationship of morphological awareness to morphologically complex word reading and reading comprehension. In her study, the morphological awareness tests were conducted with non-dyslexic learners and the results showed an important relationship between morphology awareness and the capability to identify morphologically complex words. 34 3rd and 26 5th graders, who attended a private day school, were selected in this study and given three morphological awareness tests and a reading comprehension test. The morphological awareness tests comprised a morphological structure test which required the learners decomposed and derived the morphologically complex word, a morphologically complex word reading test, and a morphologically complex word definition test.

The findings showed that morphological awareness and the ability to read morphologically complex words together contributed greatly to reading comprehension at both grades. In fact, the morphological awareness contributed more for older learners in reading comprehension when compared to younger learners. This is because the older

learners have greater exposure to morphological complex word and it is easier for them to find out the root word to aid in reading complex words than the younger learners.

Kieffer and Lesaux (2007) studied how 4th and 5th graders were able to break down the words related to vocabulary knowledge and reading comprehension. The study was conducted on 87 non-dyslexic English Language learners (ELLs) whose mother tongues are Spanish and 24 non-dyslexic native speakers. The findings showed that morphology knowledge had a significant relationship to reading comprehension for both graders and became more important as the learners grew older. The outcomes suggested that the teaching of morphology as a learning strategy to improve learners' reading ability. On the other hand, the study also found the morphology knowledge was important in reading comprehension for ELLs as in native speakers.

Deacon and Kirby (2004) studied the comparison between the roles of morphological and phonological awareness independently in reading development in a 4-year longitudinal study. Three reading tasks which included single word reading, pseudoword reading and reading comprehension were conducted among non-dyslexic 2nd and 5th graders. The findings showed that morphological awareness was more significant in pseudoword reading and reading comprehension. The study highlighted the importance of teaching phonological and morphological awareness skills to help students improve in reading tasks.

Kirby et al. (2012) studied the relationship between morphological awareness and reading ability of non-dyslexic children. Their finding indicated a positive relationship between morphological awareness and reading ability. The test was done on 103 children, from 1st graders to 3rd graders. The measures were the phonological awareness test, morphological awareness tests and reading ability tests. The study suggested

morphological awareness should be implemented more frequently in assessment and instruction.

Nagy, Diakidoy and Anderson (1993) studied the contribution of English suffixes to the meanings of derivational words through a test of knowledge on 10 English suffixes toward the derivational words. It was found that the derivational suffixes were always mastered later than all the other affixes because of the abstractness of meaning and were more commonly used in written and formal oral language. The study found there was a significant development in the students' knowledge of suffixes among 4th graders when compared to high school students. This study revealed the students' knowledge of morphology enables them to discover the meaning of the new words through prefixes, roots and suffixes.

The mentioned studies showed there was a significant relationship between morphological awareness and reading for non-dyslexic learners. Till date, there are relatively few studies on the relationship between morphology awareness and reading comprehension among dyslexics. Schiff, Schwartz-Nahshon and Nagar (2011) studied the effect of phonological and morphological awareness on reading comprehension of 7th graders (mean age 12 years 3 months) who are Hebrew-speaking dyslexic learners in comparison with two groups of non-dyslexic learners (chronological age matched group and reading age matched group). The learners were tested on Phonological Segmentation Task, Phonological Manipulation Task, Phonological Decoding Task, Morphological Analogy Task, Morphological Structure Task and Reading Comprehension Task.

The findings showed the morphological abilities among dyslexics were poorer than other learners. This was because the dyslexic group has difficulties mapping letters into

sounds which lead to the failure of decoding and accessing the meaning of words through morphological awareness. This study suggested that the contextual morphological awareness was contributive for non-dyslexic learners on reading comprehension abilities but no such contribution emerged for dyslexic learners.

Elbro and Arnbak (1996) reported about two studies on morphological recognition carried out with Danish dyslexic and non-dyslexic adolescents. The first study investigated the impact of morphological transparency on decoding but only one result of a technique was reported. 26 dyslexic adolescents (mean age 15:3 years) and 26 normal achieving younger age non-dyslexic control group (mean age 9:4 years) took part in the study. The reading age of dyslexic adolescents was 6 years below the chronological age. The subjects were asked to read the sentence and choose the matched picture out of four pictures. As part of the reading test, 19 semantically transparent morphological structures (e.g., lovebird, reading) and 19 words without transparent morphological structure (e.g., trumpet, limerick) were used in the test. The subjects were asked to read aloud the single words. The measure of the study was the degree of the transparent words decoded compared with the non-transparent words decoded.

Their study findings showed there was a positive correlation between morphological dependency and reading comprehension. The dyslexic adolescents group indicated that they relied on the morphological structure which was not found in the non-dyslexic group. In fact, the transparent morphological structure word which included semantic analysis like “sunburn” became very helpful to dyslexic adolescents in the study. The findings showed the morphological structure affected the dyslexics in word decoding. The accuracy and the speed of reading morphological complex words depended on the semantic transparency structure of the words to some extent. This study suggested the

morphological analysis worked as a strategy in word decoding to overcome dyslexics' poor phonological decoding skills.

Elbro and Arbnak also discuss a second study that investigated morphological analysis as a learning technique in reading texts with 16 dyslexic adolescents (mean age 13:7 years) and 16 normal achieving younger age non-dyslexic control group (mean age 8:7 years). The reading age of the dyslexic adolescents was five years below their chronological age. They studied the effect of the morphological structure on reading text with a computer-driven system. Ninety short passages (mostly about a sentence long) were adapted from two standard reading comprehension tests. Each passage was displayed under five conditions on the computer window: a letter at a time, a syllable at a time, a morpheme at a time, a word at a time and a whole passage at a time. There were 18 passages to read under each condition. By pressing a particular key on the keyboard, the computer window displayed a unit in a time under a condition. At the end, five pictures appeared together on the computer screen in which the readers were asked to choose the most suitable one for the content of the text.

In a comparison with the non-dyslexic group, the dyslexic adolescent group has higher accuracy on reading morpheme in this study. The results showed that the dyslexic adolescents were more supported during reading the coherent text and written morpheme recognition may be compensated for poor phonological difficulties to improve the text reading.

Additionally, Elbro and Arnbak (1996) also report on a pilot study on morphological awareness training for 33 dyslexics in an experimental group and 27 dyslexics in a control group aged between 10- to 12-years-old. The teachers in the experimental group received 12 hours morphology training course in a university before teaching dyslexics

morphological awareness. There were 36 lessons on morphological awareness training for the experimental dyslexic group, 3 times a week incorporated into the regular dyslexic remedial class, with 15 minutes teaching on morphology and the rest teaching on traditional reading and writing activities. The dyslexic control group received traditional remedial teaching for the entire study.

The remedial programme was divided into three parts. The first part was the training on compounds. The participants required to divide transparent compounds, to switch the order of the compounds part, and to find out the meaning of the reversed words (the difference between evening song and song evening). The second part was focused on the derivational affixes, both derivational forms and meaning were taught (prefixes like un-, be-, mis-, for- and suffixes -ly, -ness, -ing, -er). The final part was about the inflections of verbs, nouns and adjectives. The tests were in oral method and the same set of tests was administered before and after the training.

The results on reading comprehension suggested that the participants were able to make better use of their decoding skills. Undoubtedly, they have improved the meaning-focused reading strategy as they emphasize on important morphemes. The findings suggest the possibility of having morphological awareness training among dyslexics although the direct effects may not be obvious.

Casalis, Cole and Sopo (2004) studied the morphological awareness in dyslexic French children. They reported two experiments in the article. The first experiment was conducted on a group of dyslexic and two control groups of non-dyslexic readers (chronological age control and reading-age control). There were 33 children in each group: the dyslexic group children with a mean age 10:1 years 1 month; the reading-age

control (RAC) group with a mean reading age 7 years 5 months and the chronological-age control group (CAC) with a mean chronological age of 10:2 years.

The tests used in the study were reading comprehension test, reading test, and phonological and morphological awareness tests. The comprehension test consisted of vocabulary test and the results showed all words are known to them. Later, the children read or heard a sentence, four pictures were presented to them and they had to choose the one related to the sentence. For the reading test, 40 regular words, 20 irregular words and 20 pseudowords were presented to the children individually on cards. In the phonological awareness test, the children were asked to pronounce the remains of the pseudowords which the first phoneme had been removed. The morphological awareness test consisted of Morphological Analysis Task (blending the affixes and root words together or segmenting the morphological complex words to affixes and root words), Suffix Deletion Task (say the root words of the suffixed words pronounced by the experimenter), Derivation In Sentence Completion Task (complete the sentence with derived words or root words), Production After Definition Task (complete the sentence in a derived form) and Morphological Fluency Task (produce "same family" words as many as possible on a given word). The children were tested individually. Three sessions were conducted with 40 minutes each.

The results indicated the dyslexic group and RAC group were matched in word reading level but it was not the case in terms of phonological processing. For the formal tests like reading comprehension test and reading test, the RAC group was performed better than the dyslexic group. In the aspect of morphological test, the dyslexic group showed dissociation in the morphological skills when compared to the CAC group. On the other hand, the great achievement in morphological fluency task by dyslexics suggested they may have benefited from oral and written input.

The second experiment reported Casalis, Cole and Sopo (2004) investigated the different aspects of morphological awareness among dyslexic children with different phonological awareness deficits. They aimed to see the effect of poor phonological awareness in morphological knowledge between two different groups of dyslexics. Two different types of dyslexics which were phonological dyslexics (dyslexics who perform phonological deficits) (PD) and delayed dyslexics (dyslexics who perform almost normal reading level matched patterns) (DD) were involved in the study. A few tests from the first study were taken: phoneme suppression test (to test the phonological awareness), the suffix deletion test, the sentence completion test and production after definition test (to test morphological awareness).

The findings showed that the effect of poor phonological awareness only affects morphological knowledge to some extent. This can be seen from the evidence of the PD who performed similar to DD in the sentence completion test. On the other hand, the DD did not get a better result on morphological tests. The study suggested that the morphological knowledge relied on age and reading experience rather than phonological abilities. Although the dyslexics may be impaired in phonological skills, their knowledge about the root words and derived words corresponded to their reading level. On the other hand, the semantic knowledge of the morpheme played a more important role to dyslexics in reading. Hence, the study suggested that morphological skills can contribute as a compensatory strategy to overcome dyslexics' poor phonological skills in reading.

2.6 The Role of Teaching Root Words, Prefixes and Suffixes

Many studies on the teaching of morphological awareness to non-dyslexic learners showed that it was effective in their literacy development.

There are some intervention studies which indicated the effectiveness of morphology knowledge on reading among non-dyslexic ELLs. Carlo et al. (2004) conducted a vocabulary knowledge intervention which included the teaching of information on context, morphology knowledge, from cognate to infer word meanings among non-dyslexic 5th graders ELLs in the study. The programme lasted for 15 weeks, 30 minutes to 45 minutes four days a week. Ten to twelve target words were taught to ELLs each week during intervention instruction. Every fifth week was dedicated to review of previous 4 weeks' lessons. The intervention group showed they improved better than non-control group on knowledge of the words and reading comprehension. The vocabulary knowledge strategy helps the students to analyse the morphological structure to identify the meaning of the words. The findings revealed that the strategy has a significant impact on reading comprehension.

In terms of knowledge of vocabulary, White, Power and White (1989) studied the implication of teaching morphological awareness. They found there was a rapid growth in vocabulary acquirement during elementary school years especially for Grade 4 and above. Thus, the teaching of root words, prefixes and suffixes contributed to the recognition of vocabulary during these stages of school year. Carlisle (2000) stated that it had a significant linkage among the awareness of the morphemic structure to decode the unknown words and the knowledge of the vocabulary to reading comprehension

Baumann et al. (2002) compared the instruction effects on non-dyslexic students. The three groups: morphemic analysis group, contextual analysis group, combined morphemic contextual group were compared to an instructed control group. The results revealed that the ability to infer word meaning was just effective when the morphemic and contextual analysis instructions were provided in combination rather than separately. However, the results also showed that there was a lack of effect on the

reading comprehension due to a few possibilities: “insufficient transfer power of the general morphology linguistic knowledge learned to influence the reading comprehension; the limitation of the measures (comprehension questions); and the implementation of a limited duration and scope of intervention (short term)” (p.169).

On the other hand, there are a few intervention studies conducted on dyslexic learners. Berninger et al. (2008) studied two specialized writing instructions for dyslexics (4^{th} to 6^{th} graders and 7^{th} to 9^{th} graders) which was orthographic and morphological spelling intervention. The goal of the morphological intervention was to learn the spelling rules of root words and affixes. In the study, both the orthographic and morphological skills together contributed to improvement in silent reading comprehension fluency. The results suggested that the writing instruction may improve reading abilities. The findings showed the significance of teaching phonological, orthographic and morphological strategies to spelling and reading.

Arnbak and Elbro (2000) conducted morphological awareness training for 33 dyslexic learners (experimental group) (mean age 11:0 years) and 27 dyslexic learners (control group) (mean age 11.2 years). The dyslexics in this study were at least two years below expected reading age.

The training was conducted through oral training. This training focused on teaching the semantics of morphemes which were the meaning of the root words and affixes. A set battery of 17 tests were used: morpheme subtraction, compounding, deriving and inflecting new words, phoneme identification, auditor discrimination, phonological distinctness of words, picture naming, receptive vocabulary, synonym production, homonym identification, grammatical knowledge, verbal short term memory, non-verbal cognitive ability, passage comprehension, word decoding, non-word decoding,

reading words and spelling measure. There were three measures of morphological awareness: segmenting compounds into morphemes, morphological analogies and compounding, deriving and reflecting non-words. The same set of tests was used for pre and post-test.

The experimental group showed a bigger achievement in reading comprehension. The study indicated that dyslexics use word decoding skills which were based on recognising morpheme. The findings also indicated that the morphological awareness training had some effects in reading and spelling on dyslexic learners. Teaching morphological awareness to dyslexics would be a good strategy that can help them break down the word parts to understand the unfamiliar word better. Thus, they stated that the awareness in morphology and the ability to do morphemic structure analysis in reading need to be emphasized through morphology awareness training.

Katz and Carlisle (2009) reported three case studies of teaching dyslexic students revealed that their training programme helps the upper elementary dyslexic students to be better readers. Three 4^{th} graders dyslexics (about 9 years old) with mild-to-moderate reading difficulties engaged in the reading tests. The training programme - Close Reading programme combined instruction in both morphological and context analysis strategies were provided to the dyslexic students. Pre-test and post-test measures of reading skills were administered before, during, and after instruction for the 12-week training programme. The reading subtests were Letter-Word Identification, Word Attack, and Passage Comprehension; the language subtests were Picture Vocabulary, Oral Vocabulary, Listening Comprehension and Reading Story Words, Story Words in Context, Transfer Words in Context and Reading Fluency Test.

The results showed all three subjects in the case studies improved their word reading and comprehension in different effect sizes. The results suggested that instruction in morphological analysis contributed to improving word reading and comprehension for dyslexics from the upper elementary years.

Goodwin and Ahn (2010) stated that the teaching of morphological awareness has proven an important improvement on literacy achievement in their study on meta-analysis across several morphological intervention studies. They found that the teaching of morphological awareness has a great impact for children with disabilities (e.g., low achieving learners, speech disabilities learners and struggling readers). The findings suggested that the morphological awareness training should be implemented in the remediation and teaching programme for these struggling learners.

2.7 Three Morphological Awareness Tests:WRT, TMS and DATMA

Carlisle (2000) used Word Reading Test (WRT) and Test of Morphological Structure (TMS) to investigate the relationship of the awareness on the meaning of morphemic structure to morphologically complex word reading and reading comprehension by non-dyslexic 3rd and 5th grade learners. Each student was given the WRT and TMS test individually in a quiet setting. Both WRT and TMS took about 20 minutes. The performance of WRT was recorded and scored by the researcher. The results showed that both 3rd and 5th graders' performance was better on reading transparent words (e.g., powerful) than reading shift words (e.g., heavily). For the TMS, the derivation task (e.g., profit. Selling cold drink in hot weather is _____. Answer: profitable) was considered more challenging than the decomposition part (e.g., growth. She wanted her plant to _____. Answer: grow) even if it was for 5th graders. This was because the students need to have the knowledge of the grammatical role and meaning

of affixes to fill in the meaningful sentences in derivational task when compared to decomposition task (Carlisle, 2000).

The finding suggested all three various kinds of morphology measures in Carlisle's study together contributed to improve both reading measures of vocabulary and comprehension. The three morphology tests (WRT, TMS, Definition) were strongly related to each other and they had a stronger impact when worked together than by itself.

Carlisle and Fleming (2003) used the TMS as one of the measures in their longitudinal study on lexical processing of morphological complex words with the non-dyslexic elementary students. After the first test, they tested the elementary students two years later and found there was a relationship between awareness of morphological structure and the word processing in sentences and the reading comprehension. The understanding of the meaning of the morphemic structure in complex word has the greatest impact on reading comprehension two years later.

Kieffer and Lesaux (2008) studied the relationship between derivational morphological awareness and English reading comprehension among non-dyslexic ELLs from 4^{th} to 5^{th} grade. The TMS derivational awareness test was adapted from Carlisle (2000) as a measure to test the relationship with reading comprehension. The correlation between derivational morphological awareness and reading comprehension ability increased and the morphological awareness became an important predictor of reading comprehension.

As early as 1987, Carlisle has used the TMS as one of the test measures to test the relationship between morphological knowledge and spelling derived form between 9th grade dyslexic learners and 4th, 6th and 8th grade non-dyslexic learners. The findings

showed there was a gap between the oral productions and spelling of derived words for both dyslexic learners and non-dyslexic learners. All the learners performed better when answering the test orally compared to the spelling of derived words but the results were more obvious for dyslexic learners.

The TMS and Dynamic Assessment Task of Morphological Analysis (DATMA) were used in Stanfa (2010) to test the morphological knowledge of 27 non-dyslexic Grade 6th native speakers from the southwestern region of Pennsylvania.

DATMA was designed to measure different levels of morphological knowledge and ability. The participants were tested individually and showed with some derived words and requested to give meaning for each word.

The findings revealed that DATMA was significantly correlated with the Derivational task in the TMS (r =.536, p =.004) (Stanfa, 2010, p.90). This is supported by Carlisle (2000) that the morphology measures were interrelated and had stronger impact when used together. This was because the students needed to have better knowledge of the grammatical role and meaning of the affixes to produce derived words (as in TMS). This was close to the ability to define the morphologically complex word through morphological analysis (as in DATMA).

Stanfa (2010) mentioned that there were limitations in making conclusions about the dynamic aspect of DATMA. This was due to the feedback about the effectiveness of the prompting instruction which was not conducted. Thus, it was difficult to identify empirically how the cue prompts instruction really helped the children in identifying the meaning of the morphologically complex words.

According to Larsen and Nippold (2007), the morphological complex words used in DATMA were adapted from Carlisle (2000). Thus, the morphologically awareness tests DATMA was complementing WRT and TMS from Carlisle (2000). Larsen and Nippold (2007) stated that the morphologically complex words used in DATMA were in accordance to the frequencies of the words which were determined by using The American Heritage Word Frequency Book (Carroll, Davies, & Richman, 1971). The high frequency words mean words happening on printed materials with at least once in a hundred thousand words while low frequency words were those happening not even once in a hundred thousand words. The morphologically complex words selected in DATMA word list were high frequency root words with low frequency affixes form. The high frequency root words were able to help the students break down the words into the constituent morpheme to determine the meaning of the morphologically complex words.

2.8 Remedial Intervention Programme-Morphological Awareness Training

The Dyslexia Association of Malaysia (DAM) official website suggested that the most common teaching technique given to dyslexic children is the multisensory approach which integrated a few senses (e.g., visual, auditory, kinesthetic and tactile elements) at the same time.

This is similar to the Orton Gillingham approach mentioned "multisensory teaching is simultaneously visual, auditory, and kinesthetic-tactile to enhance memory and learning. Links are consistently made between the visual (what we see), auditory (what we hear), and kinesthetic-tactile (what we feel) pathways in learning to read and spell." ("What is meant by multisensory teaching?," n.d.)

Since the dyslexics' concentration span is poor, the teaching will only be effective with many breaks in between instead of teaching for long hours continuously. The teaching should incorporate creative and fun methods such as learning-featured games. In addition, the use of modern teaching technologies could be a bonus in teaching dyslexics (i.e., online and computer programmes). The instructions to the dyslexics should be always given slowly, loudly and clearly to ensure the dyslexics understand. Nonetheless, repetition is always necessary and the teacher will have to emphasize on the verbalization and blending of the sounds since the dyslexic is poor in phonological processing ("Teaching a dyslexic child," n.d.).

Margaret Byrd Rawson, a former President of The Orton Dyslexia Society (the precursor to The International Dyslexia Association) said:

> Dyslexic students need a different approach to learning language from that employed in most classrooms. They need to be taught, slowly and thoroughly, the basic elements of their language -- the sounds and the letters which represent them -- and how to put these together and take them apart. They have to have lots of practice in having hands, eyes, ears, and voices work together for the conscious organization and retention of their learning.
>
> ("What is meant by multisensory teaching?," n.d.)

Schloss (2001) stated every dyslexic is different and should be treated differently. They can be taught learning strategies and methods to overcome most of their difficulties in reading, writing and spelling. The teacher needs to be patient while teaching and looking for the most suitable method to teach every individual dyslexic.

Lee (2002) conducted the morphology awareness training and found it was useful for learning and increasing English vocabularies and, hence, building up reading comprehension while motivating the students. Lee (2005) stated that the students with knowledge of frequently used affixes and roots increase their comprehension of a great

number of words. The instruction in morphemic analysis is said to play a role in assisting the students to define unfamiliar words.

Baumann, Ware, and Edwards (2007) suggested teaching students the vocabulary strategy known as the "Vocabulary Rule." It consisted of three strategies that students should try when they come across an unknown word while reading. First they should use context clues to help identify the unknown word. Second, they should see if the word can be broken into a prefix or suffix and root to help identify its meaning, and third they should read the sentence context again to see if they are able to find out its meaning successfully. By teaching students the meanings of various roots, suffixes, prefixes, and how to apply this strategy to decipher the meaning of new words, the students may have this morphemic analysis skill to help in their vocabulary development, thus, enhancing their reading abilities.

Brabham and Villaume (2002) found that activities such as word play and games were useful for learning vocabulary in early language development. The use of prior knowledge, context clues and breaking down the word structure worked as an effective strategy in helping students understand the meaning of unfamiliar words. Undoubtedly, the games and multisensory games were considered one of the most effective compensatory strategies in teaching dyslexic students.

According to Singleton (2009), "a multisensory teaching environment is created where there is active and interactive integration of visual, auditory, kinesthetic and tactile elements (p.23)," which is an integration of all different kinds of senses. Peer and Reid (2001) acknowledged the significance of incorporating multisensory activities in the teaching lessons. They adapted Kathleen Hickey's Multisensory Language Course to meet the needs of teaching English as a foreign language in Israeli dyslexic pupils.

Moreover, Arnbak and Elbro (1996) pointed out that the teaching of morphological awareness work as a continuum in teaching phonological awareness.

2.9 Studies on Dsylexia in Malaysia

There is a lack of studies on morphological awareness of dyslexics in Malaysia. Some previous studies on dyslexia in Malaysia are on the reading comprehension abilities of a dyslexic child (Sankaran, 2006); language abilities of a dyslexic child (Palany, 2006); identifying phonologically-based reading difficulties (dyslexia) in Malaysian children learning to read (Gomez, 2004); the use of animation as an specific instruction for dyslexic children (Umar, Abdul Rahman, Mokhtar & Alias, 2011); multimedia elements as instructions for dyslexic children (Abdul Rahman, Mokhtar, Alias & Saleh, 2012) and the relationship between the degree of dyslexia and the demographic factors in Sarawak (Awang Bolhasan, 2009). Chan and Haron (2012) studied the life experiences of individuals living with dyslexia in Malaysia. Husni and Jamaludin (2009) studied Automatic Speech Recognition (ASR) technology for children with dyslexia with immediate intervention to support reading in Bahasa Melayu. Mac (1999) studied the materials and strategies to help dyslexics read and spell; dyslexics with Attention Deficit Disorder (Mac, 2001); causes, problems and solutions of dyslexia (Mac, 2003) and others. Thus, there is definitely a need to study morphological awareness among ESL dyslexics in Malaysia.

With the ESL dyslexics who have broken through the barrier of phonological processing problem, morphological awareness becomes an alternate beneficial strategy to help them perform better in reading comprehension. Hence, this case study is on morphological awareness in reading comprehension abilities of a dyslexic adolescent. The pre- and post-test design study with a remediation programme for the dyslexic

adolescent is able to give a clearer picture about how morphological awareness could actually helps in the ability of reading comprehension of a dyslexic. This study tries to fill in the research gap with a case study on an ESL dyslexic adolescent in a Malaysian context.

2.10 Summary

Morphological awareness has a significant role in reading comprehension for both dyslexics and non-dyslexic learners as well as for native English speakers and English Language learners. In this study, the researcher has and adapted two morphological awareness tests which are Word Reading Test (WRT) and Test of Morphological Structure (TMS) from Carlisle's (2000). Another morphological awareness test, called the Dynamic Assessment Task of Morphological Analysis (DATMA) is adapted from Stanfa's (2010) to test the morphological awareness abilities of the dyslexic adolescent.

Various morphological awareness tests undertaken by many researchers; yield to the results that the morphological awareness has a small or large size positive effect on vocabulary and reading comprehension across different types of learners. The findings from previous studies showed that implementing morphological awareness training into the teaching system to teach students the structure and meaning of morphemes is important. This is to teach the knowledge of affixes and root words explicitly to the dyslexic learner so that it can be used as a learning strategy in reading ability and literacy development.

Chapter 3 will further discuss the research design of this study and how the researcher carried out the three morphological awareness tests, reading comprehension test and the morphological awareness training with a dyslexic adolescent.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter introduces the subject, research design, description of tests and remedial intervention programme-morphological awareness training, data collection procedure and data analysis procedure of the study.

3.1 Subject

A 14-year-old Chinese dyslexic adolescent was the subject in this study. His chronological age (CA) was 14 years 6 months (when this study was conducted) but his reading age (RA) was 12 years 1 month based on Schonell Reading Test downloaded from http://www.crackingtheabccode.com/files/Schonell%20Reading%20Test(1).pdf. The assessment was carried out following the instructions in the accompanying document. The words were read from left to right and one mark is given for each word correctly pronounced. The subject's RA was found to be 2 years and 5 months below his CA.

The subject is a Chinese born in Malaysia. He usually speaks English at home and is able to communicate quite fluently in spoken English. He is able to understand and speak some Mandarin and Cantonese. He is not proficient in terms of fluency in oral and written skills for the Malay Language.

The subject is the youngest child and he has three elder brothers and one elder sister. Before the remedial intervention programme took place, an informal interview was

conducted with the subject's mother, in order to understand the subject's learning background and progress during his childhood. According to his mother, the two elder sons have reading difficulties but they managed to cope during the school years. Another son and the subject also face similar difficulties at the Chinese Primary School that they were attending before. His parents have withdrawn both of them from the mainstream school system and put them in current home school programme at the centre. The female child, however, does not have any reading problems.

Having the experiences of the elder sons who struggled with reading difficulties, the parents have arranged for the assessment in University Kebangsaan Malaysia hospital for the subject. The results showed he has reading difficulties. The parents have also obtained the OKU (Orang Kurang Upaya) (People with disability) card under the category of Learning difficulties (see Appendix 1) for the subject.

After the assessment, the parents relocated the subject and his brother to the home school centre which provides a home school programme they are attending now. The subject entered the centre when he was 9 years old. The centre has done a basic placement test on his reading for English single words and reading comprehension, spelling and writing. The results indicated that he was average in his English test (see Appendix 2). Before the subject proceeded to the home schooling classroom, he was placed in phonics reading class for a year in the same centre.

The home school programme is called Accelerated Christian Education (A.C.E). A.C.E Curriculum is also known as School of Tomorrow where the students sit in cubicles with a teacher in a classroom ("Accelerated Christian Education Curriculum," n.d.). Whenever the students need to ask questions they will put the flag on the pole on the top of their desks and the teacher will come forward to assist them. Different from the

conventional textbook, the A.C.E has divided the curriculum into bite-sized work texts called PACEs. Each PACE is equal to a chapter in a standard textbook. There are 12 PACEs in each subject for each grade level. PACEs combines character-building lessons into the academic content. The activities are self-instructional. It is designed to develop the thinking skills of the students ("What is a pace?," n.d.). This system is customized to the needs of the advanced learner, the moderate learner and the slow learner.

3.2 Research Design

A pilot test was carried out with another 14-year-old (CA) dyslexic adolescent with 12 years 8 months old (RA) who is from the same home school centre to test the feasibility of the Reading Comprehension Test used in this study. The adolescent is fluent in English and he achieved 71% score in the reading comprehension pilot test. The time taken to complete each test and the results were jotted down to estimate his duration needed for a dyslexic adolescent. The report findings found that each comprehension passage he took approximately 30 minutes to complete and the level of difficulty was appropriate. The subject spent much time on refering back to the comprehension text due to his short-term memory ability and those answers given were short. The short and simple answers were given scores even though they are not fully completed.

Thus, the same reading comprehension test was taken to the present study to test the reading comprehension ability of the subject. The present study was initiated with the chosen subject after taking into consideration the findings of the pilot test. After two weeks, the study with the subject was carried out at the home school centre and the subject's home. This study was designed to include a pre-test and post-test for both morphological awareness and reading comprehension. Various morphological

awareness tests were carried out to ascertain the morphological awareness level of the subject, while the reading comprehension test was to assess the ability of the subject in comprehending the text. It is noted that the subject had limited amount of prior knowledge about morphological items that include prefixes and suffixes, as he had learnt them from the PACE lessons (refer to page 46 for details of PACEs). After the pre-test, the subject was given 24 lessons of remedial intervention programme-the morphological awareness training before the post-test was conducted at the end of the three-month period.

The research design used in this study was adapted from Carlisle (2000) and taken from Stanfa's (2010) measures. In this study, the measures of the morphological awareness were carried out by using three types of Morphological Awareness Tests which were Word Reading Test (WRT) (see Appendix 7), Test of Morphological Structure (TMS) (see Appendices 8a & 8b) and Dynamic Assessment Task of Morphological Analysis (DATMA) (see Appendix 9).

WRT was taken from Carlisle (2000) and TMS was adapted from Carlisle (2000). The researcher adapted some of the original sentence's contexts to Malaysian context to be more comprehensive. For example, "Selling lemonade in the summer is _____." was changed to "Selling cold drink in hot weather is _____." "He won the vote by a _____." has changed to "The prime minister won the vote by a _____." "Put the laundry in the _____." has changed to "Put the dirty clothes in the _____." There were two parts for TMS which were divided into derivation and decomposition task. The derivation task in Part 1 required the subject to derive a word from a root word given in a sentence context (e.g., teach. He was a very good _____. Answer: teacher). The decomposition task in Part 2 required the subject to extract the root word

from a derived word given in a sentence context (e.g., Dicussion. The friends have a lot to _____. Answer: discuss).

The definition test called Dynamic Assessment Task of Morphological Analysis (DATMA) was taken from Stanfa (2010). The DATMA was used to test the understanding of the subject on meaning of the constituent morphemes and to define the word correctly based on the provided cues.

The Reading Comprehension Test was designed by selecting five reading texts from the KBSM (Integrated Curriculum of Secondary Schools) text book for Form 2 (targets 14 year old students). The chosen texts cover different topics of interest and were presented in the order of difficulties. Reading Comprehension tasks that were available in the text book were adapted to match the present purpose which was to gauge the subject's general reading ability. (Refer to page 49 for further details of this test).

3.3 Description of Tests

3.3.1 Word Reading Test (WRT) (Adopted from Carlisle's (2000) study)

In this study, the WRT was taken from Carlisle (2000) (see Appendix 7). The purpose of the WRT was to assess the subject's ability to read morphologically complex words. The test contained a total of 45 words which were divided into two sets.

Set A contained 25 high surface frequency words with the Standard Frequency Index at or above 40. 9 Transparent words were in set A in which the root word was fully represented in the morphologically complex word. The way to pronounce it and the meaning of the morphologically complex word could be predicted from the constituent morphemes (e.g. *lovely, powerful*). Another 16 Shift words which appear different from

their root words in terms of orthographic and/or phonological characteristics (e.g. *solution, trial*) were included in Set A.

Set B has 20 words that has high frequency root but low surface frequency. This means the root words were considered common and frequently used but the derived morphologically complex words were rare. All the words in Set B had transparent relations in which the root words were easy to recognize from the morphologically complex words (e.g. *puzzlement*).

3.3.2 Test of Morphological Structure (TMS) (Adapted from Carlisle, 2000)

TMS was adapted from Carlisle (2000) (see Appendices 8a & 8b) and the purpose was to assess the awareness of the subject on the relationships of root words and derived words. The test was divided into two parts with 28 items, plus an additional two practice items each for the Derivation part and the Decomposition part. The two parts of the TMS involved a test of sensitivity toward morphemic structure. The subject was required to decompose and derive morphological complex words to fill in the blanks in the provided sentences (see Appendices 8a & 8b). The derivation and decomposition parts of TMS contained transparent word relations such as the way to pronounce the root word remains in the derived word, such as *remark* in *remarkable*. Meanwhile, there are Shift words in which the phonological representation changes in root words to derived words, such as *produce* in *production*.

3.3.3 Dynamic Assessment Task of Morphological Analysis (DATMA) (Adopted from Stanfa, 2010)

The DATMA used in this study was adapted from Stanfa (2010) (see Appendix 9) and used to measure the different levels of morphological knowledge ability in determining word meaning. The DATMA has 15 derived words definition test. Two additional

derived words were included in a practice set. It required the subject to give definitions of some derived words with cues prompts to them or until the subject give the meaning of the word correctly. This cueing structure can help the researcher to understand the underlying thinking process and knowledge of constituent morpheme of the subject.

3.3.4 Reading Comprehension Test (For pre-test and post-test) (Adapted from Mohd Salim, Kang & Kok, 2003)

The Reading Comprehension Test (see Appendix 11) used was adapted from Mohd Salim, Kang and Kok (2003) English Form 2 textbook according to Kurikulum Bersepadu Sekolah Menengah (KBSM), Ministry of Education, Malaysia.

The original passages were integrated with some learned morphologically complex words during the intervention program for the aids of subject in comprehending the text. Various forms of questions were asked to test the level of the comprehension abilities of the subject. Literal questions, inferential questions and evaluative questions were also included in the Reading Comprehension Test. More literal questions are provided because they can be answered by extracting the information from the passage. For example, "When did Dr Mahathir become the Prime Minister?" The inferential questions can be answered by inferring the situation described in the passage. The subject will have to comprehend the text in order to give the correct answers. For example, "Why do you think kayu cengal is used to build the boats?" The evaluative questions were used to elicit the values and logical thinking ability of the subject. There are no answers provided in the text and the subject has to generate the answers by himself. For example, "Make a prediction. What will happen if the boats from Pulau Duyung are made of poor quality wood?" The forms of questions are presented in Table 3.1.

Table 3.1: Forms of questions in Reading Comprehension Test

Passage	Title	Forms of questions	Literal questions	Inferential questions	Evaluative questions
1	Sail away, sail away	Answering questions	4	1	
		Matching sentence parts to form meaningful sentences	4		
		Giving logical answers			2
2	Malaysia's longest serving Prime Minister	Answering questions	2	2	
		Choosing the correct answers	3	1	
		Giving definitions			1
3	Letter from a mother	Answering questions	1	2	
		Choosing the correct answers	1	6	
		Giving logical answers			3
4	Skateboarding, anyone?	Choosing the correct answers	1	5	
		Giving logical answers		1	2
		Naming items	4		
5	Unusual plants	Answering questions	2	2	
		Choosing the correct answers	5		
		Naming items	2	1	
		Sequencing pictures		6	
		Total	29	27	8

3.4 Description of the Remedial Intervention Programme - Morphological Awareness Training

The intervention has 24 lessons altogether with 45 minutes allowed for each lesson. There were 7 lessons in teaching prefixes and root words, 10 lessons in teaching suffixes and root words, 3 lessons in teaching prefixes, root words and suffixes simultaneously and 4 lessons for full revision.

Each lesson targets to improve the subject's grasp of prefixes and suffixes. The lessons in this study were integrated with various suggested activities in morphemic structure awareness study. For example, Flip-a-Card is developed from Lee (2002) Flip-a-Chip. Lee found that teaching method was not only increasing the subjects' vocabulary development but also helped in teaching syllables and comprehension of meaningful affixes. The circle shaped cards with 10cm diameter were used in this study to replace chips suggested by Lee. Each set of circle shaped cards contains two root words and two affixes to become four different words. For example, a circle shaped card may be written with the prefixes *im-* and ex- on the two sides, and the roots *port* and *press* written on the two sides of another circle shaped card. The two circle shaped cards flipped together to make four possible words (*import*, *impress*, *export*, *express*). The subject was asked to define their meaning and make a sentence for each word with referencing to a dictionary. This activity showed the subject how to join different affixes and roots to make words.

Although this methodology targets typically developing children, the methodology would be suitable for the dyslexic adolescent. Other activities such as Fill-in-the-blanks, online games, text reading and making sentences were retrieved and adapted into the lesson plans from website posted by educators. The consecutive lessons began with reinforcement of the last lesson. Full revisions were done for every five lessons with a

revision game integrated into the lesson as reinforcement throughout the learning process.

The content of the lesson plan was divided into two parts. The first part focused on the teaching of prefixes and root words. The definition and examples of prefixes and root words were introduced to the subject through a computer programme in the first lesson. The second part focused on the teaching of suffixes and root words.

The English words with common Greek and Latin origin were introduced as a part of the study on affixes and root words, for example, "microscope, microphone, telephone, telescope, television, telegraph, automobile, autograph, subway, subscribe and revision." The prefixes that were taught to the subject comprised "in-, out-, trans-, dis-, un-, re-, en-, em-, over-, mis-, super-, semi-, anti-, mid-, pro-, pre-, sup-, im-, micro-(Greek prefix), auto-(Greek prefix) and sub-(Latin prefix)" while the suffixes comprised " -ed, -ing, -er, -est, -s, -'s, -er, -or, -ness, -less, -ly, -al, -ial, -ful, -ous, -ious, -ive, -ative, -itive, -ity, -ery, -ery, -ist, -ize, -dom, -ance, -th, -phone (Greek suffix), -graph (Greek suffix), -ible, -ion, -table and -able." The root words that taught were "come, take, port, known, like, consider, able, power, stress, behave, understand, market, stand, virus, biotic, night, term, claim, pose, press, start, end, hard, mean, dog, aunt, pave, equip, surf, visit, empty, kind, care, sight, extreme, nation, tradition, industry, peace, fame, adventure, mystery, protect, imagine, compete, active, slave, cook, journal, ideal, free, appear, warm, long, use, scope (Greek root), tele (Greek root), vision (Latin root), mobile (Latin root), way and scrib (Latin root)." The affixes and root words were taught to the subject through a lot of repetitions and revisions.

The training focused on the meaningful part of the words: root words and affixes. The subject was asked to write down the meaning by refering to the online dictionary and

make sentences for every morphologically complex word in every lesson. Sometimes, the subject was asked to produce more words with the same roots or prefixes or suffixes to show that he understood the meaning.

The subject was showed the index card of morphologically complex words and requested to break down the root words and affixes or to match the root words and affixes to form morphologically complex words. This is to train the subject's awareness on the morphemic structure. Some context-rich paragraphs were provided for certain lessons to let the subject fill in the blanks with the learned morphologically complex words.

This training was also integrated with some online games. Some activities were also retrieved from the website which teaches dyslexics multisensory activities ("Teaching a dyslexic child," n.d.) such as kinesthetic games, sand writing, card flashing and others. The multisensory learning method is an essential learning element in this morphology awareness training programme. This method engages a few senses simultaneously in an activity to promote the learning outcomes. For example, the written word "import" on the index card was read and shown to the subject for two seconds. After that, the subject was required to spell the word and write the word in the sand tray. The senses that were involved in this activity were watching, hearing, speaking, and touching which occurred at the same time during the learning process. Other than that, the subject had a chance to engage with some kinesthetic activities which involved body movement activities in the classroom. For example, the subject was encouraged to shoot the correct suffix index cards on the wall with a basketball when he heard the teacher mention the root words that were matched. The movement of the body corresponded to the thinking process which makes learning even more interesting.

3.5 Data Collection Procedure

The collection of data was done gradually during a three-month period. The researcher conducted questionnaires with the subject, his parents and teacher, while remedial intervention programme-morphological awareness training, observations, tests and questionnaires were conducted with the subject.

3.5.1 Instruments

3.5.1.1 Questionnaires (Adapted from Palany, 2006; Sankaran, 2006)

The questionnaires were adapted from Palany (2006) and Sankaran (2006). Some questions were added in the questionnaires to obtain the knowledge if the subject, parents and the teacher have any knowledge of morphology. This is obtain the answer if the teacher, parents and the subject know about what morphology is. The questions about the subject's attitude toward learning and his performance at home were also asked in order to get the whole picture of the subject's behavior and learning attitude. The subject's interest in reading was also asked to identify if the subject's reading habit influences his reading comprehension ability. The questionnaires were conducted with the subject's teacher, parents and subject at the home school centre and the subject's home. The questionnaires were done before and after the remedial intervention programme-morphological awareness training was conducted to see if any changes noticed after the morphological awareness training. The questionnaire sets were different for the parents and teacher during the pre-test but similar for post-test. The aim of the questionnaires were to obtain background information and data on the learning abilities, the learning performance and the behavior of the subject. Field notes were taken during the questionnaire session to provide extra information about the background of the subject.

a) For Parents/Subject

The pre-test questionnaires and post-test questionnaires (see Appendices 4a & 4c) with the subject's parents and subject were conducted at the subject's home. The pre-test questionnaires were set to obtain the background details of the subject and his family, the family's socio-economic status, school history, behavior and learning outcomes of the subject. The post-test questionnaires were to obtain the learning outcomes after 3 months morphological awareness training through parents and teacher. The English Language abilities of the subject were also investigated through the questionnaires.

b) For Teacher

Pre-test questionnaires and post-test questionnaires (see Appendices 4b & 4c) with the subject's class teacher were conducted at the centre. The questionnaires for the teacher were set to obtain data about the English Language abilities, learning performances and behavior of the subject before the morphological awareness training. The post-test questionnaires were to obtain the learning outcomes and English ability of the subject after 3 months morphological awareness training.

3.5.1.2 Observation Checklist (Adapted from Sankaran, 2006)

The observation checklists were adapted from Sankaran (2006) checklist on the subject's abilities (see Appendix 5). More observation criteria were added in for the subject's behaviour and responses toward the morphological awareness training lessons. This is to observe how the subject responses and his behaviour changes throughout the 3-months training lessons. The observation chekclist were used during the remedial intervention programme-morphological awareness training. The observation checklist was ticked and remarks jotted down immediately by the researcher after every lesson.

3.5.1.3 Tests

A few morphological awareness tests were conducted followed by the Reading Comprehension Test during the pre- and post-test. The same set of tests was used in both pre- and post-test session. In order to teach the subject about morphological awareness, remedial intervention programme - morphological awareness training was given to the subject during the period between the pre-test and post-test. For the three morphological awareness tests and Reading Comprehension Test, the scores obtained were converted into percentages based on all available data.

a) Administration of Three Morphological Awareness Tests

During the pre-test of morphological awareness tasks, the subject was given the Word Reading Test (WRT) (see Appendix 7), Test of Morphological Structure (TMS) (see Appendices 8a & 8b), and Dynamic Assessment Task of Morphological Analysis (DATMA) (see Appendix 9) in an individual setting. The materials were printed in bigger fonts for the convenience of the subject with learning difficulties. The Reading Comprehension Test was conducted on a different day from the morphological awareness tests.

i) Word Reading Test (WRT) (Adopted from Carlisle, 2000)

This test involved 3 steps:

Step 1: The instruction was given to the subject. "Read aloud the word list provided in Set A and Set B. You will receive two points for reading a word correctly within two seconds, but one point if you do not."

Step 2: The reading performance on the WRT was recorded with a mini recorder and the score was given by the researcher accordingly.

Step 3: A maximum of 5 minutes was taken for the test.

Performance on the WRT was recorded with mini mp3 recorder and the score was given by the researcher. The subject obtained two points for reading a word correctly within two seconds, and given one point if not. The obtained score was converted into percentages.

ii) Test of Morphological Structure (TMS) (Adapted from Carlisle, 2000)

This test involved 5 steps:

Step 1: The instruction was given to the subject. "Look at the test paper in front of you. For Part 1, the root words and sentences will be read aloud by the researcher to you. Please write the morphologically complex word to complete the sentence. You are given 10 minutes to complete the task."

Step 2: The researcher first let the subject try two examples before proceeding to question one. During the test process, if the subject would like to skip to the next question, he could come back to the question anytime as long as the time is still available.

Step 3: After completing Part 1, the second instruction was given to the subject. "For Part 2, the derived words and sentences will be read aloud by the researcher to you. Write the root word to complete the sentence. You are given 10 minutes to complete the task."

Step 4: The researcher first let the subject try two examples before proceeding to question one. If the subject would like to skip to the next question, he could come back to the problem question anytime as long as the time is still available.

Step 5: The completed task was collected for scoring process.

The answers were scored according to two classifications by the researcher. According to Kieffer and Lesaux (2008, p.790), "responses were scored as correct if the subject provided the correct form to complete the sentence or a phonetically justifiable version of the word, such as *populer* for *popular*". In this study, if the subject answered *warmness* instead of *warmth*, that would be considered incorrect. The performance of the subject was scored and converted into percentages.

iii) Dynamic Assessment Task of Morphological Analysis (DATMA) (Adopted from Stanfa, 2010)

The instructions are as below:

The performance on DATMA was recorded during the test. 15 derived words were presented to the subject and he was required to define them. The subject was given a series of cues accordingly until he defined the word. The researcher paused for up to 10 seconds after each cue; the next cue was provided when the subject gave no response or answered incorrectly. The cueing for the word stopped once the subject defined the target word.

If the acceptable definition answer was provided by subject from the cue in step 1, then the cue in step 2 was asked to reveal the awareness of the subject regarding the morphological structure of the word. The subject had to identify the constituent morphemes and provide the meaning of each constituent morpheme to define the meaning of the complex word. The cue in step 5 was given a sentence context to

identify the meaning of the word and three choices to define the meaning. The subject was given 25 minutes to answer 15 items.

For a better result, all the derived words, sentences, and choices were printed out. Each derived word was shown on the index card to the subject in order to reduce the working memory load of the subject and support his visual detection of the root words and affixes.

The instructions for the DATMA were as below (Adapted from Stanfa, 2010, p.76):

Researcher: I will say some words, and your job is to tell me what you think they mean. I will also show you a written copy of each word. If some of the words are difficult, I will give you some help. Are you ready? Now let's try and practice on two items to let you know how the test would be like.

This test involved 5 cueing steps:

1. Tell me what the word ***flowery*** means. (pause 10 seconds)

2. If subject answers correctly, the examiner will say: ―How did you know that? Then proceed to step 3 (unless the subject has referred to the individual morphemes). If the subject responds incorrectly, the examiner will proceed directly to step 3.

3. Does the word *flowery* have any smaller parts? What are these parts? (pause 10 seconds; if subject does not respond or is incorrect, proceed to step 4. If subject is correct, the examiner will ask: Now can you tell what the word means?)

4. The smaller parts in this word are ***flower*** and *y*. Now can you tell what the word means?

5. Listen to this sentence and then tell me what *flowery* means: — Molly hated the dress with daisies because it was too *flowery*. Which of these gives the meaning of the word *flowery*? (examiner will present three choices)

The score obtained by the subject was based on how far the subject went through the hierarchy of cues before giving the correct definition. The system used was as below: a maximum five points would be given while one point was deducted for each cue step in the hierarchy presented before the subject defined the word. If the subject did not answer correctly, zero score is the minimum. The scores were converted into percentages.

5 points = subject answers No. (#) 1 and No. (#) 2 correctly and completely

4 points = subject explains the word correctly after prompt #3

3 points = subject explains the word correctly after prompt #4

2 points = subject explains the word correctly after prompt #5

0 points = subject does not explain the word correctly

b) Administration of Reading Comprehension Test (For pre-test and post-test)

The instructions are as below:

30 minutes were given for each passage and the subject was given a break after three passages and the test continued with another two passages after the 15-minutes break. The subject had to read each passage and the reading was recorded with a MP3 Player. After the reading, the subject answered the questions by writing down the answers on the provided space on the test paper. The performance of the test was scored and converted into percentages.

3.5.1.4 Remedial Intervention Programme - Morphological Awareness Training

The remedial intervention programme training-morphological awareness training was conducted for 45 minutes, 2 to 3 times per week over three months by the researcher. A total of 24 classes which comprised 18 hours of morphological awareness training were conducted for the subject.

3.6 Data Analysis Procedures

This study used various tests to see if the remedial intervention programme-morphological awareness training helps the dyslexic adolescent to improve his Reading Comprehension Test score. By conducting pre and post-test, the results from the three morphological awareness tests (WRT, TMS, DATMA) worked as an indicator of the learning progress on morphological awareness of the subject to improve his reading comprehension ability. The questionnaires and observations provided insights to triangulate the results of the Reading Comprehension Test. This study employed qualitative and quantitative analysis.

3.6.1 Questionnaires

The questionnaires were interpreted qualitatively and quantitatively to arrive at a profile of the subject by the researcher. The questions in Part A (details of the subject, school history, socio-economic data, details of subject's family, background history of the subject, behaviors, overall performance at home, parents' comments and attitude of the subject) were interpreted qualitatively and questions in Part B (the abilities of the subject) were interpreted quantitatively. All information in questionnaires answered by teacher, parents and the subject were analysis and drawn into a conclusion.

3.6.2 Observation checklist

The observation checklist was ticked and remarks jotted down immediately by the researcher after every training session conducted with the subject. The remarks constitute the qualitative data based on overall performance of that particular training session of the subject while quantitative analysis were based on the abilities, behavior and learning performance of the subject during the training sessions.

3.6.3 Tests

Scores from the tests provided the quantitative data.

i) For the three morphological awareness tests, the scores obtained were converted into percentages based on the questions correctly answered.

ii) For the Reading Comprehension Test, the performance on the test was scored and converted into percentages.

3.7 Summary

The information about the subject provided background details and his learning progress in the homeschooling programme. In this study, quantitative analysis was used to analyse the subject's performance in a variety of morphological awareness tests and the Reading Comprehension Test. This is to examine the efficiency of the remedial intervention programme-morphological awareness training. Other data collection instruments such as questionnaires and observation checklist were also used in this study in order to provide a better insight about the aspects such as the learning behavior and attitude of the subject. Both qualitative and quantitative analyses of the data is

hoped to provide a comprehensive picture of the student's performance and his progress (if any). The next chapter will discuss the results and findings of this study.

CHAPTER FOUR

FINDINGS AND ANALYSIS

4.0 Introduction

This chapter shows the quantitative analysis of results collected from these tests: three morphological awareness tests and reading comprehension test in the pre and post. The qualitative analysis of results which is collected from the questionnaires and observation checklist are explained to help in identifying the effect of morphological awareness training on the results of Reading Comprehension Test in post-test. The research questions are answered by the findings and analysis in this chapter.

4.1 Information of the Subject from Questionnaire

4.1.1 The Profile Information of the Subject

Questionnaires were conducted with the parents and subject to obtain family background details of the subject. The subject comes from an average economic family background where the father works as a tourist guide while the mother works as an office manager. The family lives in their own house in Puchong, Selangor.

According to the subject of this study, he found Social Studies an easy subject at the centre was Sciences and Mathematics are difficult subjects. He was attending grade 7 while this study was conducted. He reported that he did not face any problems the centre. His interests are playing computer games and watching movies. He is shy to read aloud and does not enjoy attending school. He also added he does not like to read.

The mother of the subject also commented that her son does not enjoy reading. Previously when he was in the Chinese vernacular school, he failed Science, Malay

Language, Chinese Language and Mathematics. Before the subject started the home schooling at the centre, he has never participated in any learning difficulty training classes until he entered the centre and attended the phonics reading class. Before that, he used to have tuition classes for Mathematics, English and Malay Language.

When the subject was very young, he did not experience any speech problems and was able to talk when he reached milestones of a normal child. However, the mother commented that her son used inappropriate words very frequently when he spoke and was confused with writing (e.g., "buku-kubu"). In fact, the mother used a lot of repetitions when instructing the subject at home.

Instead of having difficulties with direction (differentiating left and right), the mother reported that somehow her son is keen on memorizing the directions of the destinations. She added that once, he was able to guide the family to the destination while the others have forgotten the directions.

Most of the time, he does not need assistance to finish his homework and is able to complete the homework within the restricted time. The mother felt that her son's performance in reading activities is on par with his cognitive abilities. At home, his parents do not usually read to him. The mother commented that the subject's reading ability has improved since he started home schooling at the centre.

The subject's mother opined that the subject has improved in his performance at home and sometimes he would help with household chores. The only thing the subject needs to improve is in terms of personal hygiene. According to her, taking a shower and washing his hair are considered difficult tasks for him.

Regarding the subject's attitude towards learning, the mother remarked that if he is interested in certain activities, he can spend hours on them but if he is not interested, he would not bother at all.

Both the parents and subject show no knowledge of morphology. After the morphological awareness training, the mother said it is difficult for her to say if the subject has improved his reading comprehension ability as the subject does not read to her. She is unable to see any changes at present.

4.1.2 The Information from the Teacher

From the questionnaires, the class teacher from the centre revealed that she has been teaching the subject for 4 years. She commented that the subject has an average interest in reading and he only likes to read the materials that he is interested in. Furthermore, he tends to finish his homework quickly and rarely spends time to think about the solution of the problem carefully. He failed English and Mathematics a few times and was forced to stay back for a few months in the same grade until he passed all the papers at the centre.

The teacher commented that the subject's reading ability is good. He is able to read well but his accuracy of pronunciation is average, sometimes he may mispronounce or misspell words.

The overall academic performance of the subject in the centre is good. He is able to complete the given tasks independently and efficiently. Notably, he is able to set his own daily goals for his homework. The teacher also opined that the subject is helpful and very creative in his own way but he does not like art. The questionnaires revealed that the teacher has no knowledge of morphology.

After the morphological awareness training, the teacher observed that the subject's reading skill is better despite being still weak in spelling. He is able to answer comprehension questions but is weak in expressing himself or answering questions related to explanation. Other improvements that the teacher noticed are that the subject concentrates more while reading passage and he is able to build sentences more accurately based on his own understanding.

4.1.3 The English Language Abilities of the Subject from the Questionnaires with Teacher and Parents before Pre-test

Table 4.1: English Language abilities of the subject before pre-test

No.	Items	Weak	Average	Good	Not sure
1.	Ability to communicate in English.			2 (PT)	
2.	Ability to read in English.			2(PT)	
3.	Concentration.		2(PT)		
4.	Vocabulary knowledge.		1(T)	1(P)	
5.	Ability to decode words.			2(PT)	
6.	Ability to understand simple sentence.			2(PT)	
7.	Ability to inter-relate sentences and understand the meaning.		1(T)	1(P)	
8.	Ability to understand literal questions.		1(T)	1(P)	
9.	Ability to understand inferential questions.		1(T)	1(P)	
10.	Ability to read aloud.			2(PT)	
11.	Reading pace.		1(P)	1(T)	
12.	Ability to construct logic sentence.	1(T)		1(P)	

Key: P-Parents, T-Teacher

Before the pre-test, the parents rated the abilities of the subject as good for 10 out of 12 items. This is different from the teacher who rated the subject's ability as good for 6 out of 12 items. Based on the experience of the teacher, the subject is weak in constructing logical sentences.

4.1.4 The English Language Abilities of the Subject from the Questionnaires with Teacher and Parents after Post-test

Table 4.2: English Language abilities of the subject after post-test

No.	Items	Weak	Average	Good	Not sure
1.	Ability to communicate in English.		1(T)	1(P)	
2.	Ability to read in English.			2(PT)	
3.	Concentration.		1(P)	1(T)	
4.	Vocabulary knowledge.		1(T)	1(P)	
5.	Ability to decode words.		1(T)	1(P)	
6.	Ability to understand simple sentence.			2(PT)	
7.	Ability to inter-relate sentences and understand the meaning.		1(T)	1(P)	
8.	Ability to understand literal questions.		1(T)	1(P)	
9.	Ability to understand inferential questions.		1(T)	1(P)	
10.	Ability to read aloud.			2(PT)	
11.	Reading pace.			2(PT)	
12.	Ability to construct logic sentence.			2(PT)	

Key: P-Parents, T-Teacher

After the post-test, the parents rated the subject's abilities as good for 11 out of 12 items. There is no change in the teacher's ratings (still good for 6 out of 12 items). The findings showed the subject's parents indicated that the subject has improved in terms of the reading pace while the teacher indicated the subject's improvement in his power of concentration and ability to construct logical sentence based on observations and tests developed for use in the training centre. The teacher provided the feedback as she

observed the subject in the classroom and tested his ability in constructing sentences. The teacher also rated the subject's ability to communicate in English as average instead of good in the post-test. According to the teacher, the subject seemed tired on that day, thus, he did not talk much in the classroom during that session and that cause the rating dropped. The findings showed the parents rated the subject's English abilities as "good" in more aspects rather than the teacher. This indicates the parents have more confident with the subject's English abilities. Overall, the English language abilities of the subject have improved.

4.2 Observation Checklist (Adapted from Sankaran, 2006)

The observations were conducted during the morphological awareness training lessons by the researcher. The observation checklists were used to evaluate the subject from three aspects, which are the learning abilities, behaviour and responses of the subject in 24 lessons of morphological awareness training as shown in Tables 4.3.1 and 4.3.2. Five scale points system was taken in this checklist to have response options between midpoint "Good" and "Sometimes". The five scale points are started with: "Poor, Fair, Good, Very Good, Excellent" for the subject's abilities and "Never, Rarely Sometimes, Often and Always" for the subject's behaviour during training lessons. Four scale points were employed in the subject's responses during training lessons, they are " Bored, Not interesting, Interesting and Very interesting". In each lesson, each item is only rated once. The performances of the subject were rated immediately after each training lesson.

Table 4.3: Observation checklist of the subject

No.	Items/ Rating scale	Poor	Fair	Good	Very Good	Excellent	Total
a) Abilities	Ability to communicate in English (ESL/EFL)			8	11	5	24
	Ability to read in English			12	9	3	24
	Ability to decode words		5	13	5	1	24
	Concentration		3	8	10	3	24
	Vocabulary knowledge			11	8	5	24
	Memory skill		1	9	12	2	24
No.	Items/Rating scale	Never	Rarely	Some times	Often	Always	Total
b) Behaviour	Fidgeting	10	7	6	1		24
	Yawning	17	4	2	1		24
	Requesting help	16	7	1			24
	Participating			6	11	7	24
	Attentive			10	9	5	24
	Talkative	4	9	4	3	4	24
	Independent	1			13	10	24
	Follow instructions			3	15	6	24
	Remains on task			3	5	16	24
	Cooperative		1	1	12	10	24

Table 4.3: Observation checklists of the subject, (continued)

No.	Items/Rating scale		Bored	Not interesting	Interesting	Very Interesting	Total Number of responses
c) Responses	Flip-a-card games		2	5	1		8
	Making sentences			5	10	4	19
	Computer games	Matching-Draw line			2		2
		Break-it-up			3		3
		Fill-in-the-blanks			2		2
		Using Online Dictionary	1	1	7	8	17
	Reading article text			3			3
	Using the dictionary			2		1	2
	Fill in the blanks (hand writing)		1		3	1	5
	Making suffixes and root words cards				4	1	5
	Multisensory activities	Ball shooting word cards			1	1	2
		Sand writing		1			1
		Single leg jump to match cards				1	1
		Draw and match cards			1	1	2
		Memory game				1	1
		Flip and match card games			1	1	2
		Matching morphemes cards			1		1
		Writing on the back with finger			1		1

The observation checklist during the morphological awareness training showed the abilities of the subject range from poor, fair, good, very good, and excellent. The highest score for each item is highlighted. For the subject's ability to communicate in English, his highest rating is "very good" (11). His ability to read in English and the ability to decode words are rated "good" (12 and 13 respectively). His concentration is between "good" (8) and "very good" (10), his vocabulary knowledge is "good" (11) and his memory skill is "very good" (12). In general, the abilities of subject are between the range of "good" and "very good".

Regarding the subject's behaviour, the rating scale is "never, rarely, sometimes, often, always" for 10 items. From the frequency of his behavior, the subject never fidgeted or yawned in the classroom. He was often independent and reluctant to ask for help. His frequent participation in classroom activities showed he was quite attentive. He rarely talked in the class but was good in following instructions and always remained on his task. He often gave his cooperation to the researcher. However, the subject spent a longer time to finish the given tasks during the morphological awareness training when he was moody.

During the morphological awareness training, the subject showed he is not interested in the Flip-a-card games, reading article and using the dictionary with his facial expression. Constructing sentences, making suffixes, root words cards and fill in the blanks with hand writing seemed more interesting to him. The subject was particularly interested in computer games and multisensory activities. This study supports the findings of Abdul Rahman, Mokhtar, Alias and Saleh (2012) on the use of interactive multimedia in motivating dyslexics to learn.

4.3 Results from Schonell Reading Test

The Schonell Reading Test (see Appendix 6) was conducted with the subject to estimate his reading age before the study was conducted. He scored correctly for 71 out of 100 words. He read with a consistent speed but slowed down when faced with unfamiliar words. He was able to do self-correction for some misreads. The results indicated that the subject's reading age is 12 years and 1 month (12.01) compared to his chronological age which is 14 years 6 months old (14.06).

4.4 Comparisons of Test Results

4.4.1 Comparisons of Morphological Awareness Tests Results in Pre- and Post-test

The comparisons on the results and findings of three morphological awareness tests during the pre- and post-test answered the research question one which is the positive effects of the morphological awareness training on the morphological awareness of an ESL dyslexic adolescent. The comparisons on the results and findings of Reading Comprehension Test during the pre- and post-test answered the research question two in this study which is the effects of the morphological awareness training on the English reading comprehension ability of an ESL dyslexic adolescent.

4.4.1.1 Comparisons of Word Reading Test (WRT) Results

Table 4.4: Comparisons of WRT results

WRT	Scores	Score Percentages (%)
Pre-test	67	74.44
Post-test	81	90
Differences	+14	+15.56

The table 4.17 showed the comparisons between the results of WRT in pre- and post-test. The subject obtained 67 out of 90 points which is 74.44% in the pre-test while 81 out of 90 points which is 90% in the post-test. The results indicated after the morphological awareness training, the subject has improved 16 points which is 17.78% in the post-test compared to the pre-test. The time used for pre-test was 57 seconds and 1 minute for post-test. Although the time that the subject used is about the same, the reading accuracy has been improved.

For more in-depth analysis on different types of errors that were conducted in WRT, the results are presented in Table 4.34.

Table 4.5: Analysis of WRT reading error types

Set	Types	Pre-test			Post-test		
		Total words	Error reading	Error Percentages (%)	Total words	Error reading	Error Percentages (%)
A	Transparent words	9	0	0	9	0	0
	Shift words	16	2	12.5	16	2	12.5
B	High frequency root with low surface frequency words	20	9	45	20	2	10

For both WRT in pre- and post-test, the researcher found that there is no reading error with 9 High Frequency Transparent Words in Set A. This was consistent with the finding of Arnbak and Elbro (1996) that the dependency of dyslexics on the morphological structure in which the transparency level of morphologically complex words gave the opportunity to the dyslexic to recognise and decode the meaningful constituent morphemes because of the familiarity with the root word. The high frequency transparent words are likely to be read more accurately than low frequency transparent words.

For reading Shift word in pre- and post-test, the subject repeated the same errors for "curiosity" and "trial" among 16 Shift words. When reading "curiosity", he read with error for the prefix and suffix in "*curiously*" and "*juriosity*" and error in reversal reading "*trail*" for "trial" in pre- and post-test. Peer (2001) and The South Dakota Department of Education (2010) stated that the reversal reading is one of the characteristics of dyslexic students in which they tend to start and end with the same letters (trial-trail). Although the prefixes and suffixes has been taught to the subject, it did not contribute much to read Shift word as the subject was struggled with the complexity of the internal structure of the Shift words, thus, he provided the wrong spelling.

The results showed the subject improved tremendously in Set B after the morphological awareness training. Fewer mistakes were made in High Frequency Root with Low Surface Frequency Words in post-test compared to pre-test. In general, the results in the post-test showed the subject has improved in terms of the reading High Frequency Root with Low Surface Frequency Words. The subject was able to recognise the root words from the complex words that leaded him to read the morphologically complex words correctly.

4.4.1.2 Comparisons of Test of Morphological Structure (TMS) Results

Table 4.6: Comparisons of TMS results

TMS	Pre-test		Post-test		Differences
	Scored Number	Scores Percentage (%)	Scored Number	Scores Percentage (%)	
Part 1 Derivation	16	57.14	25	89.29	+32.15
Part 2 Decomposition	27	96.43	25	89.29%	-7.14

Figure 4.19 showed the results of TMS in pre- and post-test. Both results of Part 1 Derivation and Part 2 Decomposition in TMS were compared in order to evaluate the morphological awareness of the subject after the morphological awareness training.

For Part 1 Derivation, the subject answered 16 out of 28 questions correctly which contributes 57.14% in the pre-test done within 7 minutes and 1 second. The results were improved in the post-test with 25 questions answered correctly which were 89.29% and done within 3 minutes and 53 seconds. The results showed the subject has improved by 32.15% in Part 1 Derivation test and the time was used less after the morphological awareness training. The decrease in the duration of time used and the improvement in the results implied that the subject has improved his awareness towards morphemes. His understanding towards the semantics and grammatical class use of suffixes in derived form in Part 1 Derivation task was improved and better. For example, "*Equal*. Boys and girls are treated with _____." The answer "equally" was provided by the subject in pre-test and "equality" was provided by the subject in post-test. In order to answer the question correctly, the subject has to know the meaning and the form of suffixes that need to be added to the root words "equal". The answer provided by the subject in post-test "equality" was correct.

In addition, the subject was able to reduce the number of errors from 12 to 3 for Part 1 Derivation. The errors which remained the same were when deriving Shift words "expand", "absorb" and "produce" in pre- and post-test. Eventually, the subject managed to produce the sounds of "ion" in the post-test which was the answers of the suffixes supposed to be added to the root words. The subject could not figure out the correct orthographic change for the derived words which were different from the root words that made him missed the scores.

The improvement is particularly significant to show that the subject's ability to produce new derivations from known root words. This is consistent with the findings in Deacon, Parrila and Kirby (2006)'s studies on evaluating the derived forms processing in high-functioning dyslexics who are students of the university. These students have reading difficulties history with age-appropriate reading comprehension skills. These high-functioning dyslexics have persistent difficulties in processing one particular aspect of morphology which is derived forms. With the morphology problem that the high-functioning dyslexics have, the improvement in TMS Part 1 Derivation in this study further indicates that the dyslexics could benefit in the aspect of derivation morphology after the morphological awareness training.

For Part 2 Decomposition, the subject achieved a high score, 27 out of 28 questions were answered correctly which were 96.43% in pre-test while the results in post-test showed a decrease to 89.29%. The percentage of the decrease was 7.14%. The time used was 4 minutes 13 seconds for pre-test and 4 minutes 20 seconds for post-test which was 7 seconds longer.

The decrease in the score and the longer time taken in the Part 2 Decomposition may be attributed to one factor which was observed by the researcher. Although the subject took a longer time to answer the questions, the results were not improved despite the morphological awareness training.

The factor that caused the decrease of 7.14% score and longer time used in Part 2 Decomposition can be attributed to the subject's confusion with derived Shift words. From the error analysis, the mistakes that the subject made were particularly on the derived Shift words which were the same as the difficulty faced by the subject in Part 1 Derivation. For example, in the errors made by the subject in pre-test, the subject extracted the root word

"descrip" from "description" and the answer was actually "describe". In the post-test, the subject extracted the root words "different" from "difference", "admiss" from "admission" and "contine" from "continuous" and the correct answers were "differ", "admit", and "continue". The root words in these Shift words are orthographically or phonologically changed, thus, the subject was not able to recognise them.

In general, the subject has a great improvement, an increase of 32.15% in Part 1 Derivation task whereas is considered more difficult than the Part 2 Decomposition. Although a decrease of 7.14% happened in Part 2 Decomposition, the results still shows the impact of the morphological awareness training towards the subject understands on constituent morphemes.

4.4.1.3 Comparisons of Dynamic Assessment Task of Morphological Analysis (DATMA) Results

Table 4.7: Comparisons of DATMA results

DATMA	Scores	Score Percentages (%)
Pre-test	35	46.67
Post-test	43	57.33
Differences	+8	+10.66

Figure 4.20 shows the comparisons of DATMA results in pre- and post-test. In the pre-test, the subject scored 35 out of 75 points which was 46.67%. The time used for DATMA in pre-test was 18 minutes 48 seconds. After the morphological awareness training, the subject showed an increase in the DATMA results in post-test which was 43 points with 57.33%. The scores collected in the ranking system in the pre-test were 5 points = 1 time, 4 points = 3 times, 3 points = 0 time, 2 points = 9 times and 0 point = 2 times. In contrast for the post-test, there were 5 points = 4 times, 4 points = 0 time, 3 points = 3 times, 2 points = 7 times and 0 point = 1 time. Overall, the final results increased by 8 points, 10.66%. The

time used for DATMA in post-test was 15 minutes which was 3 minutes and 48 seconds faster than in pre-test.

During the pre-test, the subject did not know anything about constituent morphemes of the morphologically complex words in the pre-test. He tried two practice words and he started to realise what is the morphemic structure of the target words. Most of the time, the subject gave the answers which were close to the definition but he was unable to identify the grammatical class of the suffix in his definition correctly. Sometimes, the meanings were not fully matched. Therefore, those answers cannot be accepted.

As the subject obtained 46.67% in the pre-test of DATMA, the low performance of the subject indicated that his ability of defining the meaning of the morphologically complex words was very weak. Although the cueing step was given to the subject, he was unable to identify the meaning of morphologically complex words through the use of suffixes' meaning as his morphological awareness has not been developed. For example, the subject was asked with cueing step 1: Tell me what the word ***hospitalize*** means. The subject answered, "To put in the hospital." When the subject was prompted to ask how he knew the answer and to see what help him to define the word, the subject answered, "Because I know the word." He was unable to refer to the individual morphemes until prompt #3 was given to him (see Appendix 10a).

In the post-test, from the analysis, the subject started to recognize the meaning of some suffixes that he learnt during the morphological awareness training. He was able to recognize the meaning of grammatical class of "ery" means "the state of…" and "ize" means "to be or to make". Somehow, he was unable to identify the grammatical class of some suffixes and the meaning correctly. For example, "ity" as in "oddity" has changed the word "odd" as an adjective to a noun but the subject tends to give the definition "to be

different" instead of "the state or quality of being odd". The subject was able to recognise a few meaning of suffixes which changes the grammatical class such as "ize" changes adjectives or nouns become verbs, "ery" changes verbs to nouns. On the other hand, the grammatical class of "ive" as in "secretive" has changed the word "secret" as a noun to an adjective; the subject rather gave the definition "to be very secret" instead of "not open or outgoing in speech." During the scoring process, the answers which were similar to the meaning and in the same grammatical class were considered scored.

The subject failed to give the definition of "boathouse" even after prompt #5 with choices of answers given during the pre- and post-test. 0 point was rewarded for incorrect answer. Since the subject kept thinking the core meaning was emphasized on "house", he kept answering "a house that is on a boat" which was actually "a building in which boats are kept". This was because the knowledge of the subject knows that there was a kind boat that is equipped for living purpose. His concept of "the house that is in a boat" throughout the test caused him not to score. Eventually, the subject did not know the boat for living in is actually called "houseboat" (see Appendix 10b).

In general, after the morphological awareness training, the subject was able to tell the constituent morphemes of the morphological complex words when he was asked "Does the word have any smaller parts?" He was also able to give the explanation of the meanings of some root words and suffixes in a shorter time. In fact, the subject's knowledge on the analysis of morphological structures and meaning of the constituent morphemes has improved. This finding is supported by White, Power and White (1989) in their studies on the teaching of prefixes, suffixes and root words that contributed to the recognition of vocabulary as vocabulary growth and vocabulary knowledge is the prerequisite to reading comprehension.

4.4.2 Comparisons of Reading Comprehension Test Results

Table 4.8: Comparisons of Reading Comprehension Test results

Reading Comprehension Test	Pre-test score percentages (%)	Post-test score percentages (%)	Differences (%)
Passage 1	90.00	92.50	+2.50
Passage 2	75.00	61.11	-13.89
Passage 3	80.00	80.00	0
Passage 4	100.00	90.00	-10
Passage 5	77.27	81.82	+4.55
Total	422.27	405.43	-16.84
Average	84.45	81.09	-3.36

Figure 4.21 shows the comparisons of Reading Comprehension Test results in pre- and post-test. The performance results of each passage in the Reading Comprehension Test were presented. The results of Passage 1 and Passage 5 were improved in which Passage 1 increased by 2.50% and Passage 5 increased by 4.55% in the post-test. Passage 3 remained unchanged throughout the pre- and post-tests. However, Passage 2 and Passage 4 showed the decrease in the post-test. The results for Passage 2 dropped 13.89% in the post-test while the results for Passage 4 dropped 10% in the post-test.

There were a few factors that caused the decrease in the results of Passages 2 and 4. One factor was the subject did not concentrate as much as he did in the pre-test. The answers that he gave were not based on the keywords in the questions. For example, “How has Dr Mahathir made Malaysia well-known internationally?” The subject answered “by making many changes to the country.” With tracing the keywords in Passage 2, the subject should be able to locate the statement of “Dr Mahathir has also made Malaysia well-known internationally” in the passage and to find the answer that is next to the statement which is “He is very vocal with his thoughts and opinions on world issues. He takes a firm stand on important issues like globalization and terrorism.”

Another question that the subject did not score was inferential questions which required the subject to answer the questions according to the context. For example, “Dr Mahathir is said to be vocal in his stand on certain issues. Give four other adjectives to describe him. (e.g, talented)” The subject was supposed to give other adjectives that can describe Dr Mahathir according to the context in Passage 2. He referred to the text literally rather than infer to the implicit information that was indicated in the text. He answered “with him thoughts, opinions of world issues, globalization, terrorism”. Eventually, the subject was able to provide correct answers for this inferential question in pre-test. This situation happened in the post-test because of the subject’s lack of focus to comprehend the question and miss some important information.

In Passage 4, the subject achieved the ceiling effect which was 100% in the pre-test. According to the observation during the reading comprehension test, the subject was fidgeting and trying to finish the test as soon as possible. This is to be believed to be cause of the decrease in the scores. Although the results showed a decrease in post-test, the score was still the second highest. Passage 4 was about skateboarding and it was a very interesting topic for subject as he knew how to do skateboarding. He scored quite well in Passage 4 for both the pre- and post-test. He only missed 2 answers which were objective questions with four choices “A street skater would most probably skate on these places except…A. ramps, B. parks, C. playgrounds, D. empty parking lots”. He chose “B. parks” but the answer was “A.ramps”. He did not realise there was another skating, called vert skating, skating on ramps or other vertical structures specifically designed for skating that was described in the Passage 4.

The overall performance of Reading Comprehension Test has decreased from 84.45% to 81.09%. A value of 3.36% has dropped throughout the pre- and post-tests. The time used for answering Reading Comprehension Test was 50 minutes and 13 seconds for all five

passages in pre-test while 52 minutes and 57 seconds for all five passages in post-test. It was 2 minutes 44 seconds longer than in pre-test. He spent most of the time on referring to the text in Passage 5 to answer the questions during the post-test. As pointed out by Simmons and Singleton (2000) referring back to the text very often is because dyslexics may not read the text carefully. The subject showed the urge to finish reading the text as soon as possible. This was because Passage 5 was his last passage for the test and when the test was over, his study time was also over. He has some reluctance to learn and take the tests all these while and this was obvious while he was doing the post-test. Overall, the subject was able to read the passages fluently but somehow he misread words, omits or adds extra words occasionally.

In this study, the subject has an average of 26.32% and 31.58% mistakes for inferential questions in the pre- and post-test for Reading Comprehension Test. The mistakes for literal questions were 12.79% and 13.95% in pre- and post-test. The least mistakes were made for the answers to evaluative questions which were 0% and 13.16% respectively in pre-and post-test.

A slight decrease in the overall performance in Reading Comprehension Test has showed the subject did not benefit much from the morphological awareness training. This is probably because of the morphologically complex words that he has learned in the morphological awareness training did not have an impact on the understanding of the comprehension reading test. In Bauman et al. (2002), a lack of effect on the reading comprehension may be due to a few possibilities which were the insufficient ability to infer word meaning with morphemic analysis to influence the reading comprehension; the limitation of the comprehension questions; and the limitation of the duration and scope of intervention. In this study, by reviewing the performances of the subject, he was able to infer the word to understand the reading comprehension. The lack of effect on the reading

comprehension ability of the subject may probably be attributed to the limitation of the use of taught morphologically complex words in the comprehension questions. This was consistent with Goodwin and Ahn (2010) study which stated that morphological awareness training always teaches morphologically complex words whereas the measures of comprehension test used does not contain 60-80% of learned complex words in text. Thus, the measures did not fit truly into the potential of morphological awareness training to support reading comprehension.

Table 4.9: Results of different types of questions for Reading Comprehension Test for pre- and post-test

	Pre-test		Post-test	
Types of questions	Score obtained	Percentages (%)	Score obtained	Percentages (%)
Literal	37.5/43	87.21	37/43	86.05
Inferential	28/38	73.68	26/38	68.42
Evaluative	19/19	100.00	16.5/19	86.84

According to Figure 4.9, the sequences of the scores were similar to the results in both pre- and post-test in which the subject has done more errors with inferential questions followed by literal questions, and the least error for evaluative questions.

The subject made more errors for inferential questions. During the test, the subject was flipping between the text and questions sheets to look for the answers but he missed some important information. This has shown the subject was struggling with his short term memory to look for the keywords for answering the questions. As pointed out by Simmons and Singleton (2000), the short term memory skills among dyslexics can lead to disadvantages in reading comprehension. Inferential questions required the subject to answer by inferring the content described in the text and the information is usually implicit. The subject was able to understand the questions but lack the ability to put the

words together to form the correct answer. For example, “Why do you think kayu cengal is used to build the boats?” The subject answered “because of the yellowish hardwood.” which was taken from the text originally. The answer need to be modified to clarify the function of the hardwood instead of the appearance of the hardwood.

The researcher found that the subject was good in answering the evaluative questions. Evaluative questions required the logical thinking and common sense of the subject when answering the questions. As suggested in Simmons and Singleton (2000), the dyslexics have some metacognitive awareness on their limitation in reading comprehension. Some metacognitive strategies, such as relate the new information to existing knowledge, re-reading or convert new information to mental images may be taught helping them to improve their reading comprehension. The findings in this study supported Simmons and Singleton (2000) suggestion and indicates the subject’s has certain level of metacognitive awareness and used metacognitive strategy. Another factor that can be attributed to the high performance of evaluative questions of the subject is that evaluative questions focus more on the knowledge of the world and judgement of the subject other than referring to the text. The subject seems able to comprehend the text and generate his idea according to his understanding of the text based on his logical thinking ability.

The results indicate that the subject able to refer to the answer in the text but he was not able to extract the keywords and conclude the main idea from the passage. For example, “the insect is then eaten by the plant,” that seemed to be the main point of that question but the subject was not able to conclude the answer after a long description. This is probably he is distracted with the long answer before the main point is shown.

From the pre-test to post-test, there were only 5 similar literal and inferential questions in pre- and post-test that the subject did not score as shown in Table 4.32. They were literal

questions from Passage 2 and Passage 5, inferential questions from Passage 3 and 3 and Passage 5. From Table 4.32, the subject did not score for these questions due to a few factors: he did not refer the information from the text, incomplete answers were provided and some answers were not extracted deep enough to get the correct answers.

Table 4.10: Similar literal and inferential questions that did not score in pre- and post-test

Passages	Literal questions	Answers given in pre-test	Answers given in post-test	Correct answers
Passage 2	"How has Dr Mahathir made Malaysia well-known internationally?"	"With his thoughts and opinions on world issues"	"by making many changes to the county."	"He is very vocal with his thoughts and opinions on world issues and takes a firm stand on important issues like globalisation and terrorism."
Passage 5	"Why is the rafflesia a parasite?"	"It gets nutrients from plant on which it grows."	"because it grow on the stems and roots of the shrubs."	"The rafflesia a parasite because the plant has no roots. It grows on the stems and roots of shrubs and it gets nutrients from the plant on which it grows."
Passage 3	"The writer thinks her daughter is :_____, _____, _____, _____."	"lovely, kind, confident, happy."	"lovely, kind, confident, popular."	"lovely, happy, popular, miserable."
	"The writer states two reasons why she thinks her daughter is joyful. What are they?"	"Smile or laugh."	"Her long black hair, small almond-shaped eyes, slightly oral face and your lovely nose."	"The writer thinks the daughter's joyful because of the knowledge that the parents love her and the peace within herself."

Passage 5	"Referring to the text, sequence the pictures below to show how insects are trapped and digested in the pitcher plant."	6,3,4 2,1,5	6,5,2 3,1,4	6, 4, 2 3, 1, 5

4.5 Summary

The results and findings from the three morphological awareness tests have shown a significant relationship to the morphological awareness training. The effectiveness of the morphological awareness training is implicitly showed in WRT, TMS Part 1 derivation and DATMA. The subject has gained improvement in the morphological awareness tests. However, the result of TMS Part 2 Derivation has slightly dropped due to the linguistic complexity of the Shift words. The findings from the three morphological awareness tests answered Research Question 1 which is morphological awareness training affects the morphological knowledge of the subject.

In the aspect of Reading Comprehension Test, the results and findings in pre- and post-test did not show that the subject has benefited from the morphological awareness training. A decline of 3.36% between pre- and post-test implied that the morphological awareness training has no effect on reading comprehension ability of the subject. The results and findings of Reading Comprehension Test answered Research Question 2 which is morphological awareness training does not affect the reading comprehension ability of the subject in this study.

The qualitative analysis of the questionnairs from the parents, the subject and the teacher gives a whole picture of family background, learning progress, abilities and behaviour of the subject. The observations that jotted down during each of the morphological awareness training session have shown the abilities, behaviour and responses of the subject changes

according to the mood of the subject and the method of teaching on that particular day. The observations show that the subject is not much interested in learning affixes and answering the tests but he is especially interested in online learning programs. The quantitative analysis of the English language ability of the subject based on parents' observations, teacher's observations and tests used in the training centre.

Chapter 5 will further discuss the findings of this study, the implications of three morphological awareness tests, Reading Comprehension Test and remedial intervention-Morphological Awareness Training to dyslexics. Recommendations for further research are also suggested in this study.

CHAPTER FIVE

SUMMARY OF FINDINGS AND IMPLICATIONS

5.0 Introduction

This chapter summarizes the outcomes of morphological awareness training on the morphological awareness and reading comprehension ability of the subject. This chapter highlights the potentials of morphological awareness training for dyslexic learners in order to improve their morphological awareness and reading comprehension abilities. This chapter also discusses the implications of the findings about the morphological awareness tests, Reading Comprehension Test and morphological awareness training.

This is a case study on morphological awareness in reading comprehension ability of a dyslexic adolescent. The purpose of this study is to examine whether awareness of morphological knowledge helps to improve the reading comprehension ability of the ESL dyslexic adolescent. The first objective of the study is to compare the morphological knowledge of the dyslexic adolescent before and after the morphological awareness training. The second objective is to compare the reading comprehension ability of the dyslexic adolescent before and after the morphological awareness training.

The subject in this study is a 14-year-old Chinese dyslexic adolescent with chronological age (CA) 14 years 6 months old (when this study was conducted) but his reading age (RA) was 12 years 1 month old based on Schonell Reading Test.

The instruments used for data collection were questionnaires, observation checklist, three morphological awareness tests and Reading Comprehension Test. A remedial intervention programme-morphological awareness training was conducted with the subject before the

post-test. The data collected through various tests were then given scores and analysed. The results of the pre- and post-test were compared.

5.1 Findings

The comparisons of the results between pre- and post-test of three morphological awareness tests have shown improvement in both the word reading ability and morphological analysis ability. The comparisons of the results between pre- and post-test of the Reading Comprehension Test have revealed that with morphological awareness training, reading comprehension ability of the subject has improved.

The subject shows significant improvement in three morphological awareness tests: WRT, TMS Part 1 Derivation and DATMA. The WRT has an increase of 15.56%, TMS Part 1 Derivation has an increase of 32.15% and DATMA has an increase of 10.66%. However, the TMS Part 2 Derivation has a decrease of 7.14%.

Comparison of the Reading Comprehension Test scores during pre- and post-test suggests that morphological awareness training does not have a positive effect on reading comprehension ability of the subject. The findings showed a decrease of 3.36%.

The questionnaires with the parents, the subject and teacher and the observations during the intervention indicate that the response of the subject towards the intervention programme- morphological awareness training to be positive.

The subject is a moderate dyslexic and he has an average reading skills. During the pre- and post-test, the subject was able to follow the instructions to answer the questions. The subject was also able to follow the instructions during the morphological awareness training and performed the activities that were conducted by the researcher. The subject's

English abilities are between average to good according to the rating by his parents and teacher. The subject was particularly weak in eliciting propositions from a few sentences to answer the questions in Reading Comprehension Test and he was reluctant to express his thoughts verbally.

Although the subject has learned prefixes, suffixes and root words in the classroom in the home school centre, he was not aware of the constituent morpheme and how the meaning of each constituent morpheme can contribute towards understanding the morphologically complex words. After the explicit teaching of morphological knowledge, the subject has more awareness about the meanings of the constituent morphemes and the meanings that lie under the constituent morphemes of the complex words. The morphological awareness of the subject has improved significantly. This is particularly to be seen from the morphology knowledge that the subject used in all three morphological awareness tests: reading morphologically complex words, breaking down and reforming the morphologically complex words and giving definition to the morphologically complex words. After the intervention training, the subject showed improvement in morphological awareness tests: WRT, TMS Part 1 Derivation and DATMA.

In WRT, there were no reading errors with 9 High Frequency Transparent Words because the level of transparency gives advantages for the subject in reading the constituent morphemes in morphologically complex words. For reading High Frequency Root with Low Surface Frequency Words, fewer mistakes were made in post-test compared to pre-test. This is due to the subject being able to recognize the root words from the complex words that led him to read the words correctly. This can attributed to the awareness of the subject towards the constituent morphemes after the morphological awareness training.

In TMS Part 1 Derivation, the results were improved significantly and the decrease in the duration time used implied that the subject has improved his awareness towards morphemes, semantics and grammatical class use of suffixes in morphologically complex words. The improvement in TMS Part 1 Derivation in this study indicates the importance of morphological awareness training to the dyslexics in terms of derivation morphology.

For DATMA, there was an improvement in the results and less time was being used. Moreover, the subject's performance during the test, whereby, he was able to give the explanation of the meanings of some root words and suffixes indicated that he has benefited from the morphological awareness training.

In Reading Comprehension Test, more mistakes were made for inferential questions when compared to literal questions and evaluative questions. The subject was weaker in extracting the information from the text and putting the important keywords together by using his own words. Most of the inferential answers given by the subject were either wrong or incomplete which caused the poorer performance in this particular part. A decrease of 3.36% in Reading Comprehension Test of the subject showed the morphological awareness training does not have a positive effect towards reading comprehension. However, the relatively good result above 80% in pre- and post-test in the Reading Comprehension Test achieved by the subject is still high. Based on the analysis, inferential questions caused more difficulty to the subject compared to literal questions and evaluative questions. The subject still lacks the ability to put the important words together by using his own words. This was also mentioned by his teacher at home school centre that the subject is able to answer comprehension questions but weak in expressing himself or answering questions especially related to explanation.

Overall, the subject showed his development in the aspects of reading words, recognizing affixes and root words. The subject is also able to tell the meaning of the affixes and try to figure out the meaning of the morphologically complex words. His sensitivity towards prefixes and suffixes in morphologically complex words has improved.

5.2 Implications of the study

In this study, teaching with multisensory methods that integrates all different kinds of senses such as visual, auditory, kinesthetic and tactile elements was found to be very important to the subject. The same content is taught repeatedly in the form of different activities in order to overcome the short-term memories of dyslexics. By increasing awareness of the government, society, educators, and parents about morphological awareness training, this study provides an alternative strategy to teach dyslexics affixes and root words.

5.2.1 Morphological Awareness Tests

The subject's performances on three morphological awareness tests showed an overall improvement after the morphological awareness training. The improvement in WRT showed the role of morphology in word recognition which is one of the important elements for reading.

From the performance of subject on TMS Part 1 Derivation, the improvement implied that the subject should be taught specifically in derivational morphology as he has improved after morphological awareness training.

The DATMA test which is a definition test was a difficult test for the subject as he did not obtain more than 60% for both pre- and post-test even though he has improved in the post-

test. Although the result of DATMA may not indicate development in reading comprehension abilities, the performance of the subject during DATMA test has revealed the morphological knowledge of the subject when he broke the morphologically complex words down and defined the constituent morphemes of the complex words.

5.2.2 Remedial Intervention Programme- Morphological Awareness Training

Although the morphological awareness training does not show a positive effect on English reading comprehension abilities, other results and findings in this study showed the morphological awareness training eventually improve the morphology knowledge of the subject. The subject is able to do word attack and tell the meaningful constituent morphemes of the morphologically complex words. This is to help the dyslexics to analyze morphologically complex words that occur in their reading materials and to infer the meanings of morphologically complex words.

5.3 Recommendations for Further Research

As this is a case study of a dyslexic adolescent, future study is recommended with a bigger sample size. This is to obtain a better understanding on how the morphological awareness teaching contributes to reading comprehension among dyslexics in a group rather than on an individual basis. This should be attempted in a school classroom setting. The implementation of morphological awareness training into the classroom or in the form of remedial teaching would be an alternative teaching strategy. The use of animation, audio graphic and text in an interactive gaming technique is found to provide the dyslexics an engaging and fun learning environment. Therefore, more research should be carried out on the use of Information and Communication Technology (ICT) programme in morphological awareness training.

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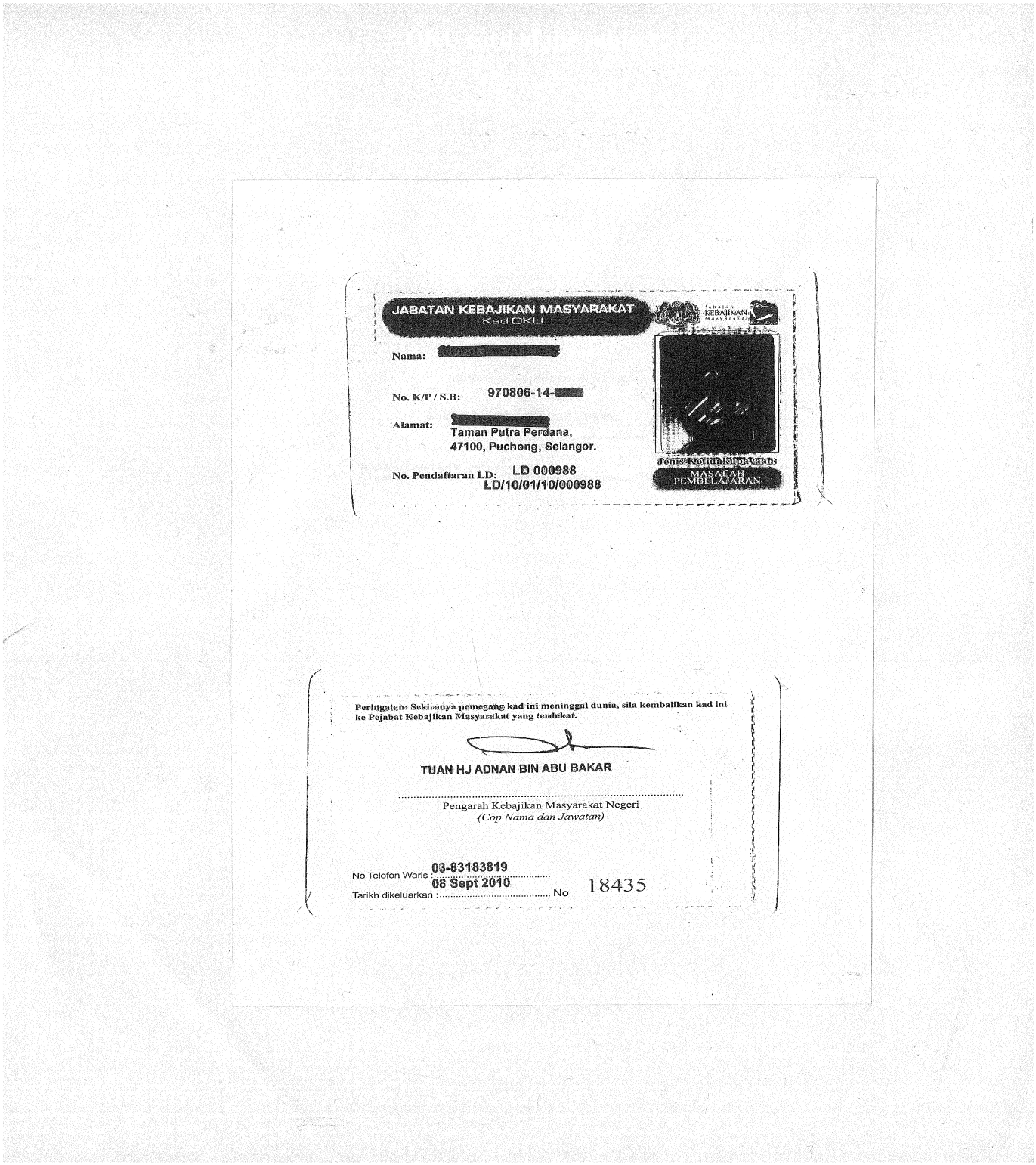
OKU card of the subject



The subject's previous assessment at home school centre

aFile

Name: [redacted] Birthdate: 0

School: SJK (C) Sim ming Year: 9

26.4.06

Just Put a / or X

1. **aRead I** (Read 3 sounds, 4 sounds, and 5 sounds) 30%

/ jam	net / nek	pin /	mop /	sun /
flag frog	belt bet	skin stut	lost /	plug /
spank Sper	blend bit	stink STiut	frost /	plump

2. **aRead II** (Read advance level sounds with word cues) 30%

shop /	chip CIIP	thug Tog	duck /	quick SQ
nice	rain dont	out /	group /	touch
each /	break brunch	goat /	slow	down
high /	eight /	day /	die	saw Sei
see /	key /	blue /	few /	August
moon Mon	soon Son	suit SUIT	toy /	soil

3. **aRead** 20% **& 4. aComprehension** 20%

1. Fat cat sat on hat. Fat Pat sat on cot. Pat has a cot. Bat hit a net. sat	2. Mum will be back soon from the bank. Grab and cram the damp pant for the wash, On the lamp! Dump the trash! Help me with the spill! Next, left gifts to be wrapped.
3. The boy slept in a trunk. He trusts no one. He spent all he has. Nothing left. He has no strength left. He snoozed off. so	4. Here, a white cake, have a bite. A cute lady brought the cake. I like it so much and have five slices. Even the maid had a big piece. She keeps the left over in the refrigerator.

5. **aCopy** 10% (each error –1%) Pick one from the top.

The boy slept in a trunk. He snoozed off

He trusts no one

He spent all he has.

Nothing left

He has no strength left

6. **aDictation/Spelling** 10% (each error –1%) pick one from 3 or 1 or 2

moon
Sun
mathed (maths)
Sol (slow) down
Selach (school)

7. **aWrite** 10% (each error –1%)
Write from a-z or A-Z

abcdefghijklmnopqrstuvwxyz

I wish I

If I have RM 1,000, I will

If I have RM 1,000, I will buy house and a Dog.

8. **aRepetition** 20%
Screening test for possible speech problem. Ask the child to repeat after you like a parrot game.

1. dap		21. bloamite	
2. fim		22. strookle	
3. pob		23. varthip	
4. fad		24. rollesh	
5. bek		25. quomple	
6. seef		26. lomramp	
7. kug		27. chowmerg	
8. dolf		28. sharlfen	
9. kibe		29. groithek	
10. boosh		30. zichong	
11. chuj		31. kagpeb	
12. fowp		32. vifthung	
13. thev		33. distroamber	
14. woamp		34. sizchullen	
15. feench		35. meminum	
16. nempt		36. jozipesh	
17. barng		37. zotrempering	
18. gleth		38. chibbyreenom	
19. straimp		39. quodistelpab	
20. droiper		40. rinpohacherfelp	

Appendix 3

CONSENT FOR AN ADOLESCENT TO PARTICIPATE IN A RESEARCH STUDY

Morphological Awareness in The Reading Comprehension Ability of a Dyslexic Adolescent

My name is Gan Shew Hsia and I am a student in the Master Programme in Linguistics at the University of Malaya. As part of my research report, I am conducting a study which is designed to determine if the morphological awareness improves the ability in reading comprehension. I am interested in your child's participation in this study.

Participation is voluntary and there are no negative consequences for withdrawing at any time or declining to participate. Participation, refusal to participate, or withdrawal at any time will not affect your relationship with the University of Malaya, your child's school, or your child's teacher or his grades. The subject will be told about the study before being asked to participate.

The study is designed to benefit the subject by providing morphological awareness training to improve his vocabulary and reading comprehension skills. Any possible benefits are not guaranteed. There are no anticipated risks involved in this study and the data collected will be used for the purpose of this study only. The name of the subject is kept confidential. There will be only one subject. The study on subject will be done based on a given a number of tasks designed to assess morphological awareness and reading-related skills during the sessions. The assessment will consist of 2 sessions which is pre-test and post-test and training classes of 24 sessions with approximately 45 minutes duration per each session and will be administered in an empty classroom.

Results from the assessments administered during the course of this study will be available to you in the future upon your request, information can be shared with the subject's teacher. If you have any questions about this study please call me at (016) 951 9531 or contact my supervisor Ms Mac Yin Mee at 03-7967 3104 or email to macym@um.edu.my. I can also be reached by email at shewhsia@yahoo.com.sg.

If you would like your child to participate please sign and return one copy of this consent form in the enclosed envelope. The second copy of this consent form is for you to keep for your records. Thank you for your consideration.

VOLUNTARY CONSENT/ PARENTAL CERTIFICATION

The information about the study has been explained to me and all of my current questions have been answered.

I understand that I may contact Faculty of Languages and Linguistics Postgraduate office, University of Malaya (03-7967 3144) to discuss problems, concerns, and questions; obtain information; offer input; or discuss situations in the event that the researcher is unavailable.

By signing this form, I agree for my child to participate in this research study. A copy of this consent form will be given to me/my child.

[redacted]

Printed Name of Child- Subject

I understand that, as a minor (age less than 18 years), the above-named child is not permitted to participate in this research study without my consent. Therefore, by signing this form, I give my consent for his/her participation in this research study.

[redacted]

Parent's Name (Print)

mother

Relationship to Subject (Child)

Parent's Signature

12/3/2012

Date

CHILD'S CONSENT (to be used with children who are developmentally able to sign)

This research has been explained to me, and I agree to participate.

Phoenix

Signature of Child- Subject

12/3/2012

Date

Simon Tan

Printed Name of Child- Subject

CERTIFICATION OF INFORMED CONSENT

I certify that I have explained the nature and purpose of this research study to the above-named individual(s), and I have discussed the potential benefits and possible risks of study participation. Any questions the individual(s) have about this study have been answered, and we will always be available to address future questions as they arise. I further certify that no research component of this protocol was begun until after this consent form was signed.

GAN SHEW HSIA — Researcher

Printed Name of Person Obtaining Consent — Role in Research Study

12/3/2012

Signature of Person Obtaining Consent — Date

Appendix 4a

Questionnaire for parents and the subject before pre-test

Part A

1. Details of subject

   Name: [redacted]

   Age: 14 Date of birth: 6/8/1997

   Sex: Male

   Race: Chinese

   Height: 50 kg

   Weight: 163 cm

   Current health: Good

   Language Spoken: English mostly.

2. School History

   Type of school attended: [redacted] – special school.

   (For example: Mainstream school-SMK)

   Current grade: 7

   (For example : Standard 6 or Form 2)

   Easy subjects: Social studies.

   Difficult subjects: science math

   Problems in school: no problems.

   Recreational interests/ hobbies: Computer games, watch movies.

3. Socio-economic data

   Type of community (city, town, country etc): city

   Home (owned, rented, bedrooms shared): owned

Economic condition of family (poor, very poor, comfortable, well-to-do):

comfortable

4. Details of subject's family:

Fathers Name: [redacted]

Fathers Age: 56

Fathers Occupation: TOURIST GUIDE

Fathers Education Level: DIPLOMA

Mother's Name: [redacted]

Mother's Age: 58

Mother's Occupation: OFFICE MANAGER.

Mother's Education Level: DEGREE

Home Address: [redacted], JLN PUTRA PERDANA 47100 PUCHONG.

No. of Contact: 017 6362788

5. Background history of the subject

a) Have your child ever participated in any learning difficulties training class in school or other places?

Yes/ ~~No~~

If yes, please explain:

At Katon before she started home school

b) Have your child ever failed in examination or test in school?

(Yes)/ No

If yes, please explain:

Science, malay, chinese, and math

c) Have your child experiencing difficulty during the birth?

Yes/ No

If yes, please explain:

_____

6. Behaviors and conditions of the subject

a) Do you have to repeat the instructions to your child always?

Yes/ No

b) Does your child have difficulties with direction (differentiating left and right)?

Yes/ No

c) Does your child require a period of time to finish his/her homework?

Yes/ No

d) Does your child need assistance to finish his/her homework?

Yes/ No

e) Do you feel that your child's performance in reading activities is far lower than his cognitive abilities?

Yes/ No

f) Do you spend time to read for your child?

Yes/ No

g) Does your child pay attention to you while you are reading?

Yes/ No

h) Does your child shy to read?

Yes/ No

i) Does your child enjoy attending school?

Yes/ No

j) Does your child start to talk (for example saying "mama") before 24 months old?

Yes/ No

k) Does your child experience the stage of low proficiency in speech while he was in the age of 4 or 5?

Yes/ No

l) Does your child use the inappropriate word very frequently when he speaks?

Yes/ No

m) Does your child always confuse with the sequence of the time like yesterday, today?

Yes/ No

n) Does your child's proficiency in his/her speech is good?

Yes/ No

o) Does your child encounter difficulty in learning alphabet?

Yes/ No

p) Does your child is always confuse with the writing like "buku-kubu"?

Yes/ No

q) Does your child use sign language more frequently until he/ she was 6 years old?

Yes/ No

r) Does your child use left hand while writing?

Yes/ No

s) Does your child have any tuition class to help with his homework?

Yes/ No

If yes, what kind of tuition that he received? Tuition on maths, English, BM

t) Does he/she attend any other classes/training?

Yes/ No

If yes, what other classes that he is taking? _____

u) Does your child like to read? Why?

no Does not like to read

v) Do you have any knowledge of morphology?

Yes/(No)

If yes, could you please describe? _____

Part B

1. The abilities of the subject. Please tick (/) whichever is appropriate.

No.	Items	Weak	Average	Good	Not sure
1.	Ability to communicate in English.			✓	
2.	Ability to read in English.			✓	
3.	Concentration.		✓		
4.	Vocabulary knowledge.			✓	
5.	Ability to decode words.			✓	
6.	Ability to understand simple sentence.			✓	
7.	Ability to inter-relate sentences and understand the meaning.			✓	

8.	Ability to understand literal questions.			✓	
9.	Ability to understand inferential questions.			✓	
10.	Ability to read aloud.			✓	
11.	Reading pace.		✓		
12.	Ability to construct logic sentence.			✓	

2. What are your comments toward the reading ability of your child?
Has improved and started schooling in Katsu.

3. What is the overall performance of your child at home?
Has improved but can be better Personal hygiene. Help with chores.

4. What is the attitude of your child toward learning?
If he is interested in a subject, he can spend hrs on it. If he doesn't like it he wouldn't bother.

Thank you for your cooperation!

Appendix 4b

Questionnaire for teacher before pre-test

1. How long have you been teaching the participant?
   Four years.
2. Does the participant like to read? Why?
   Average. Only likes to read materials that he interested.
3. The abilities of the participant. Please tick (/) whichever is appropriate.

No.	Items	Weak	Average	Good	Not sure
1.	Ability to communicate in English.			✓	
2.	Ability to read in English.			✓	
3.	Concentration.		✓		
4.	Vocabulary knowledge.		✓		
5.	Ability to decode words.		✓		
6.	Ability to understand simple sentence.			✓	
7.	Ability to inter-relate sentences and understand the meaning.		✓		
8.	Ability to understand literal questions.		✓		

9.	Ability to understand inferential questions.		✓		
10.	Ability to read aloud.			✓	
11.	Reading pace.			✓	
12.	Ability to construct logic sentence.	✓			

4. What are your comments toward the reading ability of the participant?
   Good, be able to read well. Accuraty of pronunciations were average, sometimes may misspell word according to his own phonic pronunciation.

5. What is the overall performance of the participant in this center?
   Good, can work ↓ and complete task independently. Able to project and set his own daily goals.

6. What is the attitude of the participant toward learning?
   Very creative in his own way of creation but doesn't likes art. Very helpful and are able to complete task in a short period of time.

7. Do you have any knowledge of morphology?

   Yes/(No)

   If yes, could you please describe? _____

Appendix 4c

Questionnaire for teacher after post-test

1. What do you think of the participant's reading comprehension abilities after 3-month morphological awareness training?

   His reading skill is smoother despite spelling skill is a bit weak. Needs improvement on brain storming part; can answer comprehension question but weak in expressing himself or question related in explaination.

2. The abilities of the participant. Please tick (/) whichever is appropriate.

No.	Items	Weak	Average	Good	Not sure
1.	Ability to communicate in English.		✓		
2.	Ability to read in English.			✓	
3.	Concentration.			✓	
4.	Vocabulary knowledge.		✓		
5.	Ability to decode words.		✓		
6.	Ability to understand simple sentence.			✓	
7.	Ability to inter-relate sentences and understand the meaning.		✓		
8.	Ability to understand literal questions.		✓		
9.	Ability to understand inferential questions.		✓		
10.	Ability to read aloud.			✓	
11.	Reading pace.			✓	
12.	Ability to construct logic sentence.			✓	

3. Any other improvements that you have noticed of? In term of vocabulary learning, reading comprehension ability, attitude or others?

He's more concentrate while reading passage, he's able to build sentences base on his own understanding (eg. the word that is understand) more accurately.

Questionnaire for parents and the subject after post-test

1. What do you think of the participant's reading comprehension abilities after 3-month morphological awareness training?

   Difficult for me to say as he doesn't read to me.

2. The abilities of the participant. Please tick (/) whichever is appropriate.

No.	Items	Weak	Average	Good	Not sure
1.	Ability to communicate in English.			✓	
2.	Ability to read in English.			✓	
3.	Concentration.		✓		
4.	Vocabulary knowledge.			✓	
5.	Ability to decode words.			✓	
6.	Ability to understand simple sentence.			✓	
7.	Ability to inter-relate sentences and understand the meaning.			✓	
8.	Ability to understand literal questions.			✓	
9.	Ability to understand inferential questions.			✓	
10.	Ability to read aloud.			✓	
11.	Reading pace.			✓	
12.	Ability to construct logic sentence.			✓	

3. Any other improvements that you have noticed of? In term of vocabulary learning, reading comprehension ability, attitude or others?

At this time I cannot see any change

Observation checklist

No.	Items/ Rating scale	Poor	Fair	Good	Very Good	Excellent	Total
a) Abilities	Ability to communicate in English (ESL/EFL)						
	Ability to read in English						
	Ability to decode words						
	Concentration						
	Vocabulary knowledge						
	Memory skill						
No.	Items/Rating scale	Never	Rarely	Some times	Often	Always	Total
b) Behaviour	Fidgeting						
	Yawning						
	Requesting help						
	Participating						
	Attentive						
	Talkative						
	Independent						
	Follow instructions						
	Remains on task						
	Cooperative						

Remarks: _____

_____

_____

_____

No.	Items/Rating scale		Bored	Not interesting	Interesting	Very Interesting	Total Number of responses
c) Responses	Flip-a-card games						
	Making sentences						
	Computer games	Matching-Draw line					
		Break-it-up					
		Fill-in-the-blanks					
		Using Online Dictionary					
	Reading article text						
	Using the dictionary						
	Fill in the blanks (hand writing)						
	Making suffixes and root words cards						
	Multisensory activities	Ball shooting word cards					
		Sand writing					
		Single leg jump to match cards					
		Draw and match cards					
		Memory game					
		Flip and match card games					
		Matching morphemes cards					
		Writing on the back with finger					

Schonell Reading Test

The child should read the words left to right. If the child can't say the word, then go on to the next one. Stop the test after the 8th consecutive error.

The person supervising the test will give one mark for each word correctly pronounced - even if the reader self corrects. **The supervisor will not suggest corrections**. No prompting. No hurrying. If the reader mis-pronounces ***slightly*** as in ***postage*** with a short '***o***', the first time, then ask for the word again, marking it correct if the reader has self-corrected. Otherwise, do not ask for a word to be re-read.

If you **DO NOT** correct the pronunciation of words that the reader does not know, then this same test may be used again at a later date to assess progress as a result of a teaching programme.

SCORING TABLE

	0	1	2	3	4	5	6	7	8	9
0	<5.00	5.01	5.02	5.04	5.05	5.06	5.07	5.08	5.10	5.11
10	6.00	6.01	6.02	6.04	6.05	6.06	6.07	6.08	6.10	6.11
20	7.00	7.01	7.02	7.04	7.05	7.06	7.07	7.08	7.10	7.11
30	8.00	8.01	8.02	8.04	8.05	8.06	8.07	8.08	8.10	8.11
40	9.00	901	9.02	9.04	9.05	9.06	9.07	9.08	9.10	9.11
50	10.00	10.01	10.02	10.04	10.05	10.06	10.07	10.08	10.10	10.11
60	11.00	11.01	11.02	11.04	11.05	11.06	11.07	11.08	11.10	11.11
70	12.00	12.01	12.02	12.04	12.05	12.06	12.07	12.08	12.10	12.11
80	13.00	13.01	13.02	13.04	13.05	13.06	13.07	13.08	13.10	13.11
90	14.00	14.01	14.02	14.04	14.05	14.06	14.07	14.08	14.10	14.11

Example: If the student scores 25 words correct, find the intersection between the 20 on the left hand column and the 5 on the top row. The score is 7 years and 6 months (7.06).

tree	little	milk	egg
book	school	sit	frog
playing	bun	flower	road

clock	train	light	picture
think	summer	people	something
dream	downstairs	biscuit	shepherd

thirsty	crowd	sandwich	beginning
postage	island	saucer	angel
ceiling	appeared	gnome	canary

attractive	imagine	nephew	gradually
smoulder	applaud	disposal	nourished
diseased	university	orchestra	knowledge

audience	situated	physics	campaign
choir	intercede	fascinate	forfeit
siege	recent	plausible	prophecy

colonel	soloist	systematic	slovenly
classification	genuine	institution	pivot
conscience	heroic	pneumonia	preliminary

antique	susceptible	enigma	oblivion
scintillate	satirical	sabre	beguile
terrestrial	belligerent	adamant	sepulchre

statistics	miscellaneous	procrastinate	tyrannical
evangelical	grotesque	ineradicable	judicature
preferential	homonym	fictitious	rescind

metamorphosis	somnambulist	bibliography	idiosyncrasy

Appendix 7

Word Reading Test (WRT)

Instruction:

Read aloud the word list provided in Set A and Set B. You will receive two points for reading a word correctly within two seconds, but one point if you are not."

Set A *(Transparent)*	*(Shift)*	*Set B*
		puzzlement
powerful	explanation*	secretive
suddenly	easily*	cookery
harmful	solution*	corrective
movement	curiosity*	pailful
addition	natural*	organist
friendly	heavily*	equalize
government	explosion*	wifelike
lovely	trial**	sparkly
quickly	daily**	oddity
	moisture***	preventive
	combination*	odorous
	shiny**	queendom
	invention***	stardom
	direction***	dramatize
	definition*	fearsome
	beautiful*	idealize
		bucketful
		flowery
		beastly

* Words with both phonological and orthographic shifts.
** Words with orthographic shifts.
*** Words with phonological shifts.

Test of morphological structure (TMS)

Part 1: Derivation

Instruction:

"Look at the test paper in front of you. For Part 1, the root words and sentences will be read aloud by the researcher to you. Please write the morphologically complex word to complete the sentence. You are given 10 minutes to complete the task."

Practice
a. Farm. My uncle is a _____ . [farmer]
b. Help. My sister is always _____ . [helpful]

1. warm. He chose the jacket for its_____ . [warmth]
2. teach. He was a very good_____ . [teacher]
3. permit. Father refused to give_____. [permission]
4. profit. Selling cold drink in hot weather is _____. [profitable]
5. appear. He cared about his_____ . [appearance]
6. express. 'OK' is a common_____. [expression]
7. four. The cyclist came in_____ . [fourth]
8. remark. The speed of the car was_____ . [remarkable]
9. protect. She wore glasses for_____ . [protection]
10. perform. Tonight is the last_____ . [performance]
11. expand. The company planned an_____ . [expansion]
12. revise. This essay is his second_____ . [revision]
13. reason. Her argument was quite_____ . [reasonable]
14. major. The prime minister won the vote by a_____ . [majority]
15. deep. The lake was well known for its_____ . [depth]
16. equal. Boys and girls are treated with_____ . [equality]
17. long. They measured the ladder's _____. [length]
18. adventure. The trip sounded _____. [adventurous]
19. absorb. She chose the sponge for its_____ . [absorption]
20. active. He tired after so much_____ . [activity]
21. swim. She was a strong _____. [swimmer]
22. human. The kind man was known for his_____ . [humanity]
23. wash. Put the dirty clothes in the_____ . [washer]
24. humor. The story was quite_____ . [humorous]
25. assist. The teacher will give you_____ . [assistance]
26. mystery. The dark glasses made the man look _____. [mysterious]
27. produce. The play was a grand _____ . [production]
28. glory. The view from the hill top was _____ . [glorious]

Test of morphological structure (TMS)

Part 2: Decomposition

Instruction: **For Part 2, the derived words and sentences will be read aloud by the researcher to you. Write the root word to complete the sentence. You are given 10 minutes to complete the task.**

Practice:
a. Driver. Children are too young to _____ . [drive]
b. Improvement. My mother wants my English to_____ . [improve]

1. growth. She wanted her plant to _____ . [grow]
2. dryer. Put the wet clothes out to_____ . [dry]
3. variable. The time of his arrival did not _____. [vary]
4. width. The mouth of the river is very_____ . [wide]
5. density. The smoke in the room was very_____ . [dense]
6. discussion. The friends have a lot to_____ . [discuss]
7. famous. The actor would achieve much_____ . [fame]
8. description. The picture is hard to_____ . [describe]
9. fifth. The boy counted from one to _____. [five]
10. election. Which person did they _____? [elect]
11. strength. The girl was very_____ . [strong]
12. decision. The boy found it hard to _____ . [decide]
13. popularity. The girl wants to be _____. [popular]
14. runner. How fast can she _____? [run]
15. publicity. His ideas were made _____. [public]
16. difference. Do their opinions _____ ? [differ]
17. originality. That painting is very _____. [original]
18. agreeable. With that statement I could not_____ . [agree]
19. courageous. The man showed great _____ . [courage]
20. admission. How many people will they _____ ? [admit]
21. dangerous. Are the children in any _____? [danger]
22. reduction. The overweight man was trying to _____. [reduce]
23. baker. She put the bread in to_____ . [bake]
24. division. The cake is hard to _____. [divide]
25. guidance. The map was her_____ . [guide]
26. continuous. How long will the storm _____? [continue]
27. reliable. On his friend he could always _____. [rely]
28. acceptance. Is that an offer you can_____ ? [accept]

Stimulus word test for DATMA

Instruction: I will say some words, and your job is to tell me what you think they mean. I will also show you a written copy of each word. If some of the words are difficult, I will give you some help. Are you ready? Now let's try and practice on two items to let you know how the test would be like.

2 Practice Items:

Practice 1: Flowery (adj.): abounding in or covered with flowers; producing flowers

Derived form frequency: 1.21
Root frequency (flower): 17.98

Molly hated the dress with daisies because it was too *flowery*.
a) covered with blossoms
b) covered with dots
c) covered with colors

Practice 2: Organist (n.): a person who plays the organ

Derived form frequency: .48
Root work frequency (organ): 11.02

The band hired a new *organist* to perform in their next concert.
a) hero
b) singer
c) musician

1. **Boathouse** (n.): a building or shed, usually built partly over water, for sheltering a boat or boats

   Derived form frequency: .42
   Root frequency (boat): 65.22 (house): 550.26

   We returned to the *boathouse* after a long day on the water.

   a) a building in which boats are kept
   b) a boat equipped for living in
   c) a room next to a swimming pool

2. **Cookery** (n.): the art or practice of cooking; a place or area for cooking.

   Derived form frequency: .36
   Root frequency (cook): 84.39

   Grandma's *cookery* was awful so Bob hated eating at her house.
   a) the art of decorating
   b) the art of preparing food
   c) the art of sewing

3. **Equalize** (v.): to equal; match

Derived form frequency: .53
Root frequency (equal): 40.90

At the track meet, Josh ran extra fast so he could *equalize* his time with his opponent‘s.
a) to increase
b) to match
c) to decrease

4. **Fearsome** (adj.): fear inspiring; frightful; dreadful

Derived form frequency: 1.90
Root frequency (fear): 99.64

The movie was so *fearsome* that John had to cover his eyes most of the time.
a) funny
b) romantic
c) frightening

5. **Hospitalize** (v.): to place in a hospital for medical care or observation

Derived form frequency: .07
Root word frequency (hospital): 112.06

The doctor was unsure whether to *hospitalize* the patient or not.
a) place in the hospital
b) treat kindly
c) enjoy

6. **Idealize** (v.): to make ideal; to represent something in an ideal form

Derived form frequency: .18
Root word frequency (ideal): 30.56

People often *idealize* movie stars as perfect.
a) create
b) destroy
c) put up on a pedestal

7. **Moonlit** (adj.): lit by the moon

Derived form frequency: 1.02
Root word frequency (moon): 54.90 (lit): 22.20

The *moonlit* lake glistened under the stars.
a) round
b) lit by the moon
c) shiny

8. **Oddity** (n.): the quality or character of being odd or peculiar; peculiarity; strangeness;singularity

   Derived form frequency: .90
   Root frequency (odd): 30.12

   The singing horse with a purpose tail was an *oddity* they saw at the fair.
   a) a common thing
   b) an unusual thing
   c) a pretty thing

9. **Odorous** (adj.): emitting a smell or scent; scented, odiferous

   Derived form frequency: .16
   Root frequency (odor): 7.31

   Mary hated cleaning the litter box out because it was so *odorous*.
   a) large
   b) boring
   c) strong smelling

10. **Preventive** (adj.): that anticipated in order to ward against; precautionary; that keeps from coming or taking place; that acts as hindrance or obstacle

    Derived form frequency: 1.06
    Root frequency (prevent): 58.44

    The rain coats were *preventive* and kept the children from getting all wet.
    a) tending to make something happen
    b) tending to make into a game
    c) tending to keep something from happening

11. **Puzzlement** (n.): the fact or condition of being puzzled; perplexity; bewilderment; confusion

    Derived form frequency: 1.22
    Root frequency (puzzle): 11.89

    Kim tried to figure out how to put the bike together and finally gave up in *puzzlement*.
    a) confusion
    b) happiness
    c) fright

12. **Reliance** (n.): confident or trustful dependence; something or someone relied on

    Derived form frequency: 6.80
    Root word frequency (rely): 23.64

    Her *reliance* on others to do her work was in large part caused by laziness.
    a) dependence
    b) failure
    c) cause

13. **Secretive** (adj.): inclined to, fond of secrecy; very reticent; indicative of secrecy

    Derived form frequency: 3.32
    Root frequency (secret): 73.12

    Tim had to be very *secretive* so Gail wouldn‘t find out about the surprise party.
    a) silly
    b) mysterious
    c) angry

14. **Sparkly** (adj.): sparkling, something that sparkles

    Derived form frequency: 1.19
    Root frequency (sparkle): 2.61

    Elizabeth got to wear a *sparkly* crown on her birthday.
    a) dull
    b) silky
    c) glittery

15. **Stardom** (n.): the status of a performer or entertainer acknowledged as a star; star performers considered as a group

    Derived form frequency: 1.91
    Root word frequency (star): 112.82

    David came close to getting the lead in several movies, but he missed his chance for *stardom*.
    a) modesty
    b) fame
    c) luck

Appendix 10a

Results analysis of DATMA in pre-test

Questions	Scores	Remarks
boathouse	0 point	After prompt #5, the subject still cannot define the word correctly and gave the wrong answer "a boat that is a house."
cookery	2 points	The subject was not able to figure out the answer until prompt #5. The correct answer "the art of preparing food" was given at prompt #5.
equalize	2 points	The subject was not able to give the correct answer until prompt #5. The correct answer "to match" was given at prompt #5.
fearsome	2 points	The subject gave the wrong answer "fear of something" at the beginning; Later, he gave the correct answer "frightening" at prompt #5.
hospitalize	4 points	The subject was able to provide the correct answer "to put in the hospital" but he was not able to refer to individual morpheme. Thus prompt #3 asked "Does the word hospitalize have any smaller parts" and he was able to indicate them.
idealize	0 point	After prompt #5, the subject still cannot define correctly and gave the wrong answer "create".
moonlit	2 points	The subject gave the wrong answer "a lit that look like a moon" until prompt #5 was given. The correct answer "lit by the moon" was given at prompt #5.
oddity	2 points	The subject was not able to figure out the answer until prompt #5. The correct answer "an unusual thing" was given at prompt #5.
odorous	2 points	The subject did not know the meaning of the word. The correct answer "strong smelling" was given at prompt #5.
preventive	4 points	The subject answered "prevent something from happening". He was able to give the answer in prompt #1 but he was not able to refer to the individual morphemes of the target word until prompt #3 was given.
puzzlement	2 points	The subject gave the answer "a puzzle that is very hard to do" until the correct answer "confusion" was given at prompt #5.
reliance	2 points	The subject gave the answer "you trust in somebody" at first until the correct answer "dependence" was given at prompt #5.
secretive	5 points	The subject gave the answer "very secret, very private" which was close to the correct answer "mysterious". The full score was given because the subject answered #1 and #2 correctly and completely.
sparkly	4 points	The subject gave the answer "very shiny" and he was able to tell the individual morpheme after prompt #3.
stardom	2 points	The subject could not figure out the answer until prompt #5. The correct answer "fame" was given at prompt #5.

Appendix 10b

Results analysis of DATMA in post-test

Questions	Scores	Remarks
Boathouse	0 point	After prompt #5, the subject cannot define correctly and gave the wrong answer "a boat equipped for living in."
Cookery	3 points	The subject was not able to figure out the answer until prompt #4, the explanation "the state of cooking" was given.
equalize	5 points	The subject gave the answer "to be the same" that is close to the definition and gave the meaningful part of constituent morpheme after prompt #1 and #2.
fearsome	2 points	The subject gave the answer "to be afraid" at the beginning but it was incorrect. Later, he gave the correct answer "frightening" at prompt #5.
hospitalize	5 points	The subject was able to provide the correct answer "to put in the hospital" and gave the meaningful part of constituent morpheme after prompt #1 and #2.
idealize	5 points	The subject was able to provide the correct answer "to make ideal" and gave the meaningful part of constituent morpheme after prompt #1 and #2.
moonlit	2 points	The subject gave the wrong answer "to lit the moon" and "to shine at the moon" at the beginning. The correct answer "lit by the moon" was given at prompt #5.
oddity	2 points	The subject gave the answer "to be different" but it was incorrect. The correct answer "an unusual thing" was given at prompt #5.
odorous	2 points	The subject did not know the meaning of the word and gave the definition "to be big". The correct answer "strong smelling" was given at prompt #5.
preventive	3 points	The subject answered "to prevent thing from happening" at prompt 4.
puzzlement	5 points	The subject gave the answer "a state of being puzzled". The subject was able to tell the meaningful part of constituent morpheme after prompt #1 and #2.
reliance	3 points	The subject gave the correct answer "the state of being reliable" at prompt #4.
secretive	2 points	The subject gave the wrong answer "to be very secret". He answered the correct answer "mysterious" at prompt #5.
sparkly	2 points	The subject gave the answer "to be very bright" and able to tell the correct answer "glittery" at prompt #5.
stardom	2 points	The subject gave the wrong answer "the act of being a star" until correct answer "fame" was given at prompt #5.

Reading Comprehension Test

Passage 1: Thriving Industy

A. Read the article below.

Sail Away, Sail Away

Pulau Duyung is a small and beautiful island. It is located at the mouth of the Terengganu River on the East Coast of Peninsular Malaysia. It is a popular holiday spot. Many local visitors go there during weekends and school holiday. It is also a favourite destination among foreign tourists. Many visitors revisit the island due to the harmonious atmosphere of the island.

The villagers on this small island build wooden fishing boats for a living. They have been in this trade for a very long time. Their skills in building boats are passed down from one generation to another.

These boats are made of kayu cengal, a yellowish hardwood found in tropical forests. The boats that the villagers build can withstand the rough sea during the monsoon season. As such, many fishermen from other places come to Pulau Duyung to buy them. Because of the demand for the fishing boats, many young men are learning the art and skills from their elders.

Now, boat-building in Pulau Duyung has become a big and modern industry. There is a big shipyard where boats are built and repaired. The villagers use modern equipment and machinery instead of traditional tools.

So if you and your family plan to own a boat, Pulau Duyung is the place to go to. Then you can sail away in your own boat.

(Adapted from ‘ Going Places’)

B. Match the sentence parts to form meaningful sentences. (4 marks)

Many people visit Pulau Duyung	is a big modern industry.
The skills in making boats	in tropical forests.
We can find kayu cengal	during weekends and school holidays.
Today, boat-building on the	are passed down from one generation to another.

C. Answer the questions below. (10 marks)

1. What do the villagers in Pulau Duyung do for a living?

_____

_____

_____

2. Why do many visitors revisit the island?

_____

_____

_____

3. Why do fishermen from other places go to Pulau Duyung to buy fishing boats?

_____

_____

_____

4. Why do you think *kayu cengal* is used to build the boats?

_____

_____

_____

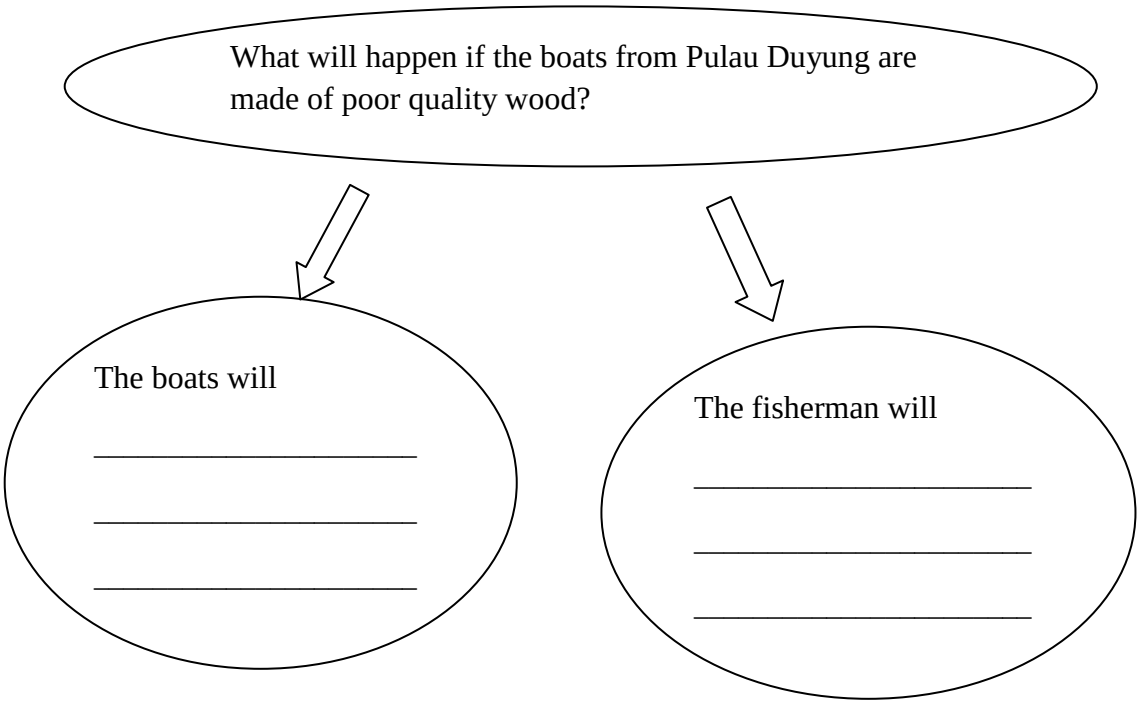
5. How do boat-builders in Pulau Duyung build boats today?

_____

_____

_____

D. Make your own predictions. (6 marks)



Passage 2: An Article on a Remarkable Man

A. Read the Internet article below.

Malaysia's longest serving Prime Minister

Malaysia's longest serving Prime Minister is none other than our beloved Datuk Seri Dr Mahathir bin Mohamad. He became the fourth Prime Minister of Malaysia on 16 July 1981.

The son of a teacher, Dr. Mahathir was born on 20 December 1925 in Alor Star, Kedah. He had his primary and secondary education in his hometown. He did well in his studies as he was a very hardworking and intelligent student. He was also an enterprising young man. He sold banana fritters to help out his family.

In 1947, he enrolled at the King Edward VII College of Medicine in Singapore. Graduating with flying colours, he then joined the Malaysian Civil Service as a Medical Officer. In 1957, he left the service to set up his own clinic in Alor Star.

A talented writer, he wrote for The Straits Times and Sunday Times. He also wrote a number of books such as The Malay Dilemma (1969), The Way Forward (1998) and Globalisation and the New Realities (2002).

Dr Mahathir has been active in politics since 1945 and has been a member of the United Malay National Organisation (UMNO) since its beginning in 1946. In 1974, he was appointed the Minister of Education and in 1976, he was made the Deputy Prime Minister. In 1981, he became the President of UMNO as well as the Prime Minister of Malaysia.

Dr Mahathir has brought about many great changes in the country. He introduced the Look East Policy, which has brought much development to our country. He also emphasised the value of Leadership by Example. Under his Vision 2020, he started the Multimedia Super Corridor concept which includes the Smart School Project. He hopes to see Malaysia progress into the cyber age.

Dr Mahathir has also made Malaysia well-known internationally. He is very vocal with his thoughts and opinions on world issues. He takes a firm stand on important issues like globalisation and terrorism. As a result, Malaysia is very much respected internationally.

(Adapted from: http://www.smpke.jpm.my/website/webdb.nsf/:opendatabase)

An enterprising person is good at thinking and doing new and difficult things and making them successful.

"vocal" means to express your opinions in speech.

B. Choose the correct answer. (4 marks)

1. When did Dr Mahathir become the Prime Minister?

A	1947	C	1976
B	1957	D	1981

2. What was the occupation of Dr Mahathir's father?

A	Doctor	C	Teacher
B	Officer	D	Hawker

3. How did Dr Mahathir show his enterprising nature?

A He became a doctor.
B He wrote articles for newspapers.
C He was active in politics.
D He sold food to help his family.

4. What qualities did Dr. Mahathir show as a student?

A Diligence and intelligence
B Shyness and gentleness
C Bravery and wisdom
D Quietness and simplicity

C. Answer the questions below. (14 marks)

1. What does the phrase 'with flying colours' mean? (2 marks)

_____

_____

_____

_____

2. What are some of the projects introduced by Dr Mahathir that have brought Malaysia into the cyber age? (2 marks)

_____

_____

_____

3. How has Dr Mahathir made Malaysia well-known internationally? (3 marks)

_____

_____

_____

_____

4. Dr Mahathir is said to be vocal in his stand on certain issues. Give four other adjectives to describe him. (e.g, talented) (4 marks)

   i. _____

   ii. _____

   iii. _____

   iv. _____

D. Make a prediction. (3 marks)

_____

_____

_____

_____

_____

Passage 3: Letter from a Mother

A. Read the letter written by a mother to her daughter.

Dear Ming,

You ask me, "Do you think I am beautiful, Mum?" I always reply, you are the most beautiful girl in the world, and you would answer, "You only say that because you are my mother." Yes, I am your mother and I know you better than anybody else does. Your long black hair, small almond-shaped eyes, slightly oval face and your nose which you complain is too big, are lovely to me. When you smile or laugh, you look joyful. And that is beauty. No wonder you are popular among your friends. This is predictable as you are always surrounded by friends when you are little. Your joy comes from the knowledge that Papa and I love you, and the peace that is within you.

Remember Roald Dahl's 'The Twits'? Mrs Twits had quite a nice face when she was young. But over the years, she became ugly because she had ugly thoughts. "You can have a large nose and a crooked mouth and a double-chin, but if you have good thoughts they will shine through and you will always look lovely," says Roald Dahl.

Some people call this inner beauty. Inner beauty makes other people feel beautiful. Saying thanks to the bus driver makes his driving a more pleasant task. Giving up a seat for a pregnant mother makes her feel appreciated. Little deeds of kindness can only come from one who is at peace with herself.

However, being well-dressed and well-groomed are important too. That is how others judge you. It is the picture you show to the world, and although it is superficial, people judge you by your appearance. Moreover, looking good also helps to boost your self-confidence. But, looks alone will not decide your happiness. Women whose self-esteem depends on staying young and beautiful would feel terrible as they grow old. It is the peace in your heart that will give you the strength and confidence to go through difficult times.

So Beauty, don't overstress about that nose.

Love,
Mum

(Adapted from "Beauty" in My Daughter, My friend: Letters to a Daughter by Irene Chua)

Roald Dahl is a well-known author of children's books.

The opposite meaning of 'superficial' is 'genuine'.

'To boost' means to increase.

B. Choose the correct answers. (4 marks)

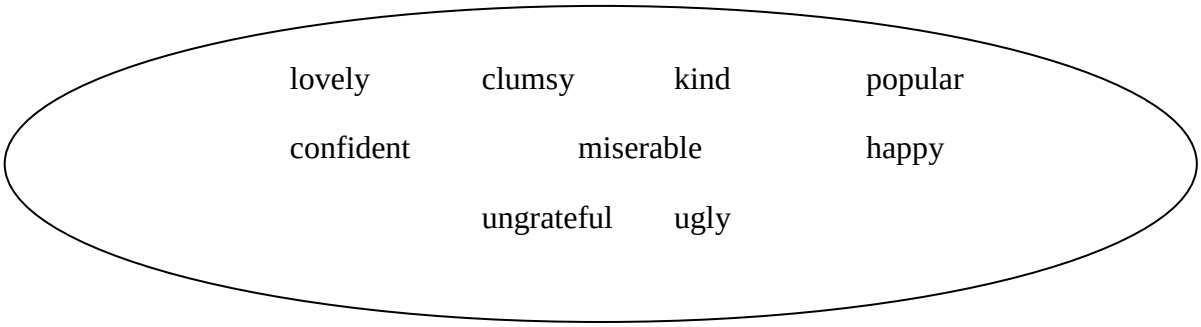
1. Roald Dahl says that if people are (ugly but have good thoughts/ beautiful but have ugly thoughts), they will still look lovely. (1 mark)

2. The mother feels (physical beauty/ inner beauty) is more important than (inner beauty/ physical beauty). (2 marks)

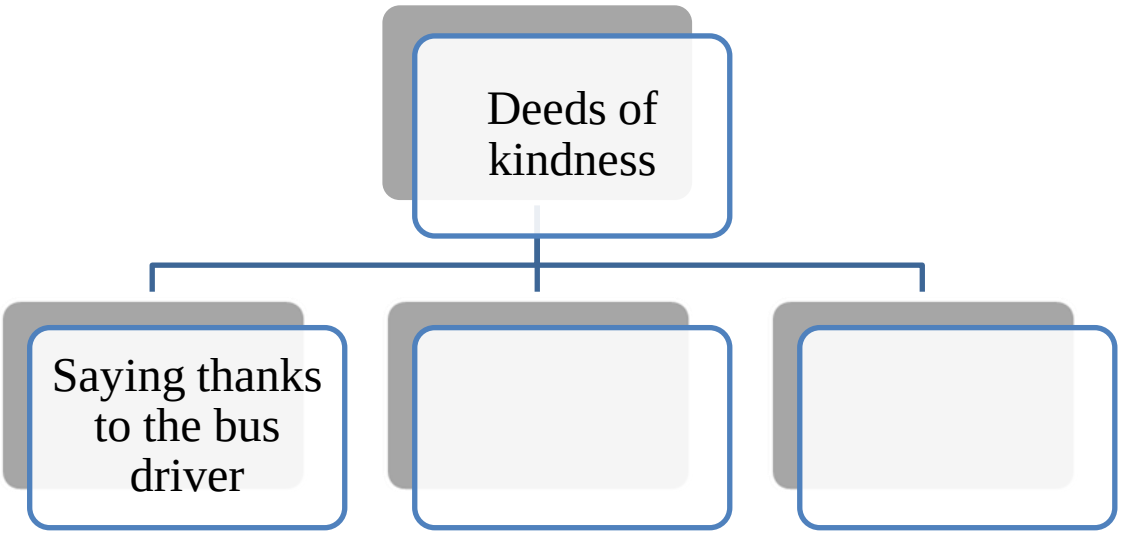
3. The mother thinks it is (important/ not important) to be well-dressed and well-groomed. (1 mark)

C. Choose and underline 4 appropriate descriptions. (4 marks)

The writer thinks her daughter is:



D. Below is an example of a kind deed found in the passage. What other kind deeds can you do? (6 marks)



E. Answer these questions. (6 marks)

1. The writer states two reasons why she thinks her daughter is joyful. What are they?

2. Why is it important to look good?

3. What boosts a person's self-confidence?

Passage 4: Johan wants to watch the skateboarding demonstration. He wants to get more information on this activity. He surfs the Internet and finds this web page.

A. Read the text below.

Skateboarding, anyone?

Skateboarding is a fun and excellent form of exercise. It can be a recreational activity, an art form, a job, or a method of transportation. Do you know anything about it? Well, if you are new to the world of skateboarding, here are a few things you may like to know.

How It All Began?

Most people believe that skateboarding began in the United States of America in the 1950's. Due to the lack of powerful waves to surf on, the surfers decided to surf on pavements using wheels. Thus, the first skateboard was born.

Types of Skateboarding

There are two main types of skateboarding, namely, street skating and vert skating. Street skating basically means skating on any suburban or urban landscapes such as empty parking lots, parks, playgrounds and so on. Every skateboarder will start with street skating. Vert skating, on the other hand, means skating on ramps or other vertical structures specifically designed for skating.

Safety Measures

Skateboarding requires speed, balance and coordination, and is practised on hard surfaces. Therefore, without proper precaution, injuries may occur. Here are some important safety rules to follow:

1. Always wear full protective gear like a good helmet, knee and elbow pads and wrist guards.
2. Choose a good quality skateboard that will support your body weight.
3. Rotate the wheels regularly, as the front wheels will wear out faster than the back ones. Replace wheels that are worn out.
4. First-time skateboarders should practise on a soft surface. From there, move on to a flat surface such as an empty parking lot. Never practise on the roads.
5. It is best if you have a coach to give you lessons on basic rules and safety measures of the game.
6. To avoid straining your muscles, warm up before skateboarding and cool down with some walking.

A 'soft surface' could be a grassy area.

A 'pavement' is a flat area beside a road for people to walk on.

B. Select the best answers to these questions. (3 marks)

1. Which of the following statements does not describe skateboarding?

   A Skateboarding can be a recreational activity
   B Skateboarding can be a job
   C Skateboarding can be a method of transportation
   D Skateboarding can be surfed on the waves

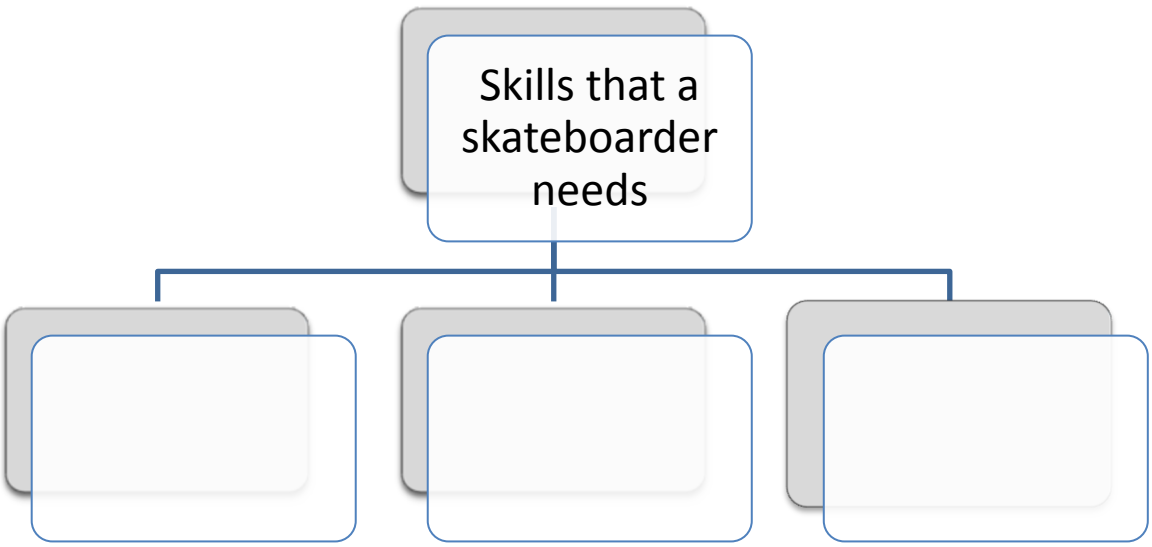
2. How long has skateboarding been around?

   A About five years
   B About ten years
   C About sixty years
   D About a hundred years

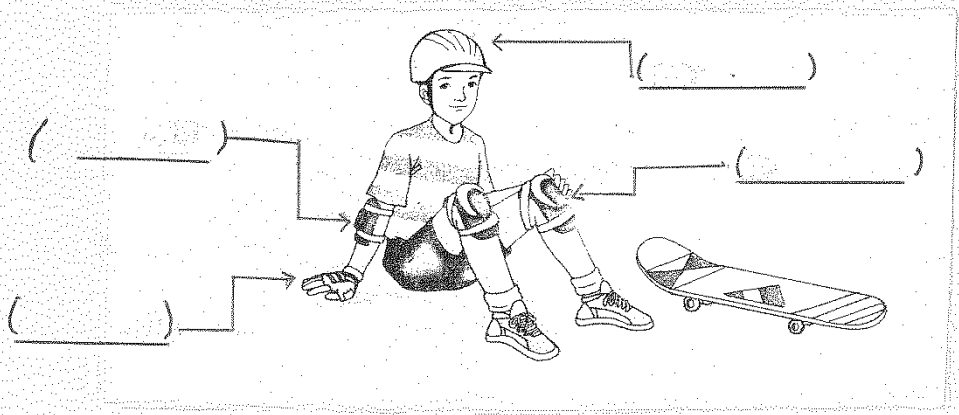
3. A street skater would most probably skate on these places except…

   A ramps.
   B parks.
   C playgrounds.
   D empty parking lots.

C. Complete the diagram. (3 marks)



D. Look at the picture. Name the protective gear that a skateboarder must wear. (8 marks)



E. Give reasons why these rules are to be followed strictly at all times. (6 marks)

1. Rule 1: First-time skaters should skate on soft surfaces.

Reason:

2. Rule 2: Do not skate on the roads.

Reason:

3. Warm up before any skateboarding activity.

Reason:

Passage 5: Unusual Plants

A. Read the extract taken from an encyclopaedia.

Pitcher plant is the name of a green plant that has pitcher-shaped leaves. The leaves form traps for insects. About 70 species of pitcher plants can be found in the tropics of southern Asia, Indonesia and northern Australia.

Pitcher plants are insectivorous. They feed on insects. They also make their own food by a process called photosynthesis. Pitcher plants live in places where they get little nitrogen from soil. However, they get extra nitrogen from the insects they trap.

Insects are attracted to pitcher plants by their bright colours, strong smell or by the nectar around the lips of the pitchers. Once an insect goes inside the pitcher, it slides down the waxy wall and goes into the rain water collected in the base of the pitcher. The insect cannot escape because the wall is full of hair which traps it. The insect is then eaten by the plant.

The rafflesia is the largest flower in the world. It has five wide, fleshy petals, which can grow up to a metre wide. It is also the heaviest flower as it can weigh as much as nine kilogrammes! Rafflesia was found in the Indonesian rain forest by an Indonesian guide working for Dr. Joseph Arnold in 1818, and named after Sir Thomas Stamford Raffles, the leader of the expedition. It was said that discovered even earlier by Louis Deschamps in Java between 1791 and 1794. It is found in Malaysia and some other regions in South-east Asia. It is an extremely rare plant. The plant has no roots. It grows as a parasite on the stems and roots of shrubs. It gets nutrients from the plant on which it grows.

The rafflesia blooms for five to six days. After that, the petals blacken and the flower withers. It begins to give out a bad smell. It is said to smell like rotting flesh. This attracts insects to it. The insects help to pollinate the flower.

(Adapted from: 'The World Book Encyclopaedia, 1995')

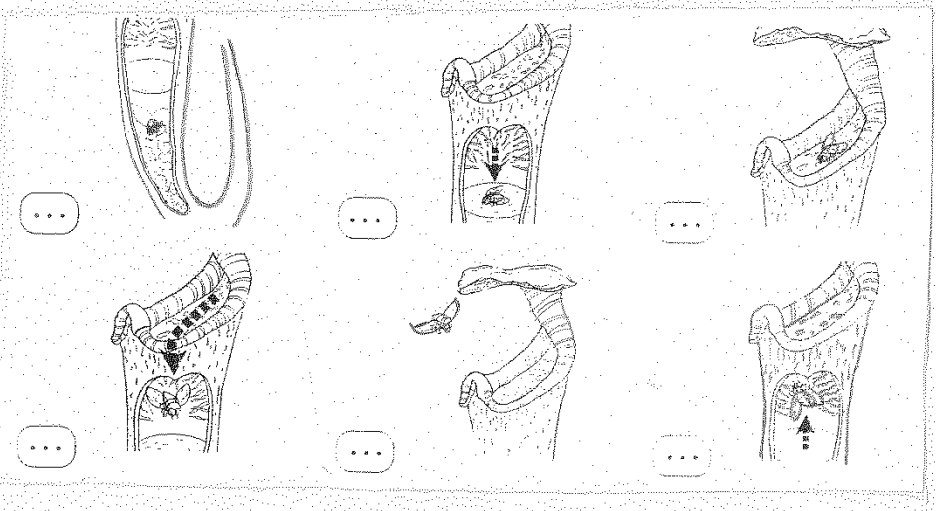
B. Complete the table with information from the extract. (3 marks)

Name of plant	Where it is found	Unusual feature
Pitcher plant		Traps insects in the pitcher
Rafflesia		

C. Please answer (/) if the statements are correct and (x) if the statements are wrong. (5 marks)

1. The pitcher plant has a pitcher that traps insects in it. ( )
2. The pitcher plant gets nitrogen from the trapped insects. ( )
3. The rafflesia is a parasite. ( )
4. The rafflesia gives nutrients to the plant on which it grows. ( )
5. The rafflesia is found by Sir Thomas Stamford Raffles. ( )

D. Referring to the text, sequence the pictures below to show how insects are trapped and digested in the pitcher plant. (6 marks)



E.Answer these questions. (8 marks)

1. Why are insects attracted to the pitcher plants?

_____

_____

_____

2. What happens to the insects that are trapped inside the pitcher?

_____

_____

_____

3. Why is the rafflesia a parasite?

_____

_____

_____

4. Why do you think people stay away from rafflesia?

_____

_____

_____

Lesson Plans of Remedial Intervention-Morphological Awareness Training

<table>
<tr><td>Date:</td><td colspan="3">Lesson 1 : New Lesson: Introduction to root words and Prefixes</td></tr>
<tr><td colspan="4">Morphologically complex words</td></tr>
<tr><td></td><td>Prefixes</td><td>Root words</td><td>Suffixes</td></tr>
<tr><td>income, intake,
outcome, outtake</td><td>in-(in or into)
out-(out of, from)</td><td>come, take
come, take</td><td></td></tr>
<tr><td colspan="4">Activities</td></tr>
<tr><td colspan="4">a) Introduction: root words and prefixes + handout exercise (15mins)

1. Showing the lists of root words and prefixes that formed the morphologically complex words through power point slides on computer.
2. Give a list with 10 words to the student. Ask him to identify the root words and prefixes from those words.
3. Ask the student if he could recognize each constituent morpheme of the word and try to tell the meaning of each part of the words.

b) Flip-a-card: (40mins)

The teacher prepares 2 circle shaped card (approximately 10 cm in diameter). The root words ‘come’ and ‘take’ are written on the front and back of the card. Similarly, on another card the word ‘in’ and ‘out’ are written. The student is instructed to flip the card and read out the new word formed by combining the root word and the prefix.

Tools:
Laptop with Introduction Powerpoint, Exercise book, pencil, dictionary, different colour circle shaped Card of 2, different colour marker pen for writing root words and affixes.

Suggestion: Always differentiate colours for paper and markers use in prefixes, root words and suffixes.

Instructions:

For the first session of Flip-a-card, this activity should be introduced to the student by saying, “Let me show you how you can start with four syllables and flip these cards to make four words.” Start flipping the cards, and write each word on the board. Hand the cards to the student and say, “No matter how you flip these cards, you will make a word. Try it.”

1. Ask the student to write the prefixes and root words on the cards respectively.
2. Ask the student to flip the cards until he gets all four words.
3. After finish flipping, ask the student to write down all words in the exercise book (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
4. Next, encourage the student to talk about the meanings of the four words. Discuss the different parts of the words as meaningful chunks.
5. Looking for the meaning in print copy of dictionary or visit website Dictionary.com and jot down the meaning in exercise book, and then make a sentence for each word.</td></tr>
</table>

Date:	Lesson 2 : Revision: L1		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: transport, unknown, dislike, reconsider	trans(across), un-(not), dis- (not), re-(again)	port, known, like consider	
Activities			

a) Revision (10mins)

Tools:
Computer with internet access, previous learned affixes and root word cards, root words index cards, affixes cards, dictionary, pencil, printout of Make-a-Word Game Chart.

b) Recognizing prefixes + Forming complex word (20mins)

1. Teacher prepares the following word parts on the card on the floor in a haphazard way: trans, port, un, known, re, consider, dis, like. They should be out of order, at different angle, and if possible, in different colours.
2. Begin by asking student to look closely at the word parts and try to form complex words with them.

c) Handout: Make-a-word Game Chart (15mins)

1. Hand out the Make-a-Word Game Chart. Tell the student the words parts on the chart are the complex words he just formed.
2. Start filling in the sheet according to prefixes, root words, suffixes, complex words.
3. Asking student to say what he thinks the words mean and check up the meaning in the dictionary and fill in the chart.
4. Go to dictionary.com to check for root words or google the root words/affixes meaning

Date:	Lesson 3 : Revision: L1+ L2		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: enable, empower, overstress	en-(cause to) em-(cause to) over- (too much)	able, power, stress	
Activities			

a) Revision (10mins)

b) Recognizing prefixes + making affixes and root words cards (20mins)

Tools:
Computer with internet access, previous learned affixes and root word cards, dictionary, exercise book, pencil, different colour marker pens, and different colour blank small rectangle size cards, complex words index cards.

Instructions:

1. Student writes root words and affixes in different cards with different colour marker pens.
2. Ask student to tell the meaning of each word parts and match them.
3. Ask the student to write the given new words in the exercise book in different columns. (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
4. Next, ask the student to check on dictionary or the definition online and write the meaning in the exercise book.
5. Writing a sentence for each word.

c) Online game: Recognizing prefixes: Break it up: Divide the root from the rest of the word. Make sure to use the hints! (15mins)

Instructions:

1. Place the divider between the letters to properly break up the syllables.
2. Select " Check It!" when you're ready to check your answer.
3. Don't forget to jot down every word and their meanings.

Please visit to: http://www.vocabulary.co.il/prefixes/middle-school/prefix-division-game/

Date:	Lesson 4 : Revision: L1+ L2+ L3		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: misbehave, misunderstand supermarket, semifinal	mis-(wrongly) mis- super- (above) semi- (half)	behave, understand market, final	
Activities			

a) Revision (5mins)

b) Recognizing prefixes (20mins)

Tools:
Computer with internet access, previous learned affixes and root word cards, dictionary, exercise book, pencil, complex words index cards and empty

Instructions:

1. Teacher shows student the complex words index cards.
2. Ask students to write on the for all prefixes and root words.
3. Ask the student to read and write the given new words 'misbehave', 'misunderstand', 'supermarket', 'semifinal' in the exercise book in different columns. (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
4. Ask student to tell the meaning of each word parts and match them.
5. Next, ask the student to check on dictionary or the definition online and write the meaning in the exercise book.
6. Writing a sentence for each word.

c) Kinesthetic game for lessons 1-4: Ball shooting game (20mins)

Tools: A ball, affixes cards, root words cards and glue tag.

Instructions:

1. Teacher prepares the affixes cards and root words cards.
2. Teacher places glue tag at the back of root words cards and stick them on the wall randomly with some distances between each other.
3. Student uses a ball to shoot on the root words that paste on the wall which match with the root word cards flashed by the teacher.
4. Teacher flashes in a moderate speed and adjusts according to student's need.
5. Teacher records one score obtained for each correct answer out of the total affixes cards flashed.

Date:	Lesson 5 : Revision: L1+ L2 + L3 + L4		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: antivirus, antibiotic, midnight, midterm	anti-(against) anti-, mid-(middle) mid-	virus, biotic, night, term	
Activities			

a) Revision (10mins)

b) Recognizing prefixes + making affixes and root words cards (35mins)

Tools:
Computer with internet access, previous learned affixes and root word cards, dictionary, exercise book, pencil, small rectangle size blank cards, complex words index cards, different colour marker pens

Instructions:

1. Teacher shows student the complex words index cards.
2. Student writes root words and prefixes in different cards with different colour marker pens.
3. Ask student to tell the meaning of each word parts and match them.
4. After that, ask the student to write the given new words in the exercise book in different columns. (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
5. Next, ask the student to check on dictionary or the definition online and write the meaning in the exercise book.
6. Writing a sentence for each word.

Date:	Lesson 6 : Rev Revision: Lessons 1-5		
Morphologically complex words			
	Prefixes	Root words	Suffixes
Activities			

Tools:
Previous learned affixes and root word cards, complex words index cards, pencil, a text from KBSM Form 2 textbook.

a) Memory game: (20mins)

Instructions:

1. Prepare three sets of root words and prefixes cards.
2. Separate three of prefixes cards separately on the floor.
3. Arrange three prefixes cards in a row on the floor.
4. Let student to read on them and recognizing their location.
5. Next, turn all the prefixes cards facing down.
6. Then, teacher hold the root word cards in hand and flip the first root word card and ask student to guess which prefix card is match with it.
7. The student will have two chances to guess and reveal the right prefix card.
8. If the student succeeds to get the right prefix card, then the matched complex word will be put aside and continue the game with new set of prefixes and root word cards.
9. When the student got it correct, ask him to tell the meaning of each word parts.
10. If failed, then start to flip with another new root word cards and repeat the games.

b) Reading article text from from KBSM Form 2 textbook : Title: Air pollution in Terampang (25mins)

1. To ask the student to read the text and try to understand the meaning.
2. Try to recognize the meaning of the words that he does not understand.
3. The students check on the dictionary to see if the meanings are correct.
4. To ask student to answer the questions in the tasks provided.

Date:	Lesson 7 : Revision: L6		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: proactive, proclaim, reactive, reclaim	pro-(in favor of) re-(back/again)	active, claim active, claim	
Activities			

a) Revision (10mins)

b) Flip-a-card: (25mins)

The chip is made by 2 circle shaped card. The root words “active” and “claim” should write on the front and back of one circle shaped card respectively, then write the prefixes “pro ” and “ re ” on the front and back of another circle shaped card respectively. Then let the student flips with them.

Tools:
Previous learned affixes and root word cards, exercise book, pencil, dictionary, circle shaped card of 2, different colour marker pen for writing root words and affixes, handout exercise.

Instructions:

1. Ask the student to flip the cards until he gets all four words.
2. After finish flipping, ask the student to write down all words in the exercise book (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Next, encourage the student to talk about the meanings of the four words. Discuss the different parts of the words as meaningful chunks.
4. Looking for the meaning in print copy of dictionary or visit website Dictionary.com and jot down the meaning in exercise book, and then make a sentence for each word.
5. Ask the student to think of other words that he knows that have the same affixes or root words. What do these other words mean? Can words they know help them figure out the meanings of these new words?
6. Ask the student to write down other words which have the same roots or affixes that he knows in the column of the exercise book.

c) Handout exercise: Fill in the blanks (15mins)

Instructions:

1. The words you flipped can fit in the sentences. Figure out from the context where each word belongs.
2. The fill in the blank paragraph handout as below will be given to the student without answer.

    a. You might be able to ***reclaim*** some of the money you contributed.
    b. The men in the country ***proclaim*** him to be the best player in baseball.
    c. The city is taking a ***proactive*** approach to fighting crime by hiring more police officers.
    d. The government's response to the problem was ***reactive*** rather than proactive.

Date:	Lesson 8 : Revision: L7		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: suppose,suppress, impose, impress	sup-, im-(in or into)	pose, press pose, press	
Activities			

a) Revision (10mins)

b) Flip-a-card: (35mins)

The teacher prepares 2 circle shaped card. The root words " pose" and "press" should write at the front and back of one circle shaped card respectively, then write the prefixes " sup " and " im" at the front and back of another card respectively. Then let the student flips with them.

Tools:
Computer with Internet access, previous learned affixes and root word cards, exercise book, pencil, dictionary, circle shaped card of 2, different colour marker pen.

Instructions:

1. Ask the student to flip the cards until he gets all four words.
2. After finish flipping, ask the student to write down all words in the exercise book (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Next, encourage the student to talk about the meanings of the four words. Discuss the different parts of the words as meaningful chunks.
4. Looking for the meaning in print copy of dictionary or visit website Dictionary.com and jot down the meaning in exercise book, and then make a sentence for each word.
5. Ask the student to think of other words that he knows that have the same affixes or root words. What do these other words mean? Can words they know help them figure out the meanings of these new words?
6. Ask the student to write down other words which have the same roots or affixes that he knows in the column of the exercise book.

Date:	Lesson 9 : Revision L7 + L8 Introduction to suffixes

Morphologically complex words

	Prefixes	Root words	Suffixes
New lesson: started, ended, starting, ending,		start, end start, end	-ed (past tense) -ing (present tense)

Activities

a) Revision (10mins)

b) Introduction: suffixes + handout (15mins)

1. Showing the lists of suffixes that formed the morphologically complex words through power point slides on computer.
2. Give a list with 10 words to the student. Ask him to identify the root words and suffixes from those words.
3. Ask the student if he could recognize each constituent morpheme of the word and try to tell the meaning of each part of the words.

c) Flip-a-card: (20mins)

The teacher prepares 2 circle shaped cards. The root words " start" and "end" should write at the front and back of one circle shaped card respectively, then write the suffixes " ed " and " ing" at the front and back of another circle shaped card respectively Then let the student flips with them.

Tools:
Computer with online access, previous learned affixes and root word cards, exercise book (with full skeets), pen, dictionary, circle shaped card of 2, different colour marker pen for writing root words and affixes.

Instructions:

1. Ask the student to flip the cards until he gets all four words.
2. After finish flipping, ask the student to write down all words in the exercise book (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Next, encourage the student to talk about the meanings of the four words. Discuss the different parts of the words as meaningful chunks.
4. Looking for the meaning in print copy of dictionary or visit website Dictionary.com and jot down the meaning in exercise book, and then make a sentence for each word.

Date:	Lesson 10 : Revision: L7 + L8 + L9		
Morphologically complex words			
New lesson: harder, meaner, hardest, meanest	Prefixes	Root words	Suffixes
		hard, mean hard, mean	-er, -est (adjectives)
Activities			

a) Revision (10mins)

b) Flip-a-card: (35mins)

The teacher prepares 2 circle shaped cards. The root words " hard" and "mean" should write at the front and back of one circle shaped card respectively, then write the suffixes " er " and " est" at the front and back of another circle shaped card respectively. Then let the student flips with them.

Tools:
Previous learned affixes and root word cards, exercise book, pen, dictionary, circle shaped card of 2, different colour marker pen for writing root words and affixes.

Instructions:

1. Ask the student to flip the cards until he gets all four words.
2. After finish flipping, ask the student to write down all words in the exercise book (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Next, encourage the student to talk about the meanings of the four words. Discuss the different parts of the words as meaningful chunks.
4. Looking for the meaning in print copy of dictionary or visit website Dictionary.com and jot down the meaning in exercise book, and then make a sentence for each word.
5. Ask the student to think of other words that he knows that have the same affixes or root words. What do these other words mean? Can words they know help them figure out the meanings of these new words?
6. Ask the student to write down other words which have the same roots or affixes that he knows in the column of the exercise book.

Date:	Lesson 11 : Revision: L7 + L8 + L9 + L10		
Morphologically complex words			
New lesson: dogs, aunts, dog's, aunt's	Prefixes	Root words	Suffixes
		dog, aunt dog, aunt	-s (plurals) -'s (possessives)
Activities			

a) Revision (10mins)

b) Flip-a-card: (20mins)

The teacher prepares 2 circle shaped cards. The root words " dog" and "aunt" should write at the front and back of one circle shaped card respectively, then write the suffixes " s " and " 's " at the front and back of another circle shaped card respectively. Then let the student flips with them.

Tools:
Computer with Internet access, previous learned affixes and root word cards, exercise book, pencil, dictionary, circle shaped card of 2, different colour marker pen for writing root words and affixes.

Instructions:

1. Ask the student to flip the cards until he gets all four words.
2. After finish flipping, ask the student to write down all words in the exercise book (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Next, encourage the student to talk about the meanings of the four words. Discuss the different parts of the words as meaningful chunks.
4. Looking for the meaning in print copy of dictionary or visit website Dictionary.com and jot down the meaning in exercise book, and then make a sentence for each word.

c) Online games: online Flip-a-Chip activity (15mins)

The online Flip-a-Chip activity provides hands-on practice with affixes and roots, and also promotes comprehension through structural analysis and vocabulary in context.

Instructions:

1. There are the morphologically complex words provided in the online game from Lesson 1 to Lesson 6.
2. At this lesson, student only has to work online from Exercise 1 until Exercise 4 which covered in Lesson 8-11.
3. Fill in the blanks and print out the work after finish for checking and keeping purpose.
4. Correct the mistake if there is any.
5. Ask the student to read aloud the passages.
6. Teacher keeps the score of the online game performance.

Please visit to: www.readwritethink.org/files/resources/interactives/flip/

Date:	Lesson 12 : Revision: Lessons 7 -11		
Morphologically complex words			
	Prefixes	Root words	Suffixes
Activities			

a) Revision game for lessons 7-11: Writing on sand tray (45mins)

Tools: An rectangular shape box filled with half box sand, Lesson 7-11's affixes and root words cards

Instructions:

1. Prepared the box filled with sand.
2. Teacher gives the hints like prefixes suffixes : "pro, sub, ing, ed" and try to let student to form the learned morphological complex word and write on the sand.
3. Student tells teacher the meaning after writing on the sand successfully.
4. Student may toss over the box if he wants to restart the writing.

Date:	Lesson 13 : Revision: Lessons 1 -12

Morphologically complex words

	Prefixes	Root words	Suffixes

Activities

a) Revision and reinforcement for Lesson 1-12: kinesthetic matching game- single leg jumps(45mins)

Tools:
The complete set of affixes and root words cards which can form learned morphological complex word from lesson 1-12.

Instructions:

1. Revise lesson 1 to lesson 12.
2. Teacher prepares the flash cards of all the affixes and root words which can form learned morphological complex words.
3. Then, separate affixes (Point A) from root words (Point B) and put the two points (Point A and Point B) in distance.
4. Students will be given instruction to use single leg to jump starting from Point A, get affixes and match with the root words at Point B.
5. Only one affix is allowed to get in a time.
6. Student is allowed to change the leg if tired but not allowed to put both legs on floor if the matching hasn't done.
7. After the matching game is done, teacher asks student orally about the meaning of the words that matched.
8. The performance of the student will be jotted down.

Date:	Lesson 14 : Revision: L12		
Morphologically complex words			
New lesson: pavement, equipment, surfer, visitor	Prefixes	Root words	Suffixes
		pave, equip, surf, visit	-ment (place of action or result of), -ment, -er (person) -or (person)

Activities

a) Revision (10mins)

b) Recognizing suffixes + making affixes and root words cards (25mins)

Tools: Previous learned affixes and root word cards, dictionary, exercise book, pen, pencil, different colour marker pens, small rectangle size cards.

Instructions:

1. Student will be given the words "pavement, equipment, banker, surfer, washer, competitor, visitor".
2. Student has to write the affixes and root words of the given words separately on different cards with different colour marker pens.
3. Teacher has to make sure the student has differentiated the affixes and root words correctly.
4. Student writes the given complex word and the meaning in exercise book.
5. Student makes sentences for the complex words.

c) Flip and match game (10mins)

1. The student has all the affixes cards in his hand, while the teacher has all the root words cards.
2. When the game start, all cards are facing down and both sides throw out a card at the same time to see if both cards can be matched, if possible to match, then the student will take the matched cards and put aside nicely then read the word.
3. If not, then both sides keep their own card and start with the next cards until all cards are matched.

Date:	Lesson 15 : Revision: L14		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: emptiness, kindness, careless, sightless,		empty, kind, care, sight	-ness (state of, condition of), -ness -less (without) -less
Activities			

a) Revision (5mins)

b) Recognizing suffixes+ making affixes and root words cards (25mins)

Tools:
Computer with internet access, dictionary, exercise book, pencil, previous learned affixes and root word cards, different colour marker pens, small rectangle size circle cards, three plastic bags.

Instructions:

1. Ask the student to write the given new words " emptiness, kindness, careless, sightless" on the blank circle cards.
2. And then, ask student to write in the exercise book in different columns. (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Next, ask the student to check on dictionary or the definition online and write the meaning in the exercise book.
4. Writing a sentence for each word.

c) Kinesthetic game for lesson 14-15: Draw and match (15mins)

Instructions:

1. Teacher prepares three little bags which fill with prefixes, root words and affixes cards respectively for lesson 14-15.
2. For each time, the student has to draw a card from each bag and match.
3. If the card draw cannot match with each other, then the student has to put aside the card and draw the next card.
4. After matching the complex word, ask the student to tell the meaning of the word.
5. Repeat until all the cards have been drawn.

Date:	Lesson 16 : Revision: L14 + L15		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: extremely, internationally, traditional, industrial	inter	extreme, nation tradition, industry	-ly (characteristic of) -al, -ly -al, -ial (having characteristics of)
Activities			

a) Revision (5mins)
b) Recognizing suffixes + making affixes and root words cards (30mins)

Tools:
Computer with internet access, dictionary, exercise book, pencil, previous learned affixes and root word cards, different colour marker pens, small rectangle size cards, three plastic bags.

Instructions:

1. Ask the student to write the given new words " extremely, internationally, traditional, industrial" on the blank cards.
2. And then, ask student to write in the exercise book in different columns. (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Next, ask the student to check on dictionary or the definition online and write the meaning in the exercise book.
4. Writing a sentence for each word.

c) Writing on a sand tray (10mins)

Tools: An rectangular shape box filled with half box sand

Instructions:

1. Prepared the box filled with sand.
2. Teacher gives the hints like suffixes : "ly, al, ial" and try to let student to form the learned morphological complex word and write on the sand.
3. Student may toss over the box if he wants to restart the writing.

Date:	Lesson 17 : Revision: L14+ L15 + L16		
Morphologically complex words			
New lesson: peaceful, famous, adventurous, mysterious	Prefixes	Root words	Suffixes
		peace, fame, adventure, mystery	-ful (full of) -ous, (possessing the quality of) -ous -ious
Activities			

a) Revision (5mins)

b) Recognizing suffixes+ making affixes and root words cards (20mins)

Tools:
Computer with internet access, dictionary, exercise book, pencil, previous learned affixes and root word cards, different colour marker pens, small rectangle size cards, glue tag.

Instructions:

1. Ask the student to write the given new words " extremely, internationally, traditional, industrial" on the blank cards.
2. Next, write them in the exercise book in different columns. (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Next, ask the student to check on dictionary or the definition online and write the meaning in the exercise book.
4. Writing a sentence for each word.

c) Revision game for lesson 14-17: Ball shooting game (20mins)

Tools: A ball, affixes cards, root words cards and glue tag.

Instructions:

1. Teacher prepares the affixes cards and root words cards.
2. Teacher places glue tag at the back of root words cards and stick them on the wall randomly with some distances between each other.
3. Student uses a ball to shoot on the root words that paste on the wall which match with the root word cards flashed by the teacher.
4. Teacher flashes in a moderate speed and adjusts according to student's need.
5. Ask student to tell the meaning of each words parts.
6. Teacher records one score obtained for each correct answer out of the total affixes cards flashed.

Date:	Lesson 18: Revision: L14 + L15 + L16 + L17		
Morphologically complex words			
New lesson: protective, imaginative, competitive, activity	Prefixes	Root words	Suffixes
		protect, imagine, compete, active	-ive, -ative, -itive (form adjectives from nouns or verbs), -ity (form noun from adjectives or verbs)
Activities			

a) Revision (5mins)

b) Recognizing suffixes + Producing affixes and root words cards (30mins)

Tools:
Computer with internet access, dictionary, exercise book, pencil, previous learned affixes and root word cards, different colour marker pens, complex words index cards, small rectangle size cards.

Instructions:

1. Ask the student to write the given new words ‘protective’, ‘imaginative’, ‘competitive’, ‘activity’ on the blank cards.
2. Next, write them in the exercise book in different columns. (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Next, ask the student to check on dictionary or the definition online and write the meaning in the exercise book.
4. Writing a sentence for each word.
5. Ask the student to produce the affixes cards and root words cards and try to do the matching.

c) Flip and match game (10mins)

1. The student has all the suffixes cards in his hand, while the teacher has all the root words cards.
2. When the game start, all cards are facing down and both sides throw out a card at the same time to see if both cards can be matched, if possible to match, then the student will take the matched cards and put aside nicely then read the word.
3. If not, then both sides keep their own card and start with the next cards until all cards are matched.

Date:	Lesson 19 : Revision: Lessons 14-18		
Morphologically complex words			
	Prefixes	Root words	Suffixes
Activities			

a) Revision and reinforcement for Lesson 14-18: Matching game (45mins)

Tools:
The complete set of affixes and root words cards which can form learned morphological complex word from lesson 14-18.

Instructions:

1. Separate the prefixes, suffixes and roots word cards into three sets, shuffle them separately.
2. Give the student the whole set affixes cards.
3. Teacher will hold root words cards.
4. First, teacher will flash the first root word card and ask student what it is. Then, teacher flashes all the root words cards slowly and asks student to find out the affixes that match with the root words. If that word has a suffix, then the student needs to find the suffix and form the complex word.
5. The complex words formed will put aside.
6. After the whole matching done, the student will read through all the complex words and tell their meanings.

Date:	Lesson 20: Revision: L19		
Morphologically complex words			
New lesson: slavery cookery, journalist, idealize	Prefixes	Root words	Suffixes
		slave cook journal ideal	-ry -ery -ist -ize
Activities			

a) Revision (5mins)

b) Recognizing suffixes + Producing affixes and root words cards (15mins)

Tools:
Computer with internet access, previous learned affixes and root word cards, dictionary, exercise book, pencil, small rectangle size cards, different colour marker pens, selected text from KBSM Form 2 textbook

Instructions:

1. Ask the student to write the given new words ‘protective’, ‘imaginative’, ‘competitive’, ‘activity’ on the blank cards.
2. Next, write them in the exercise book in different columns. (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Next, ask the student to check on dictionary or the definition online and write the meaning in the exercise book.
4. Writing a sentence for each word.

c) Reading article text from KBSM Form 2 textbook: Read the talk by a nutritionist (25mins)

1. Before reading, ask the student whether he takes breakfast and what he normally eats. Discuss if the breakfast is important.
2. To ask the student to read the text and try to understand the meaning.
3. Try to recognize the meaning of the words that he does not understand.
4. The students check on the dictionary to see if the meanings are correct.
5. To ask student to answer the questions in the tasks provided.

Date:	Lesson 21 : Revision: L20		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: freedom, appearance, warmth, length		free, appear, warm, long	-dom -ance(act or process) -th (change the tense to noun)
Activities			

a) Revision (5mins)

b) Recognizing suffixes + Producing affixes and root words cards(20mins)

Tools:
Computer with internet access, previous learned affixes and root word cards, dictionary, exercise book, pencil

Instructions:

1. Ask the student to write the given new words ‘freedom’, ‘appearance’, ‘warmth’, ‘length’ on the blank cards.
2. Next, write them in the exercise book in different columns. (The exercise book should make into different columns titled Complex Word, Prefixes, Root Word, Suffixes, Meaning/Sentence).
3. Ask student to tell the meaning of the words.
4. Writing a sentence for each word.

c) Revision game for lesson 20-21: Ball shooting game (20mins)

Tools: A ball, affixes cards, root words cards and glue tag.

Instructions:

1. Teacher prepares the affixes cards and root words cards.
2. Teacher places glue tag at the back of root words cards and stick them on the wall randomly with some distances between each other.
3. Student uses a ball to shoot on the root words that paste on the wall which match with the root word cards flashed by the teacher.
4. Teacher flashes in a moderate speed and adjusts according to student’s need.
5. Teacher records one score obtained for each correct answer out of the total affixes cards flashed.

Date:	Lesson 22 : Revision: L20 + L21		
Morphologically complex words			
New lesson: microscope, microphone, telephone, television, telescope, telegraph	Prefixes	Root words	Suffixes
	micro-(small) (Greek prefix)	scope (see) (Greek root), tele(distance) (Greek root) vision (see) (Latin root)	-phone, (sound) (Greek suffix) -graph (write)(Greek suffix)
Activitie			

a) Revision (10mins)
b) Handout: Morpheme Match-Ups (35mins)

Student can expand his vocabulary and determine the meaning of unfamiliar words by developing an understanding of morphemes. If the student learn, for example, that "micro" means "small" and "scope" means "see", he can deduce that a "microscope" is a device that enables an individual to see small objects. This lesson encourages student to use morphemes to deconstruct and construct words.

Tools:
Computer with internet access, previous learned affixes and root word cards, exercise book, pen, dictionary, printout of morpheme match-ups sheet and morpheme match-ups guide, scissors.

Instructions:

1. Student is given the Morpheme Match-Ups handout and cut out each morpheme.
2. Student will be asked to define the meanings of morpheme Match-Ups randomly and check the answer from the Morpheme Match-Ups guide.
3. Student uses the printout morphemes cards to create as many words as possible. Student will form words by combining two morphemes.
4. Student writes down the words and meaning in the exercise book.
5. Next, student will access to www. merriam-webster.com to check for the spelling and the meaning of the words and write them into the exercise book.
6. Ask the student to tell verbally what the meaningful parts of each word are. For example, ask student to give the definition for the word "*television"*. Explain that the word "*television"* was created from two morphemes, "*tele"* meaning "*distance"*,and "*vis"* meaning "*see"*. A television enables us to see events that are taking place in distant places. Ask students to define the word "*telephone*". Explain that "*telephone"* also contains the morpheme "*tele"* meaning "*distance"* as well as the morpheme "*phone"*, which means "*sound"*. A telephone enables us to hear sounds from a distance.
7. Then, the student writes the morphologically complex words formed in the exercise.

Date:	Lesson 23 : Revision: L20 + L21 + L22		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: automobile, autograph, subway, subscribe revision	auto- (self)(Greek prefix), sub- (under) (Latin prefix), re- (again)(Latin prefix)	-mobile- (move)(Latin root), -way(move), -scrib-(write) (Latin root), vision (see) (Latin root)	-graph(write) (Greek suffix)
Activities			

a) Revision (10mins)

b) Handout: Morpheme Match-Ups (35mins)

Tools:
Computer with internet access, previous learned affixes and root word cards, exercise book, pen, dictionary, printout of morpheme match-ups sheet and morpheme match-ups guide, scissors.

Instructions:

1. Student is given the Morpheme Match-Ups handout and cut out each morpheme.
2. Student will be asked to define the meanings of morpheme Match-Ups randomly and check the answer from the Morpheme Match-Ups guide.
3. Student uses the printout morphemes cards to create as many words as possible. Student will form words by combining two morphemes.
4. Student writes down the words and meaning in the exercise book.
5. Next, student will access to www. merriam-webster.com to check for the spelling and the meaning of the words and write them into the exercise book.
6. Ask the student to tell verbally what the meaningful parts of each word are. For example, ask student to give the definition for the word "*automobile"*. Explain that the word "*automobile"* was created from two morphemes, "*auto"* meaning "*self"*,and "*mobile"* meaning "*move"*. A automobile enables us to move by ourselves from a places to another.
7. Then, the student writes the morphologically complex words formed in the exercise. Go to dictionary.com to check for root words or google the root words/affixes meaning.

Date:	Lesson 24 : Revision: L20 + L21 + L22 + L23		
Morphologically complex words			
	Prefixes	Root words	Suffixes
New lesson: incredible incompletion injection pollution predictable reusable	 in- (not) in- in- pre-(before) re-	 cred (believe) complete (to finish) ject (throw) pollute dic (speak) use	 -ible (possible to) -ion (state or condition, changes verb to noun) -ion -ion -table -able (can be done),
Activities			

a) Revision(15mins)
-Sand writing

b) Recognizing affixes and root words:(20mins)

Tools: Previous learned affixes and root word cards, dictionary, blank root words cards, blank affixes cards, exercise book, pen, pencil, colour maker pen, print out of Definition study match-ups work sheet.

Instructions:

1. Teacher shows student the word "incredible, incompletion, injection, pollution, predictable, reusable" in index card respectively and asks him to write down on the blank root word and affixes cards.
2. After that, write the affixes and root words in exercise book.
3. Making sentences for each morphological complex word.

c) Work Sheet handout: Definition study draw the line match-ups (10mins)
   1. Matching the words with their definitions, draw lines for the correct answers.
   2. Tell the meaning of word parts.