

Effectiveness of Semantic Cloze Procedure to Improve Reading Comprehension of Weak Readers in a Primary School

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Abstract

The ability to read and write constitutes the fundamental concept of literacy and is essential to successful academic performance in school. Children who are struggling in schools are often identified as weak readers. They can be classified as either reluctant readers or disabled readers (excluding the illiterates). The former lacks the motivation to want to read while the latter is often identified as having specific reading difficulties (e.g., dyslexia and hyperlexia). Hence, such readers continue to perform poorly in class tests and school examinations. This study focused on a group of 23 Primary 4 children, who had continuously failed in their English language examinations from Primary 1 to 3 levels. A pre-/post-treatment design was used to determine whether the 23 subjects who underwent a 6-month semantic cloze procedure as a remedial teaching strategy showed significant improvement in their reading comprehension (cloze). The findings of the study suggested that whilst the subjects showed an improvement in their performance in cloze comprehension in their Semestral Examination 2 with a significant effect size as a result of the treatment, no significant inter-correlation among/between the key elements, i.e., vocabulary, word reading, reading comprehension and reading experience, was found.

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The ability to read and write constitutes the fundamental concept of literacy (Saksena, 1970). Chia (1991, 1994) describes literacy as a synergy of reading and writing connected by a third cognitive process called fantasizing, which Donelson and Nilson (1980) describe as the active role played by a reader/writer in creating the literary work and also involving the evocation of the ‘lived through’ experience of the reader/writer during the transaction with the text.

According to Rosenblatt (1986), the ‘lived through’ experience evolves through attention on the part of the reader/writer to the personal meaning of the text. Fantasizing often plays an important role in allowing the reader/writer to enter the meta-world of the text, thereby making the stories “come to life” for the reader/writer (Long, Winograd, & Bridge, 1989; Sadoski, Goetz, & Kangiser, 1988).

There has been a lot of research studies (e.g., Broek et al., 2004; Chia, 2007, 2010; Preen & Barker, 1986) done on understanding reading as a process, the elements that are involved in the reading process, the factors that interfere with reading and result in reading failure, and how to promote reading habit among school-age children. However, “little is done to distinguish among groups of readers, who are the key players in the process of reading” (Chia, 1999, p.64). As a result, we have decided to take one step deeper to explore three inter-related issues: Part 1: Reading as a process; Part 2: Readers as differentiated groups; and Part 3: The current situation in a primary school (situated in the eastern region of Singapore) where this study was carried out.

PART 1: Reading as a Process

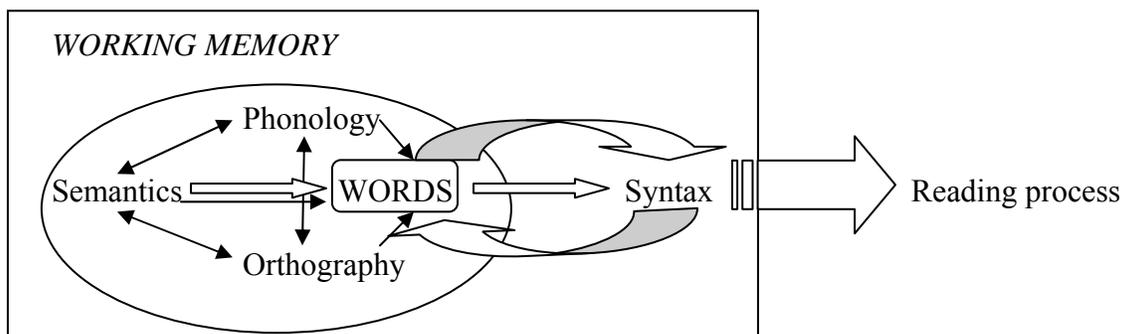
According to Latham and Sloan (1987), reading is defined as “an attempt to make meaning from what an author has written” (p.3). In other words, reading is ‘an information processing activity inasmuch as the printed form of language has information in it that is available to those who know how to unravel that form of language’ (Latham & Sloan 1987, p.3).

However, without readers, there would be no reading activity taking place. Without print, there would be no materials as required for reading to occur. Without meaning, reading would never exist and comprehension would never be realized. To quote Jacobs (1971): no reading, no meaning. Hence, both reading as a process and reader as a partaker in engaging print, which could in form of a book, menu or any printed material, are important contributions to the equation of reading.

Process Components of Reading

Reading entails a multifaceted set of process components with their respective skills and abilities. In the acquisition of reading, there are five process components as proposed by Siegel (1993) to be crucial: phonology, syntax, semantics, orthography, and working memory (see Figure 1.1).

Figure 1.1: The Five Process Components of Reading



- **Phonology**
Phonology, the ability to differentiate and categorize sounds in speech is hypothesized to be the first process. Phonology has nothing to do with the letters in the alphabet, both in written or spoken form.
- **Syntax**

Understanding of syntax, or the way in which words are put together to form phrases, is also thought to be an important process in reading. Likewise, Marinellie (2010) had pointed out that syntactic awareness is closely related to word reading and reading comprehension. She added that with respect to reading comprehension, it has been hypothesized that syntactic awareness promotes word recognition. That is, a child is able to use the syntactic constraints of a sentence to decode unfamiliar words.

- **Semantics**

Semantics, or the comprehension of meaning, is thought to be important in reading. Many researchers had stressed that vocabulary knowledge is one of the best predictors of reading comprehension. They argued that one cannot understand the text without knowing the meaning of the bulk of the words. Numerous studies had verified the strength of the relationship between vocabulary and comprehension. Thorndike (1973) documented correlations of between .66 and .75 between reading comprehension and vocabulary knowledge. Extensive reading or exposure to print is a major source of vocabulary acquisition. In other words, reading comprehension is dependent on vocabulary knowledge and vocabulary growth can only come about with extensive reading. Then again, as mentioned earlier, a lack of vocabulary development was highlighted as a factor that got in the way of the development of reading as pupils may be uninterested or unmotivated to read when they encountered difficulty assessing the reading materials. Consequently, a virtuous circle that has favorable results, or a vicious circle that has detrimental results could be the outcome of the relationships between reading performance, vocabulary knowledge and reading comprehension. The Matthew Effect would also be evident, students with poor vocabulary knowledge read less and acquire fewer new words, while students with better vocabulary knowledge read more and as a result have better comprehension ability.

- **Orthography**

Orthography or the understanding of writing rules and knowledge of spelling is suggested to be integral to the reading process as well. Simon and Herreweghe (2010) reported that word recognition can be influenced by orthography. In additions, it was argued that in order to establish sight vocabulary, a child would need to make connections between phonological and orthographic information, and between these representations and a word's semantic characteristics (Ricketts, Bishop, & Nation, 2008).

- **Working Memory**

Finally, the last process concerns the working memory, which refers to the ability or capacity that limits how well one is able to undertake a learning task. It was put forward that the rate at which children gain knowledge of new vocabulary; grasp language (oral and written); acquire literacy skills; and gain efficiency in math, reasoning, and problem-solving tasks is related to working memory (Boudreau & Costanza-Smith, 2011).

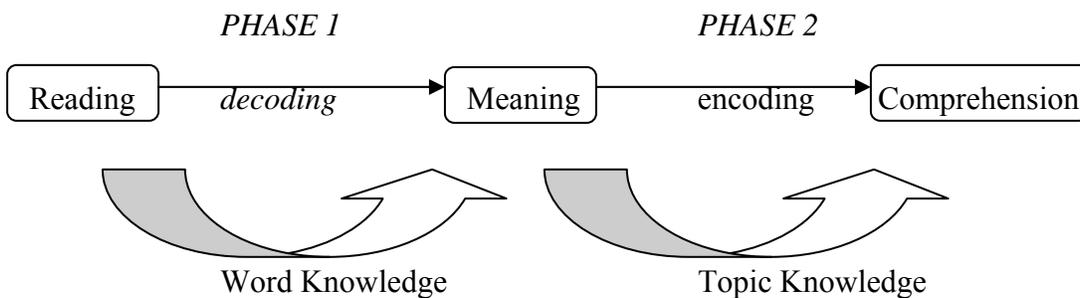
Besides the five vital processes, a number of other skills and specific abilities are suggested to be necessary for reading, namely word identification, phonemic awareness, reading fluency, and vocabulary. Competent readers employ these various abilities, ranging from low-level processing skills, such as recognizing individual word, to high-order processing skills, such as synthesizing information from different sources into 'meaningful representations of text' and then relating the

text back to prior knowledge (National Accessible Reading Assessment Projects, 2006, p.4, as cited by Abedi et al., 2009). Thus, reading involves several levels of processes, skills and abilities that must work simultaneously so that meaning of the written text can be determined.

The Cognitive Equation of Reading

Reading is uniquely human and one of the most complex cognitive activities. Chia (2010) sees reading as a process of decoding for meaning follows by encoding for comprehension. In other words, the first phase of the reading process involves phonological processing of meaningful words, which in turn depends on the reader’s word knowledge. The second phase concerns reading comprehension which, in turn, depends on the reader’s topic knowledge. For successful reading to happen, it involves many other essential elements such as setting, background knowledge and prior experience, motivation, purpose and thinking besides decoding and comprehension (see Figure 1.2).

Figure 1.2: A Simplified Model of Reading Process



Chia (2007) has proposed a cognitive equation for reading process as follows:

$$RP = S \{B [T (D + Cp) + M] + P\} = RD$$

- Where
- RP is Reading Process
 - S is Setting (where the reading task takes place)
 - B is the Background Knowledge and Prior Experience of the Reader
 - T is Thinking (essential for monitoring what is read and to understand what is read)
 - D is decoding
 - Cp is Comprehension
 - M is Motivation
 - P is Purpose
 - RO is Reading Outcome

According to Chia (2004), the most basic part of the entire equation of reading process is T(D+Cp). Without thinking (T), decoding (D) will be mere barking at print; without T, comprehension (Cp) is meaningless and a reader becomes hyperlexic, that is, reading without real understanding. T involves the reader doing some form of self-monitoring of what is read in order to ensure accurate decoding (Chia & Ching, 1999). T also establishes meta-comprehension

(i.e., the ability to comprehend about one's own understanding of a text) to make sense of what has been read is correctly understood (Paris & Wingrad, 1990). To quote Jacobs (1971): no meaning, no reading.

Motivation (M) is also a very important addend in this part of the equation: $T(D+Cp)+M$. It must come from within the reader, beginning with the real interest to read (i.e., intrinsic motivator) (Edmunds & Bauserman, 2006). A child can be bribed to read (i.e., an extrinsic motivator is involved), but reading as such will not last long because it is not done with intrinsic interest (Kohn, 1993). On the other hand, a successful reader is an intrinsically motivated person who shows an explicit interest in reading, wants to read, and will read (Chia, 2007). More importantly, the reader with an expectation to learn from reading a given text also does so with a purpose (P). The equation of the reading process has now been extended into $\{T(D+Cp)+M\}+P$.

However, the equation does not stop there. Reading as a process also involves the reader's ability in recognizing the depicted facts or events during his/her encounter with the text (Buehl, 2001), connecting them to each other and to his/her background knowledge and prior experience (represented by B in the equation) as a means for interpreting and understanding the text (Schank & Abelson, 1977), and to memorize the information so that they can be used later (Latham & Sloan, 1987). The equation has been further extended into $B[T(D+Cp)+M]+P$.

Moreover, reading as a process should be seen within a given setting (represented by S in the equation) such as in a classroom or at home, which may or may not provide support and can influence the reader's mood, affecting his/her perspective and the way a given text is interpreted and understood (Braunger & Lewis, 2001; Morrow, 1990). For example, reading a passage given in a class test situation is certainly a different experience from reading a storybook during a silent reading period. The former setting can result in some form of tension or reading anxiety while the latter is more relaxing and leisurely. "We have now covered the whole equation of $RP = S\{B[T(D+Cp)+M]+P\}$ and whatever the reading outcome (RO) is going to be will depend on how well these factors (i.e., S, B, T, D, Cp, M and P) have been developed to play their respective parts" (Chia, 2007, p.7).

PART 2: Readers as Differentiated Groups

Readers were once discussed as an undifferentiated group. Today, however, they are differentiated and are often categorized according to their intellectual abilities (Detterman, 1982), reading proficiency (Erickson & Erickson, 1977), reading readiness (Eisenberg, 1966), learning or reading styles (Carbo, Dunn, Dunn, 1986), reader attitude and enthusiasm (McKenna & Kear, 1990), reader interest and motivation (Lee, 1984), and reader behaviors, feelings and needs (Chia, 1994, 1999).

According to Chia (1999), any model or framework proposed to classify different types of readers "should differentiate them on the basis of their behaviors, feelings and needs" (p.64). Smith and Johnson (1976) classified readers according to the different types of pedagogical instruction that would suit and benefit different reader kinds in terms of their cognitive and affective behavioral potentials. Moreover, readers can be further sub-categorized into those without reading problems and those with reading problems. Both groups can be further divided

into sub-groups: the former consists of superior readers and developmental readers, while the latter, corrective, remedial, and slow readers.

Erickson and Erickson (1977) proposed categories of readers based on assessing their levels of reading proficiency: independent, instructional, and frustration levels. This categorization focuses on the reading developmental levels in both oral and silent reading. The classification system has been widely used in the design of many informal language and reading inventories.

Carbo, Dunn and Dunn (1986) proposed that readers be classified according to their reading styles and developed the Reading Style Observation Guide that identifies reader behavior, diagnoses it, and then recommends compatible teaching strategies.

Finally, Chia (1999) proposed four different types of readers based on the following reading behavioral profiles:

- (1) Those who can read and do read;
- (2) Those who can read but do not read;
- (3) Those who can read but with difficulty; and
- (4) Those who do not read because they cannot read.

The first reader profile is often known as the independent reader. It can be further divided into good reader, effective reader and mature reader. The second reader profile is known as reluctant or unmotivated reader. It can be further divided into slow reader and poor reader. The third reader profile is known as disabled reader. It includes those who are identified to display general reading backwardness and those who are diagnosed with specific reading retardation. The latter sub-group consists of dyslexic reader, hyperlexic reader and non-specific or garden variety reader. Finally, the fourth reader profile includes those who are functionally illiterate and those who are reading illiterate (see Figure 1.3)

Figure 1.3: The Comprehensive Model of Reader Profiles (Chia, 1999)

Effective reader	Mature reader	Slow reader	
Good reader	Independent reader	Reluctant reader	Poor reader
Reading illiterate	Illiterate/ Non-reader	Disabled reader	General reading backwardness
Functionally illiterate		Specific reading retardation	

Reading Failure

Reading failure is frequently observed in the last three reading behavioral profiles, i.e., the reluctant/unmotivated reader, the disabled reader and the illiterate. It can happen in any part or at any point of the process of reading. This also means that reading failure can take place even before the start of the process or at the end of it when reading comprehension is expected but it fails.

For instance, a lack of background information or prior experience required to understand a given topic/theme may result in poor or inadequate topic knowledge (Chia, 2007a). This is pre-reading stage. This, in turn, can affect the reader's performance in answering comprehension questions based on that topic/theme and this takes place at the end of the reading process.

Depending on the reader's maturity and exposure to various printed materials and the literary genres as well as their quality, the level of comprehension that the reader has attained also affects his/her performance in listening/reading comprehension. However, if the reader can read very fluently but cannot understand what he/she has read, there is a possibility of hyperlexia. Although most autistic children are hyperlexic, not all hyperlexic children are autistic (Aaron, 1989).

A reader can encounter difficulties in recognizing and/or expressing words. This may be identified as having dyslexia or dysnomia. Poor or inadequate word knowledge or vocabulary (receptive and/or expressive) will also cause many problems in understanding what is read. If the problem is severe enough, it may result in what is known as oligolexia.

As a result, early identification of weak readers, who belong to one of the last three reader profiles, is essential so that an early intervention can be provided as soon as possible.

In Singapore, weak readers in our schools are often identified as either reluctant readers or disabled readers by the learning support teachers, allied educators (learning and behavior support) and/or educational psychologists from the Psychological Service Branch, Ministry of Education. Others may have sought external psycho-educational assessments from hospitals and/or professionals in private practice. However, there is still a minority of illiterate and these children are often those coming from dysfunctional families or have not attended preschool prior to primary school admission.

In primary schools, reading programs such as the Learning Support Program/English (LSP/English) conducted by the learning support teachers themselves and the reading buddy program, which is normally managed by parent volunteers and/or older students, are already in place in most, if not all, primary schools. Moreover, there are also allied educators (learning and behavior support) trained by the Dyslexia Association of Singapore to teach students who have been identified as having dyslexia or reading-related anomalies. Other allied educators (learning and behavior support) trained by the Autism Resource Centre will be able to work with students with autism spectrum disorders.

PART 3: Current Situation in a Primary School

The first author is currently teaching in a primary school located in Bedok, a neighborhood in the eastern part of Singapore. Bedok New Town is the fifth Housing and Development Board (HDB) new town. Its development started in April 1973 and thus, Bedok is considered a mature estate. As a result, her school is facing a challenge of falling enrollment throughout all levels from Primary 1 to Primary 6.

About 70% of the students in the primary school reside in either a HDB 3-room or 4-room flat. Similarly, about 70% of the parents' educational level is at secondary school level or below. Besides, about 24% of the students in the school had applied for various financial assistance schemes. Every year, about 30% of the students entering the school at Primary 1 would be identified as being at-risk and many of them have to be supported in the Learning Support Program. As a result, the problem has become a top concern for the school.

It is somewhat quiet evident from what has been described above that a sizable number of students in my school do come from disadvantaged home backgrounds. This would mean that literally these students do enter school with a lack of both educational and social experiences and hence, limiting their prior knowledge. Some of these students might even be lagging behind in cognitive development for as much as two years. Some of these students would never catch up in their development but the deficit gap in their cognitive development would only widen through the years.

By and large, the parents of these at-risk children are more concerned about their bread-and-butter or financial issues than ensuring proper education is provided for their children. These parents are generally very bogged down by long working hours. Therefore, they are either too exhausted after work to guide and monitor their children or some of these parents are simply unable to provide guidance as a result of their own low educational level. Besides being unable to support their children personally, these parents are also unable to source for additional help for their children due to their limited financial resources.

In the worst scenario, some students do come from a home environment where the adult figures are unreliable and abusive. Some might even be involved in substance abuse. As a result, these students might come to school lacking the most basic needs of food and proper hygiene. Some of these older students are also surrogate parents and they are responsible for the basic needs of their younger siblings. As a result, these students might be disruptive, defiant and unmotivated in school.

It was suggested in a few studies that children from more deprived backgrounds are less likely to achieve at school (Blanden, 2006; Brooks, Hamann & Vetter, 1997). As such, a major challenge and concern for my school is to ensure that appropriate strategies are adopted and sufficient educational programs are implemented to help the at-risk students advance in their academic performance by overcoming the cognitive, conative and affective deficits.

In this study, we chose to focus on a group of Primary 4 students who used to attend the Learning Support Program/English when they were in lower primary levels. All of them did poorly in their English Language paper, especially the section on semantic cloze comprehension,

in their semestral examinations from Primary 1 to 3. The aim of my study was to investigate how effective the semantic cloze procedure could be used as a remedial teaching technique to help these students to improve their performance in tackling semantic cloze comprehension. As proposed by Joshi (2005), adequate semantic knowledge is a prerequisite for fluent reading as well as reading comprehension. Reading (including reading comprehension) is at the heart of all learning. It is essential to succeed in our society. Hence, a student's success or failure to read with comprehension at the early grades would resonate throughout the rest of his or her life.

Literature Review

A number of studies have shown that there are strong associations between reading performance, semantic knowledge¹ and reading comprehension (Roth, Speece & Cooper, 2002; Quellette, 2006). In a study by Ediger (1999), it was suggested that a possible reason pupils are not able to read well is that they do not have a functional vocabulary for reading. In another study by Wallace (2007), a lack of sufficient development of semantic knowledge was emphasized as the reason that inhibited the ability of English-language learners to read at the appropriate grade level. When pupils are not able to read, reading comprehension would certainly be deficient.

However, possessing the ability to read is not necessary the key to reading comprehension. Both the National Institute of Child Health and Human Development (2000) and the National Institute for Literacy (2008) stated that the purpose of reading is comprehension. If readers can read the words but are unable to understand what they are reading, then they are not really reading. Oakhill and Cain (2008) also argued that good reading comprehension is not guaranteed by accurate and fluent word reading, although good word-reading skills are a prerequisite for accurate reading comprehension. That is, some children have developed age-appropriate word-reading skills but their comprehension skills have fallen behind their peers.

In this section, we have divided it into the following three parts: Part 1: Reading and reading comprehension; Part 2: Semantic knowledge: Vocabulary development, instruction and assessment; and Part 3: Semantic cloze procedure.

PART 1: Reading and Reading Comprehension

As already discussed in some details in the previous chapter, reading can be described as a reader's conscious attempt of meaning making from a printed text based on his/her own interpretation of the text in order to comprehend the intent of the writer of the text. It is such a complex process that most definitions of reading have never been able to define or explain it clearly and holistically.

Reading as an Unnatural Act

Unlike speaking, reading is considered an unnatural act (Nevills & Wolfe, 2009). That is to say, children can master speech just by spending time with people who already speak, imitating and repeating what they have heard. However, reading is an acquired skill and learning to read is a

¹ Semantic knowledge will be used interchangeably with word knowledge, word meaning knowledge and vocabulary to mean the same thing throughout this dissertation.

long and plodding process. Parents usually overlook this process, as they tend to equate the ability to speak and respond coherently to the ability to read. Parents are usually very surprised when teachers informed them that their children are unable to read.

Similarly, Boulware-Gooden, Carreker, Thornhill, and Joshi (2007) have argued that the assumption that reading comprehension would develop naturally without any necessity of direct teaching of comprehension is flawed. Development of reading must not be placed in the same developmental progression as oral language development. Children who are given enough exposure are able to acquire speech without formal instruction but it is important to note that it does not mean that with sufficient exposure to print, children would acquire ability to read without formal education.

Beck and Juel (1995) also suggested that most children do have fairly sophisticated knowledge about language structures and stories by the time they enter school. In other words, children would have had sufficient knowledge of syntax, vocabulary, story elements, and aspects of the world around them to comprehend and enjoy stories read to them. Nevertheless, most of these children would be unable to independently read a story that is equivalent to the sophistication of their spoken vocabularies, concepts, and knowledge as they can recognize only a limited number of words. Spoken language comprehension skills are fundamental for developing reading comprehension, but they do not assure success in reading.

In the past, reading instruction in the early years might be focused on decoding and learning how to read words fluently, rather than focusing on comprehension and text interpretation. However, there was a change in the stance. Role of social interaction and critical analysis were emphasized when one talks about reading these days (Stahl, 2009). It is evident that comprehension is the reason and ultimate goal of reading. Comprehension failures can lead to negative impacts on one's lives, namely, reduced likelihood of academic success and subsequent access to fewer employment opportunities.

Failure in Reading Comprehension

How can comprehension failures be avoided? According to Lesaux, Lipka, and Siegel (2006), reading comprehension is a multi-dimensional process that can be challenged by a number of factors, namely, the reader, the text, and aspects associated with reading. Reading and accuracy speed, vocabulary and background knowledge are key features of the reader factors. Features of text factors consist of the discourse structure, clarity, and syntactic complexity.

Lesaux, Lipka, and Siegel (2006) have identified two main types of comprehension difficulties. They are discussed briefly below:

- The first type of comprehension difficulty is a sign of considerable word reading difficulties. That is, the poor comprehenders are poor readers as they struggle with basic level processes and at the word level.
- The second type is deemed as a specific comprehension problem. In other words, these children do not have issues with word recognition but they have poor comprehension skills. They would be struggling at the text level, particularly when it involves higher-level processing, specifically, inference making, working memory and knowledge of story structure.

Cain, Oakhill, and Bryant (2004) have the same opinion that comprehension is a multifaceted task that requires various cognitive skills and processes. They believed that higher level language skills, namely, inference and integration, comprehension monitoring and text structure knowledge are crucial for comprehension. On the other hand, they recognized that lower level language skills, namely, word reading accuracy, verbal and semantic skills do affect young children's reading comprehension achievement.

In the same way, Fielding and Pearson (1994) agreed that comprehension is a complicated process that requires both knowledge about the world at large and knowledge about the worlds of language and print. Experience, inferential and evaluative thinking, and teaching are also required in the process. Comprehension is no longer viewed as a natural result of decoding and oral language as proposed by the 'simple view' of reading model by Gough and Tunmer (1986). Floyd, Bergeron, and Alfonso (2006) also concurred that the development of reading comprehension skills is multifaceted. One's cognitive abilities and goals, the environment, situational and task related demands are factors which will influence the development of reading comprehension.

PART 2: Semantic Knowledge: Vocabulary Development, Instruction and Assessment

Development of semantic knowledge² is necessary for a student to become an effective reader. Similarly, vocabulary is one of the most significant factors in reading comprehension (Mezynski, 1983; Stanovich, Nathan, & Vala-Rossi, 1986; Nagy, 1988; Boulware-Gooden, Carreker, Thornhill, & Joshi, 2007; Greenwood & Flanigan, 2007). According to Klepper (2003), vocabulary knowledge is crucial to reading comprehension. Mckeown, Beck, and Blake (2009) reiterated that teaching vocabulary can enhance comprehension of text if the instruction given helps students to construct meaningful associations to their knowledge base as compared to providing brief definition. However, the role of vocabulary is unfortunately ignored a few decades ago.

In recent decades, researchers and educators have begun to pay increased attention to the teaching of vocabulary development. Nagy (1988) underscored a couple of reasons for the failure of vocabulary instruction to improve comprehension. First, most vocabulary instruction had not been successful in creating thorough word knowledge. Generally, the vocabulary instruction had entailed the use of definitions or synonyms for instructed words, that is, searching for meanings, writing them down and memorizing them. A second reason was the redundancy of text. As one does not need to know every word in a text to understand it, vocabulary instruction of such words would not improve comprehension since comprehension was not be hindered initially.

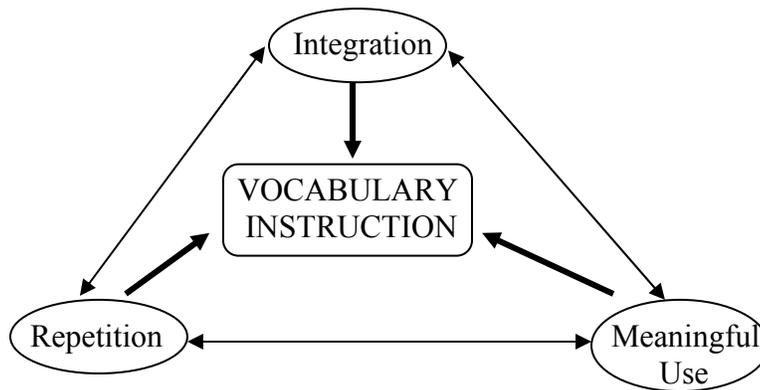
The Three Key Ingredients of Effective Vocabulary Instruction

Nagy (1988) has delved in-depth on the qualities of effective vocabulary instruction, stating that sufficient definitions and illustrations of how words are used in contexts must be offered for the

²Semantic knowledge is the aspect of language knowledge that involves word meanings/vocabulary.

vocabulary instruction to be successful. He cautioned against mere provision of definitions and contexts and stressed the importance of ‘intensive vocabulary instruction.’ Integration, repetition and meaningful use are identified as three key ingredients of effective vocabulary instruction (see Figure 2.2).

Figure 2.2: The Three Key Ingredients of Effective Vocabulary Instruction



- **Integration**

The first ingredient of powerful vocabulary instruction is integration. It was suggested that the targeted words are associated with other knowledge. This form of instruction is an extension of the schema theory, namely, knowledge consist of sets of relationships and that new information is comprehended by linking it to prior knowledge. Brainstorming and semantic mapping are examples of classroom activities proposed. Vocabulary instruction must enable the learners to understand new concepts and not simply new labels. Nagy (1988) also pointed out that one should not assume that a synonym or a short phrase can adequately illustrate the meanings of new words. In addition, Nagy (1988) suggested that beginning the instruction or discussion of the meaning of a word without mentioning the word itself may be an effective way to focus on concepts instead of labels.

- **Repetition**

Repetition is a second ingredient for powerful vocabulary instruction. It was discussed that vocabulary instruction should ensure that readers not only know the meanings of words, but they have had sufficient practice so that the meanings can be retrieved easily and quickly during reading. Otherwise, limited knowledge of word meanings can lead to the same detrimental effect on comprehension as poor decoding skills. Nagy (1988) suggested a third ingredient, that is, meaningful use to bring about multiple encounters with the new words without having learners getting bored with the same instructional activities.

- **Meaningful Use**

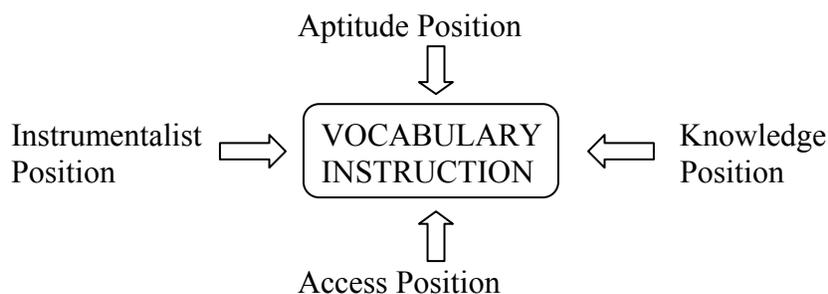
As mentioned above, the third ingredient for powerful vocabulary instruction is meaningful use. Vocabulary instruction that is effective will help the learner to apply the instructed words meaningfully. The importance of the ‘depth of processing’ is emphasized. It was argued that the more deeply the information is processed, the more likely the information will be remembered. The ability to apply the word rather than providing definition is also stressed by Nagy (1988), who also proposed having instructional activities that would require

the learners to use the meaning of a word to make an inference, rather than simply stating the meaning.

The Four Hypothetical Positions of Vocabulary Instruction on Reading Performance

Besides the three key ingredients of effective vocabulary instruction, there is a need to know and understand the four hypothetical positions of vocabulary instruction and their effects on reading performance. The original triad of hypothetical positions as proposed by Anderson and Freebody (1979) are *aptitude*, *knowledge* and *instrumental* positions. Mezynski (1983) added a fourth hypothetical position – *access* – to it. They are described briefly below (see Figure 2.3):

Figure 2.3: The Four Hypothetical Positions of Vocabulary Instruction



- **Aptitude Position**

The aptitude position indicates that a student who performs well for a vocabulary test is merely a result of mental agility rather than a direct cause of reading comprehension. In other words, students with good word knowledge comprehend better as they possess superior mental agility.

- **Instrumentalist Position**

Next, the instrumentalist position asserts that knowledge of individual word meanings is the main fundamental factor responsible for reading comprehension. This position proposes that in order to improve comprehension, teach vocabulary.

- **Knowledge Position**

The knowledge position emphasizes the importance of the schema-theoretic and constructive viewpoints. That is, a student who knows a word well is an implication that he or she knows a lot of words and ideas related to it and it is this larger ‘chunk’ of knowledge that is essential for understanding a given text. The results of the study seemed to draw attention to the knowledge position. That is, the more one reads, sees, and hears, there would be more influences on vocabulary growth as compared to the influences of vocabulary instruction on reading comprehension. It was concluded that concept-driven reading affects vocabulary development more than text-driven reading affects reading comprehension.

- **Access Position**

Finally, the access position proposed by Mezynski (1983) is interested in the ‘automaticity’ of word knowledge. That is, there must be sufficient amount of practice for word acquisition so that the meanings of the words could be used efficiently in text processing.

Selected Studies on Vocabulary Instruction: Effects on Word Knowledge and Reading Comprehension

In a study carried out by Pany, Jenkins, and Schreck (1982), three experiments were designed to assess the effects of vocabulary instruction on word knowledge and reading comprehension.

- **First Experiment**

For the first experiment, twelve average fourth graders were taught unfamiliar word meanings under four treatment conditions, namely, meanings from context, meanings given, meanings practiced and no-meanings control. Practice of word meanings required the most amount of direct teacher-provided instruction, giving meanings required less direct teacher-provided instruction while reading meanings in context required the least amount of teacher-directed instruction.

- **Second Experiment**

The second experiment was conducted for six fourth- and fifth-grade students to examine the relative effectiveness of the three instructional procedures applied in the first experiment. All the six students were classified as learning disabled and were receiving reading instruction from a special education resource teacher.

- **Third Experiment**

The third experiment was designed to determine whether passage comprehension would be improved as a result of vocabulary training. Ten fourth graders who were attending a program for children of economically deprived families participated in this experiment.

The general findings from the three experiments indicated that both average and disabled learners learned and retained the most number of vocabulary words when a *Practice* method of instruction was used. Students learned fewer word meanings under the meanings given condition. They learned the least number of new word meanings when meanings were presented in context. The *Practice* method which was the most effective procedure required the greatest amount of teacher-directed instruction while the *Context* procedure which required the least amount of teacher-directed instruction was the least effective.

Learner Type

Other than methods of instruction, learner type was also a significant factor. Students who are disabled learners when compared to average learners needed more direct instruction to bring about significant vocabulary growth. Whereas the average learners benefited from both the Context and Given treatment conditions, the disabled learners were unaffected under the Context treatment condition, and they were only minimally affected under the Given treatment condition.

Semantic Knowledge

It was observed that students' comprehension of sentences was affected by their semantic (word meaning) knowledge. Comprehension of story was also affected when questions referred to sentences consisting of the target words. Nevertheless, vocabulary instruction was noted to have failed to impact on global comprehension as assessed by Cloze and Retell. It was explained that the ineffectiveness of vocabulary instruction might be due to an overestimation of the importance of vocabulary knowledge in facilitating student comprehension of the reading selection. Another explanation was that there might be issues with instructional methodology. Mezynski (1983) had

also commented that personal, instructional and measurement issues might have obscured the relationships between word knowledge and reading comprehension.

Causal Relationship between Reading Vocabulary and Comprehension

Another study by Eldredge, Quinn, and Butterfield (1990) had tried to explore the possibilities of a casual relationship between reading vocabulary and comprehension as well. It was hypothesized that growth in reading vocabulary would influence growth in reading comprehension. Cross-lagged panel analysis was used to test for a pattern between the variables. As cross-lagged panel analysis is a new method, path analysis was used to verify the findings obtained by the cross-lagged analysis. 504 second-grade students from nine elementary schools participated in the study.

Reading Environments/Contexts

It was argued that the reading environments or context in which the students were taught to read might have an impact on the results of the casual relationships but it was not possible for the researchers to control these conditions. Hence, the inability to control the reading environments or context was stated as one of the limitations of the study. Though the social conditions and the instructional materials used in the study differed in the classrooms involved in the study, the correlations obtained between the variables did not differ significantly ($p > .05$).

Findings of the study suggested that it was not easy to illustrate the reading comprehension and word knowledge connection. The data obtained was not able to support the hypothesis that improved word knowledge would result in improved reading comprehension. From the study, it was noticed that wide reading influences general vocabulary growth more than vocabulary instruction influences reading comprehension. That is, reading comprehension is a stronger cause of general vocabulary growth than vice versa. However, the researchers did point out that the relationships might not be the same at the higher grade levels.

Contextually-based Multiple Meaning Approach

In another study conducted by Nelson and Stage (2007) to evaluate the effects of contextually-based multiple meaning vocabulary instruction on the vocabulary knowledge and reading comprehension, 283 third and fifth graders with low and average to high initial vocabulary and comprehension achievement were involved. Nelson and Stage (2007) believed that there should be a positive outcome on reading comprehension when students are taught explicitly that most words have multiple meanings depending on the context.

Findings of the study indicated that third and fifth graders with low initial vocabulary and comprehension achievement had made gains in their vocabulary knowledge after receiving the contextually-based multiple meaning vocabulary instruction. On the contrary, third and fifth graders with average to high initial vocabulary and comprehension achievement did not show gains in their vocabulary knowledge after receiving the intervention. Nelson and Stage (2007) stated that the relatively small number of words taught to the students and the short time span of four months for the intervention might be possible reasons why there was a weak link between the vocabulary instruction and growth in vocabulary knowledge.

With regards to the findings that were pertaining to reading comprehension skills, Nelson and Stage (2007) reported that third graders with low and average to high initial vocabulary and comprehension achievement had shown significant gains in their reading comprehension skills after receiving the contextually-based multiple meaning vocabulary instruction. On the contrary, significant gains in reading comprehension skills were exhibited by fifth graders with low initial vocabulary and comprehension achievement after receiving the intervention; but no marked gains were shown by the fifth graders with average and high initial vocabulary and comprehension achievement after the intervention.

In their conclusion to the study, Nelson and Stage (2007) argued that the effects of vocabulary instruction could be affected by the various ability levels of the students. Their conclusion is consistent with the other studies on vocabulary instruction (Joan, 2005; Tomesen & Aarnoutse, 1998; Klesius & Searls, 1990). They pointed out that the reason for greater gains shown by the low achieving readers in comparison to those with high abilities might be unclear. They also explained that as the low achieving readers' vocabulary and comprehension skills must be very limited, any forms of interventions would be beneficial for them.

Meta-cognitive Strategies

In yet another study to determine the effectiveness of systematic direct instruction of meta-cognitive strategies on comprehension and vocabulary development, Boulware-Gooden, Carreker, Thornhill, and Joshi (2007) reiterated the importance of applying meta-cognitive strategies, that is, comprehension would be greatly improved if students were taught various strategies that they could apply at their discretion. In their study, reading comprehension and vocabulary achievement of 119 third graders from two urban elementary schools were examined to ascertain whether instruction incorporating meta-cognitive strategies would improve the reading comprehension of expository text. The impact of the meta-cognitive strategies on vocabulary was examined as well. One school was selected as the intervention school while the other was the comparison school.

Students in both schools received 30 minutes of reading comprehension instruction daily for 25 days. Direct instruction of meta-cognitive strategies was supplemented in the lessons in the intervention school. Meta-cognitive strategies namely, semantic webs for vocabulary words, thinking out loud while reading and card pyramid to summarize the main and supporting ideas, were used with the students in the intervention school. Findings of the study indicated that the intervention group improved significantly over the comparison group in vocabulary achievement and reading comprehension (Boulware-Gooden et al., 2007).

A more visual representation of the word meaning and conceptual understanding was made possible with the use of vocabulary webs. This was clearly more effective as compared to the traditional method of memorizing a definition and using the word in a sentence. One of the teachers in the intervention school reported that application of the meta-cognitive strategies had benefited all the students. The good readers were challenged to use as few words as possible to write the summary paragraph while the students with comprehension problems were now equipped with tools to help them comprehend what they read.

However, it was not stated in the study about the transfer effect of the application of the meta-cognitive strategies. There is no doubt that such strategies would bring about positive outcomes but it is often an issue whether students are able to apply the strategies effectively after a period of time.

Assessment of Semantic Knowledge (Vocabulary)

Pearson, Hiebert, and Kamil (2007) had considered the relationship between vocabulary instruction and reading comprehension from another perspective. They agreed that there is proper reason to teach vocabulary more vigorously and to examine its relation to reading comprehension more cautiously. However, they felt that it is also crucial to scrutinize the way we assess vocabulary knowledge and vocabulary growth. In other words, it is vital to look at the vocabulary assessment used. Three probable reasons for the weak link between vocabulary instruction and reading comprehension were stated in their study.

- First, there might be no definite connection between the two variables, that is, learning words does not lead to improved comprehension.
- Second, there might be weak or little transfer effects of vocabulary instruction, that is, effect of vocabulary instruction is unable to move beyond the materials to which it is tied.
- Finally, the measures of vocabulary commonly used by researchers might be deficient to verify the relationship between word learning and global measures of comprehension. This is the reason which Pearson, Hiebert, and Kamil (2007) had attempted to explore further in their study so that the reason for the lack of transfer effects could be clarified.

Various definitions of vocabulary were considered before studying vocabulary acquisition and understanding. It was pointed out that the assessment of vocabulary pertaining to reading comprehension would generally call attention to the receptive dimension of vocabulary rather than the productive dimension. However, it was stated that studies evaluating children's ability to define words orally which is a more challenging semantic task which measures depth of vocabulary knowledge or productive vocabulary had reported stronger association between vocabulary knowledge and reading comprehension (Roth et al., 2002).

Next, Pearson, Hiebert, and Kamil (2007) delved into a brief history of vocabulary assessment. The earliest measures of reading vocabulary would require a one-to-one assessment, in which, students would define or explain words to an interviewer. As there is a need for more efficient and handy administration, the mode of assessment was changed to standardized, multiple-choice versions of the items in which students would read and respond to. There was also progression of items that increases the contextualization of vocabulary assessment. It seemed that greater contextualization was needed to increase the sensitivity of vocabulary assessment to comprehension growth.

It was highlighted that there must be distinctions among various aspects of word or semantic knowledge instead of simply using a global definition of vocabulary or general concept of word meaning. The type of semantic knowledge taught should coincide with the type of word meanings to be tested. Next, the focus should be on the components and formats of vocabulary assessment, particularly with the selection of words and sampling procedures. It would be crucial to ascertain if any single assessments can be used for the various aspects of semantic knowledge

or if individual and targeted assessments for each of the types of word or semantic knowledge is needed. Differentiating methods of instruction for vocabulary by text genre was another focal point raised. The strength of transfer over time was also discussed as the duration of most vocabulary instructional interventions was fairly short. Only when there is better clarity in all these issues would it be possible in determining the relations among various modes of vocabulary development and the relations between word or semantic knowledge and other aspects of reading development including reading comprehension.

Brooks, Hamann, and Vetter (1997) have argued the need to call for attention to the fact that some students enter school with a lack of both educational and social experiences. As a result, these students had limited prior knowledge. Many of them could be starting school with as much as two years gap in development. The authors had found that this lack of fundamental skills had greatly affected the students' performances in all aspects. They had also highlighted that considerable number of students came from a home environment where adult figures were unreliable, unresponsive, abusive or unprepared to meet their children's needs. Hence, some of these students might come to school lacking the most basic needs of food and clean clothing. These unfavorable conditions that the students had to contend with almost daily would most likely cause them to be disruptive, defiant, unmotivated, and demanding of attention. In order to tackle the persistent issue of low reading achievement and poor vocabulary development, Brook, Hamann, and Vetter (1997) had recommended that the targeted school should implement a number of reading programs.

PART 3: Semantic Cloze Procedure

Carroll, Wilds, and Carton (1959) attribute cloze to a German psychologist called Ebbinghaus (1897) who deleted syllables to test "the degree of fatigue in mental functions" of school children (p.5). However, Wilson L. Taylor has often been credited as the father of the cloze procedure (Jongsma, 1980). Initially, Taylor (1953) introduced cloze procedure as a method of measuring the readability or difficulty of a given text, and later as a measure of reading comprehension for native speakers (Taylor, 1956). His method was simple: "systematically or randomly delete words from a selected passage and ask the student to restore the missing words" (McKamey, 2006, p.114).

Taylor's (1953) definition of cloze considers it as "a method of intercepting a message from a 'transmitter' (writer or speaker), mutilating its language patterns by deleting parts, and so administering it to 'receivers' (readers and listeners) that their attempts to make the patterns whole again potentially yield a comfortable number of cloze units" (p.416). According to Jongsma (1980), Taylor's (1953, 1956) construction of cloze procedure was drawn upon "Miller's work in communication theory, Osgood's dispositional mechanisms, and the principles of statistical random sampling" (p.3).

According to Kelly (1969) and Jonz (1990), throughout the history of language teaching, cloze procedures have been used for teaching and testing. Today, the popularity of cloze procedure taught as a strategy to improve reading/listening comprehension as well as used previously in measures of intelligence and teacher-constructed tests is evident in the literature. For instance, the Academic Search Premier database contains 54 studies since the year 2000 that use the cloze

procedure in one way or another. This is probably an underestimate number since other databases exist and not all research can be accounted for in such databases. “In all, there are 1,644 studies cited in EBSCOhost that address the cloze procedure” (McKamey, 2006).

Using the Cloze Procedure to Assess Reading Comprehension

As mentioned earlier, the cloze procedure can be used with students at all levels of reading ability to assess reading comprehension or test vocabulary knowledge. It involves taking a passage of text that students have previously read, and deleting words from it. Students must supply the omitted words to complete the sentences. Completing these sentences requires critical thinking skills and allows teachers to gauge how well students are able to use semantic and syntax cues to construct meaning from the text (Thompkins, 2003). It can also be used to determine how well students have retained knowledge of content or vocabulary.

However, several investigators have examined the problems of constructing cloze procedure (Jongsma, 1980). In his early work, Taylor (1953) found that every 5th deletions were successful in measuring readability, providing there were more than 16 cloze blanks per passage. According to Jongsma (1980), the every-5th word deletion rate was rather arbitrary “as there was little research upon which to base that judgment at that time” (p.2). In later studies, Taylor (1956, 1957) assessed the effects of selective deletions of “easy” (structural) words and “difficult” (semantic) words, and maintained his earlier conclusion that every-5th word deletions were most effective, especially “in measuring the relative difficulty of different materials but increased the suggested test length to 50 cloze items to insure a more representative sample” (Jongsma, 1980, p.2).

In reviewing the validity and utility of the cloze procedure, Rankin (1959) adapted Fries’ (1963) division of language in describing the effects of selective deletions and went on to argue that “the every-nth deletion system correlated more highly with intelligence, while the selective deletion system, based on form class, was more closely related to the subject’s knowledge of the content of the passage” (p.490).

Other studies (e.g., Bachman, 1982, 1985; Bormuth, 1964; Greene, 1965; MacGinitie, 1961) have explored the effects of selective deletions as contrasted with every-nth deletions. For example, MacGinitie (1961) lent further support to a deletion rate of every-5th word. However, Bachman (1982, 1985) found that certain types of words were more difficult to replace than others in cloze blanks, while Greene (1965) found that a modified cloze procedure based on rational deletions of nouns, verbs, adjectives and adverbs produced a better assessment in terms of reliability and item performance. Bormuth (1964), who examined the effects of different cloze forms particularly with respect to their reliability in measuring the comprehension difficulties of passages, found that cloze exercises of less than 50 items tend to be unreliable. All these results are consistent with Taylor’s (1956, 1957) earlier findings.

More recently, several studies (e.g., Greene, 2001; Sasaki, 1996, 2000; Yamashita, 2003) have found that cloze procedure as an assessment of reading comprehension is a valid measure, but in varied ways. For instance, while Sasaki (1996) reported that clause level information was required to complete the majority of cloze items, Yamashita (2003) found that “text-level information was found to be the source of information most frequently referred to by the group

as a whole” (p.285). Sasaki’s (1996) cloze test was created by an every-6th word deletion method whereas Yamashita (2003) used a rationally deleted cloze test targeting items that would require inter-sentential information. Yamashita’s (2003) method and results seem to support the use of rationally deleted cloze procedures to measure reading proficiency as Bachman (1982, 1985) predicted.

Cloze Procedure as a Remedial Teaching Strategy

Bloomer (1962) has found that using cloze exercises helped improve significantly more in reading comprehension and total reading ability. According to Bloomer (1962), “the cloze procedure does have a positive effect on comprehension and grades” (p.178).

In using cloze procedure, two types of cues are used: semantic and syntax. Semantic cues are based on vocabulary and word meanings while syntax cues are based on sentence structure and grammar. According to Thompkins (2003), students using semantic cues have to figure out the missing words that might substitute a word with a similar meaning in place of the correct word. For example, if the word *leaped* was omitted from the sentence, The dog *leaped* over the fence a student using semantics as a cue might replace it with another word with a similar meaning, such as *hopped* or *jumped*. This substitution would still create a sentence that makes sense, and it would indicate that the student understands the meaning conveyed by the sentence.

In English language, the eight parts of English speech (i.e., noun, pronoun, verb, adverb, adjective, conjunction, preposition and interjection) are word classes important for students to know and understand. They provide syntax cues, which depend on sentence structure and grammar, used in cloze exercises. Adjectives generally come before the noun, and verbs come after the noun. For example, you would say *Jenny has a blue bicycle*, not *Jenny has a bicycle blue*; similarly, you would say *Carl ran upstairs*, not *Carl upstairs ran*. When nouns, adjectives or verbs are omitted from a sentence, syntax cues help students figure out the missing word by what part of speech belongs in the blank (Thompkins, 2003).

However, in one controlled experimental study, Guice (1969) conducted cloze exercises based on every-10th word deletions of concept words (i.e., nouns, verbs, adjectives and adverbs) besides regular instruction in reading comprehension. Two points were scored for exact replacement and one point for synonyms. The findings of the study indicated that the subjects in the experimental group did not perform significantly better than the control group. Guice’s (1969) argument was that there were other factors at play. Similar results were also reported by Blumenfield and Miller (1966) and Friedman (1964).

On the other hand, there are also a few studies (e.g., Brown, 1993; Davis, 2007; Rynders, 1971) that have shown cloze procedure to be an effective pedagogical tool to develop comprehension skills for students in intermediate and upper grades.

Jongsma (1980) suggested that “we dismiss cloze altogether as a teaching technique and that future research should explore alternative procedures” (p.35). However, Louthan (1965) has suggested that perhaps cloze may be used as a technique to convey an understanding of what kinds of words bear the burden of communication in written material. As far back as five decades ago, Carroll (1959) had explained that one possibility why cloze procedure is not

working as well as it was expected is that completing a cloze exercise may be a skill unto itself that most students have not fully or adequately mastered it. Carroll's (1959) explanation has been supported by results obtained in Weaver and Kingston (1963) and McKamey (2006). Another possible explanation proposed by McKamey (2006) is that cultural knowledge plays a greater role in completing cloze exercises or tests than was previously thought. Some evidence to this effect already exists in Sasaki (2000), who compared cloze test scores from a culturally loaded cloze exercise to scores obtained on a less loaded cloze and found that students performed better on the more culturally familiar cloze test.

In this study, my aim is two-fold: firstly, it was to find out whether or not more exposure to semantic knowledge for the weak readers under my charge would result in an improvement in their reading comprehension; and secondly, it was my interest to find out whether or not cloze procedure (or semantic cloze procedure, to be more specific) could be an effective remedial teaching strategy to help pupils perform better for semantic cloze tasks.

The Study

Aim

The aim of this study was to find out whether the semantic cloze procedure would be an effective remedial teaching strategy to help a group of 23 Primary 4 students, who have been identified as weak readers and who used to attend Learning Support Program/English (from Primary 1 to 2), to improve their performance in reading comprehension.

Design and Data Collection

This study used a small group-based pre-/post-treatment design, which is considered most suitable to determine the effectiveness of the treatment, i.e., the semantic cloze procedure. Because the design requires an introduction and completion of treatment, the functional relationship between the semantic cloze procedure as a treatment and subject's weak reading comprehension could be established and studied (Tawney & Gast, 1984).

In brief, three steps were taken when employing this design:

1. Pre-treatment baseline data were taken (before undergoing a 6-month treatment was instituted) and they were based on the subjects' performance in expressive word knowledge (expressive vocabulary), word expression (oral word reading), reading comprehension (cloze), reading experience, and the first school semestral/mid-year English language examination (focus on only the section on comprehension cloze) in 2010.
2. The treatment involved a 6-month semantic cloze procedure on a 1½ hour session per week.
3. Post-treatment baseline data were re-taken (after completing the 6-month treatment) and they were based on the subjects' performance in expressive word knowledge (expressive vocabulary), word expression (oral word reading), reading comprehension (cloze), reading experience, and the second school semestral/year-end English language examination (focus on only the section on comprehension cloze) in 2010.

Only quantitative data were collected from the 23 participating subjects based on the administration of four standardized tests, i.e., Aston Vocabulary Scale taken from the Aston

Index-Revised, the Singapore Word Reading Test-Second Edition, the GAP Reading Comprehension Test, and the Rating Scale of Reading Experience.

Participating Subjects

The participating subjects were 23 Primary 4 students, aged between 9 and 10 years old, of both genders from three different races (Chinese, Malay and Indian), who are currently attending my remedial English class, were invited to participate in the study. A total of 153 students from Primary 3 to Primary 5 were initially identified based on their poor performance in the previous year's English Language examinations. Parental consent was sought for their child's participation in the study. Eventually, 88 students were given consent to take part in the study. Out of these 88 students, 23 students were selected after the GAP reading comprehension Form B3 scores was reviewed.

Each of these 23 students was considered a potential risk for developing problems with reading comprehension, based on their GAP reading comprehension scores on Form B3. All the subjects were expected to attend 1½ hour lesson/session once per week on Monday after curricular hours.

The academic achievement of the targeted group of 23 subjects in the areas of reading comprehension and development of semantic knowledge (vocabulary or word knowledge) had been noted to be insufficient, resulting in their failures in the school semestral examinations for English language from Primary 1 to 3. Evidence for the existence of the problem included teacher observation and assessments that indicated the level of student reading comprehension. They were all classified as weak readers, although some of them could well be identified as disabled readers and/or reluctant readers according to Chia's (1999) comprehensive model of four reader profiles.

Instrumentation

In addition to the school semestral examination for English language on cloze comprehension, four standardized assessment tools were administered: Aston Vocabulary Scale taken from the Aston Index-Revised, the Singapore Word Reading Test-Second Edition, the GAP Reading Comprehension Test, and the Rating Scale of Reading Experience.

- **Aston Vocabulary Scale**

The Aston Vocabulary Scale was chosen for administration to determine the subjects' respective expressive vocabulary ages. It is one of the subtests under the Underlying General Abilities scale taken from the Aston Index-Revised (Newton & Thomson, 1982). It requires an examinee to define or indicate an understanding of a series of graded words. The examinee is expected to respond verbally. According to the examiner's handbook, the inter-correlational reliability between the Aston Vocabulary Scale and Schonell Graded Word Reading Test is .60 (Newton & Thomson, 1982).

- **Singapore Word Reading Test-Second Edition (SWRT-2)**

This test was chosen for administration to determine the subjects' respective oral word reading (word expression) ages. It is an updated and expanded version of the original SWRT (Ministry of Education, 1998). It is designed to be an educational assessment tool focused on word reading. According to the manual, "[A] pupil's performance on the test would give the

tester an objective indication of the pupil’s general reading ability ... *and* ... to document a pupil’s growth in reading attainments over time” (Ministry of Education, 2006, p.1). The coefficient alpha reliabilities for SWRT-2 Word Lists A, B and C by age groups ranging from 5 years to 11 years 11 months are between .99 and .91 with standard error of measurement for the three age groups between 3.24 and 2.13. In terms of the test-retest reliability coefficients for SWRT-2 Word Lists A, B and C are shown in Figure 3.1

Figure 3.1: Test-Retest Reliability Coefficients for SWRT-2 Word Lists A, B and C

SWRT-2	Test-Retest Reliability Coefficients
Word List A	.96
Word List B	.98
Word List C	.98

- GAP Reading Comprehension Test-Third Edition**

This test was administered to determine the subjects’ This modified cloze test based on Taylor’s (1953) cloze technique has proven to be a valid measure of reading comprehension and is more reliable and superior to conventional multiple-choice tests (Bormuth, 1967). The theoretical basis for the validity of the GAP Reading Comprehension Test (McLeod, 1990) that actually taps is reading comprehension has been shown by Fries (1963), who identified three layers of language meanings. They are meanings carried by the lexical items, meanings carried by the grammatical structures, and social-cultural meanings. Success in replacing words that have been randomly deleted from passages is related to the first two layers and to some extent also the third (McLeod, 1990). According to the manual, “[R]eliabilities were calculated, using the split-half method, on samples of 250 children of three different age groups” (McLeod, 1990, p.3). Reliability coefficients are shown in Figure 3.2 below.

Figure 3.2: Reliability of the Revised GAP Tests (McLeod, 1990)

Year Group	Form B3 (Pre-Treatment)	Form R3 (Post-Treatment)
8+	.94	.91
9+	.90	.90
10+	.91	.92

- Rating Scale of Reading Experience**

This test was chosen for administration to determine the subjects’ reading experience before they embarked on the treatment. The results could provide me some ideas about the subjects’ respective reading backgrounds. It is one part of the Standard Reading Tests (Dianels & Diack, 1960, 1976) and is the only test of its kind available in the world. It has since been out of print. Although the instrument is not easily available, I have managed to obtain the Rating Scale of Reading Experience that was normed on the British population in the 1960’s and re-normed in the 1970’s from the *Remedial Reading: A Handbook for Teachers* published in 1963 by the Guidance and Special Education Branch, Subiaco, Western Australia. The test-retest reliabilities given are in the range between .65 and .74.

Treatment

- **Defining the Semantic Cloze**

Semantic cloze is an activity that helps the subjects learn to predict unfamiliar words and their meanings. To create a semantic cloze activity, I delete predictable words throughout a selected text. Subjects read around the text and fill in the cloze blanks with words or synonyms that make sense and sound right.

This cloze activity can be used to evaluate the subjects' reading levels and to build their semantic knowledge-in-context skills. The strategy is a simple way also to monitor, assess and improve reading comprehension and word knowledge. In addition, it strengthens recall of details and key terms from selected reading passages.

In this study, cloze was used as a treatment strategy with pre- and post-lesson evaluation as well as a pre- and post-treatment assessment (i.e., the GAP Reading Comprehension Test) to measure growth of comprehension and learning.

- **Teaching Semantic Cloze as the Treatment Strategy**

1. **Objectives**

- i. The subjects would practice reading for recalling details.
- ii. They would apply context skills to define and identify key semantic terms that best fit into the cloze blanks.

2. **Materials**

- i. Informational text (see Appendix I for a sample) to be given to every subject.
- ii. Two same cloze passages (each with an Instructional text; see Appendix II for a sample) with semantic terms removed (see Appendix III for a sample) to be given to every subject
- iii. Reading passages (similar to the cloze passages except without blanks this time)
- iv. Master passage with cloze solution (in MS PowerPoint)
- v. Computer and projector

- **Timeframe**

Each lesson/session lasted 1½ hours. There was one lesson/session per week on Monday after curricular hours. The treatment would be carried out over a period of 6 months, excluding pre- and post-treatment assessments.

- **Reading Cloze Activities**

Note: Bormuth (1964) has argued that cloze exercises of less than 50 items tend to be unreliable in measuring the comprehension difficulties of passages. However, in this study, the close exercises prepared for the subjects to practice, I had limited the number of cloze items to 15 as 50 would be too overwhelming for these Primary 4 weak readers.

Preparation

- Select a reading passage of at least 250 to 300 words.
- Develop a cloze passage by deleting key semantic terms and one-word details from the reading. Delete no more frequently than every fifth word.

- Copy the reading passage and the cloze passage for subjects. Make two copies of the cloze passage for pre- and post-lesson evaluations.
- Make a MS PowerPoint slide with the cloze solution.

Before Reading (Pre-lesson)

- Explain the purpose of the semantic cloze exercise to the subjects. For example, “You can use information from the story to figure out what the missing word might be. The word must make sense and sound right in the sentence.”
- Pass out one copy of the cloze passage (see Appendix III) to each subject. Tell the subjects this activity will not be graded. This is a pre-lesson evaluation I shall use to determine if their reading comprehension and semantic knowledge (vocabulary) within context skills are improving over time.
- Ask the subjects to read the passage and make predictions. Suggest they read the passage through once to get an overview before making any predictions. Encourage the subjects to read around the cloze blank, thinking about the author’s ideas that come before and after the cloze blank.

During Reading (Lesson)

- Pass out copies of the reading passage to the subjects. Explain that they need to read the passage carefully, looking for details and key semantic terms that would have helped them complete the pre-lesson cloze activity.
- Collect the passage when the subjects have finished reading the selection.

After Reading (Post-lesson)

- Pass out the second copy of the close passage (identical to the pre-lesson copy). Ask the subjects to use the details and key semantic terms they remember to complete the cloze passage.
- When the subjects have completed the cloze passage, show the MS PowerPoint slide of the solution on the projector so that the subjects can see the words that belong in the cloze blanks.
- Review the passage blank-by-blank with the subjects, discussing correct semantic terms, detail, and synonyms for words to fill in the cloze blanks. Ask the subjects to volunteer terms and synonyms they used. Discussion of synonyms and other acceptable blank answers is critical for building reading comprehension and skills in semantic knowledge (vocabulary) within context. Do not skip this essential step.
- Collect and compare the results of the pre-lesson and post-lesson evaluation of the cloze passages to measure the development of reading comprehension and semantic knowledge (vocabulary). Share these results with the subjects so that they can see their progress. This is an effective motivational tool.

Results and Discussion

In this section, the findings of the study are discussed under two parts:

1. Results based on the performances in the following respective areas:
 - a. Expressive word knowledge (Expressive vocabulary);
 - b. Word expression (Oral word reading);

- c. Reading comprehension (cloze);
 - d. Reading experience (Exposure to environmental print and other experiential encounters with printed materials); and
 - e. School semestral English language examination (focus on only the section on comprehension cloze).
2. Correlational analysis of results by comparing pre-treatment and post-treatment scores obtained from the following four standardized tests as well as the results of the section on comprehension cloze taken from the first and second semestral English language examination papers:
- a. Aston Vocabulary Scale: a subtest of the Aston Index-Revised;
 - b. Singapore Word Reading Test-Second Edition;
 - c. GAP Reading Comprehension Test; and
 - d. Rating Scale of Reading Experience.

PART 1: Performance in Expressive Word Knowledge (Expressive Vocabulary)

Table 4.2 shows the pre-treatment and post-treatment scores (in months) as obtained from the administration of the Aston Vocabulary Scale taken from the Aston Index-Revised.

Table 4.2: Performance in Expressive Word Knowledge/Expressive Vocabulary

Phase (N=23)	Paired Differences					t (df)	Sig. (2-tailed p)	Effect size (d)	
	Mean (in months)	SD	Variance (σ^2)	SEM	95% Confidence Interval of the Difference				
					Lower limit				Upper limit
Pretest (Test 1)	91.74	9.50	90.29	1.98	-	2.1781	1.3048 (44)	0.1987	0.39
Posttest (Test 2)	95.74	11.22	125.93	2.34	10.1781				

The mean score (in months for age equivalent) for expressive word knowledge based on the administration of the Aston Vocabulary Scale improved from 91.33 (SD=9.50; $\sigma^2=90.29$) at pretest to 95.74 (SD=11.22; $\sigma^2=125.93$) at posttest, after six months of remedial lessons covering word knowledge and comprehension cloze.

A paired *t*-test was carried out on the pretest and posttest scores (in months) of the Aston Vocabulary Scale subtest of the Aston Index-Revised to confirm if the 23 subjects who were matched on this variable were indeed significantly different. By conventional criteria, the results indicated that there was no statistically significant difference between the pretest and posttest

scores, $t(44) = 1.3048$, 2-tailed $p = 0.1987$, with a standard error of difference = 3.066. The 95% confidence interval of this difference is from -10.1781 to 2.1781. The effect size (d), which measures the magnitude of the treatment effect (Cohen, 1988) on the subjects' expressive word knowledge/vocabulary, was computed using Ray and Shadish's (1996) Equation II, and d was 0.39, i.e., the size of effect was small.

The Aston Vocabulary Scale subtest results showed that there was no significant difference before and after treatment (having undergone the remedial lessons) in the 23 subjects' performance in expressive word knowledge. The positive impact (size of effect) of the treatment on the subjects' expressive word knowledge was small.

Performance in Word Expression/Oral Word Reading

Table 4.3 shows the pre-treatment and post-treatment scores (in months) as obtained from the administration of the Singapore Word Reading Test-Second Edition (SWRT-2).

Table 4.3: Performance in Word Expression/Oral Word Reading

Phase (N=23)	Paired Differences					t (df)	Sig. (2-tailed p)	Effect size (d)
	Mean (in months)	SD	Variance (σ^2)	SEM	95% Confidence Interval of the Difference			
					Lower limit			
Pretest (Test 1)	107.74	12.66	160.29	2.64	-	1.7972	0.1294	0.47
Posttest (Test 2)	113.65	13.27	176.06	2.77	13.6172			

The mean score (in months for age equivalent) for word expression/oral word reading based on the administration of the Singapore Word Reading Test-Second Edition improved from 107.74 (SD=12.66; $\sigma^2=160.29$) at pretest to 113.65 (SD=13.27; $\sigma^2=176.06$) at posttest, after six months of remedial lessons covering word knowledge and comprehension cloze.

A paired t -test was carried out on the pretest and posttest scores (in months) of the Singapore Word reading Test-Second Edition to confirm if the 23 subjects who were matched on this variable were indeed significantly different. By conventional criteria, the results indicated that there was no statistically significant difference between the pretest and posttest scores, $t(44) = 1.5454$, 2-tailed $p = 0.1294$, with a standard error of difference = 3.824. The 95% confidence interval of this difference is from -13.6172 to 1.7972. The effect size (d), which measures the magnitude of the treatment effect (Cohen, 1988) on the subjects' word expression/oral word reading, was computed using Ray and Shadish's (1996) Equation II, and d was 0.47, i.e., the size of effect was small.

The Singapore Word Reading test-Second Edition results showed that there was no difference before and after treatment (having undergone the remedial lessons) in the 23 subjects' performance in word expression/oral word reading. The positive impact (size of effect) of the treatment on the subjects' oral word reading was small.

Performance in Reading Comprehension (Cloze)

Table 4.4 shows the pre-treatment and post-treatment scores (in months) as obtained from the administration of the GAP Reading Comprehension Test using Form B3 and Form R3 for pretest and posttest respectively.

Table 4.4: Performance in Reading Comprehension (Cloze)

Phase (N=23)	Paired Differences					t (df)	Sig. (2-tailed p)	Effect size (d)	
	Mean (in months)	SD	Variance (σ ²)	SEM	95% Confidence Interval of the Difference				
					Lower limit				Upper limit
Pretest (Form B3)	94.78	3.44	11.81	0.72	-	-	5.9557 (44)	<0.0001	1.76
Posttest (Form R3)	102.91	5.57	30.99	1.16	-10.8811	-5.3789			

The mean score (in months for age equivalent) for reading comprehension (cloze) on the administration of the GAP Reading Comprehension Test improved from 94.78 (SD=3.44; σ²=11.81) at pretest to 102.91 (SD=5.57; σ²=30.99) at posttest, after six months of remedial lessons covering word knowledge and comprehension cloze.

A paired *t*-test was carried out on the pretest and posttest scores (in months) of the GAP Reading Comprehension Test to confirm if the 23 subjects who were matched on this variable were indeed significantly different. By conventional criteria, the results indicated that there was an extremely statistically significant difference between the pretest and posttest scores, *t*(44) = 5.9557, 2-tailed *p*<0.0001, with a standard error of difference = 1.365. The 95% confidence interval of this difference is from -10.8811 to -5.3789. The effect size (*d*), which measures the magnitude of the treatment effect (Cohen, 1988) on the subjects' reading comprehension (cloze), was computed using Ray and Shadish's (1996) Equation II, and *d* was 1.76, i.e., the size of effect was large.

The GAP Reading Comprehension Test results showed that there was indeed an extremely significant improvement in the reading comprehension (cloze) of the 23 subjects after having

undergone the remedial lessons. The positive impact (size of effect) of the treatment on the subjects' reading comprehension (cloze) was large.

Performance in Reading Experience

Table 4.5 shows the pre-treatment and post-treatment scores (in months) as obtained from the Rating Scale of Reading Experience.

Table 4.5: Performance in Reading Experience

Phase (N=23)	Paired Differences					<i>t</i> (df)	Sig. (2-tailed <i>p</i>)	Effect size (<i>d</i>)	
	Mean (in months)	SD	Variance (σ^2)	SEM	95% Confidence Interval of the Difference				
					Lower limit				Upper limit
Pretest (Test 1)	97.70	7.02	49.22	1.46	-	2.8199	0.6781 (44)	0.5012	0.20
Posttest (Test 2)	99.13	7.28	53.03	1.52	5.6799				

The mean score (in months for age equivalent) for reading experience, which includes exposure to environmental print other experiential encounters with printed materials, based on the administration of the Rating Scale of Reading Experience improved from 97.70 (SD=7.02; $\sigma^2=49.22$) at pretest to 99.13 (SD=7.28; $\sigma^2=53.03$) at posttest, after six months of remedial lessons covering word knowledge and comprehension cloze.

A paired *t*-test was carried out on the pretest and posttest scores (in months) of the Rating Scale of Reading Experience to confirm if the 23 subjects who were matched on this variable were indeed significantly different. By conventional criteria, the results indicated that there was no statistically significant difference between the pretest and posttest scaled scores, $t(44) = 0.6781$, 2-tailed $p = 0.5012$, with a standard error of difference = 2.109. The 95% confidence interval of this difference is from -5.6799 to 2.8199. The effect size (*d*), which measures the magnitude of the intervention effect (Cohen, 1988) on the subjects' reading experience, was computed using Ray and Shadish's (1996) Equation II, and *d* was 0.20, i.e., the size of effect was small.

The Rating Scale of Reading Experience results showed that there was no difference before and after treatment (having undergone the remedial lessons) in the 23 subjects' reading experience and exposure to print. The positive impact (size of effect) of the treatment on the subjects' reading experience was small.

Performance in Reading Comprehension (Cloze) Section of the School Semestral English Language Examination

Table 4.6 shows the pre-treatment and post-treatment scores (in raw marks with a total raw score = 10; 1 mark per correct answer) as obtained from the First and Second School Semestral Examinations on English language with focus on only the section on Reading Comprehension (Cloze).

Table 4.6: Performance in Reading Comprehension (Cloze) Section of the School Semestral English Language Examination

Phase (N=23)	Paired Differences						<i>t</i> (df)	Sig. (2-tailed <i>p</i>)	Effect size (<i>d</i>)
	Mean (Total raw score: 10; 1 mark per answer)	SD	Variance (σ^2)	SEM	95% Confidence Interval of the Difference				
					Lower limit	Upper limit			
Pretest (SA1)	1.78	0.90	0.81	0.19	-	-	6.9435 (44)	<0.0001	2.05
Posttest (SA2)	4.35	1.53	2.33	0.32	3.3159	1.8241			

The mean score (in raw score out of a total mark of 10) for performance in the section on reading cloze comprehension in the school semestral English language examination improved from 1.78 (SD=0.90; $\sigma^2=0.81$) at pretest to 4.35 (SD=1.53; $\sigma^2=2.33$) at posttest, after six months of remedial lessons covering word knowledge and comprehension cloze.

A paired *t*-test was carried out on the pretest and posttest scores (in raw scores, out of a total mark of 10) of the Reading Comprehension (Cloze) section of the school semestral English language examination to confirm if the 23 subjects who were matched on this variable were indeed significantly different. By conventional criteria, the results indicated that there was an extremely statistically significant difference between the pretest and posttest scores, $t(44) = 6.9435$, 2-tailed $p < 0.0001$, with a standard error of difference = 0.370. The 95% confidence interval of this difference is from -3.3159 to -1.8241. The effect size (*d*), which measures the magnitude of the intervention effect (Cohen, 1988) on the subjects' performance in the Reading Comprehension (Cloze) section of the school semestral English language examination, was computed using Ray and Shadish's (1996) Equation II, and *d* was 2.05, i.e., the size of effect was large.

The results of the section on Reading Comprehension (Cloze) school semestral English language examination results showed that there was no difference before and after treatment (having undergone the remedial lessons) in the 23 subjects' reading experience and exposure to print. The positive impact (size of effect) of the treatment on the subjects' performance in the reading comprehension (cloze) in the school semestral English language examination was large.

Summary of the Findings on Vocabulary, Word Reading, Reading Comprehension (Cloze) and Reading Experience

Findings from the administration of the four standardized tests, i.e., the Aston Vocabulary Scale, the Singapore Word Reading Test-Second Edition and the Rating Scale of Reading Experience showed no significant difference in the improvement of results between pre-treatment and post-treatment in expressive word knowledge (expressive vocabulary), word expression (oral word reading), and reading experience.

However, the findings from the administration of the GAP Reading Comprehension Test in the study showed that there was an extremely significant difference in the improvement of results between pre-treatment and post-treatment in reading comprehension (cloze). Similar positive results were also noted in school semestral English language examinations between SA1 and SA2 for the Reading Comprehension (Cloze) section of the paper.

The effect size or impact of the treatment, i.e., the remedial lessons, on the subjects' performance in each of the following variables – expressive word knowledge (expressive vocabulary), word expression (oral word reading) and reading experience – was small though not trivial, unless d is less than 0.20 (Cohen, 1988). However, the positive impact (size of effect) of the treatment on the subjects' performance in reading comprehension (cloze) was large. In other words, the treatment was effective in contributing to the subjects' better performance in reading comprehension (cloze), which was also confirmed in the subjects' better performance in their SA2 results for the Reading Comprehension (Cloze) section of the English language examination paper.

PART 2: Correlational Analysis of Results among the Four Standardized Tests

Table 4.7 shows the inter-correlational reliability coefficients between and among the four standardized tests – Aston Vocabulary Scale (VO), the Singapore Word Reading test-Second Edition (WR), the GAP Reading Comprehension Test (RCC) and the Rating Scale of Reading Experience (RE) – administered as well as the results (in raw scores with a total mark of 10; 1 mark per correct answer) obtained from the section on Reading Comprehension (Cloze) taken from the first school semestral English language examination paper (SA1), were computed from the scores of these respective tests at the pre-treatment phase.

Among the tests, all except the inter-correlational reliability coefficient r of 0.60 between SA1 and RE were far too low, insignificant and not reliable.

Table 4.7: Inter-correlational Reliability Coefficients at Pre-Treatment Phase

	VO	WR	RCC	RE
VO				
WR	0.29			
RCC	0.25	0.09		
RE	0.49	0.04	0.22	
SA1	0.46	0.26	0.29	0.60

Key: VO Expressive Vocabulary/Expressive Word Knowledge
 WR Oral Word Reading/Word Expression
 RCC Reading Cloze Comprehension
 RE Reading Experience

Table 4.8 shows the inter-correlational reliability coefficients between and among the four standardized tests – Aston Vocabulary Scale (VO), the Singapore Word Reading test-Second Edition (WR), the GAP Reading Comprehension Test (RCC) and the Rating Scale of Reading Experience (RE) – administered as well as the results (in raw scores with a total mark of 10; 1 mark per correct answer) obtained from the section on Reading Comprehension (Cloze) taken from the first school semestral English language examination paper (SA2), were computed from the scores of these respective tests at the post-treatment phase.

Among the tests, all except the inter-correlational reliability coefficient r of 0.59 between SA2 and RCC were far too low, insignificant and not reliable.

Table 4.8: Inter-correlational Reliability Coefficients at Post-Treatment Phase

	VO	WR	RCC	RE
VO				
WR	0.23			
RCC	0.22	-0.32		
RE	0.43	-0.20	0.34	
SA1	0.34	0.05	0.59	0.41

Key: VO Expressive Vocabulary/Expressive Word Knowledge
 WR Oral Word Reading/Word Expression
 RCC Reading Cloze Comprehension
 RE Reading Experience

Summary of the Inter-correlational Findings on the Vocabulary, Word Reading, Reading Cloze Comprehension, Reading Experience and School Semestral Examination (Reading Cloze Comprehension)

It is interesting to note that only RE showed the best inter-correlation ($r = .60$) with the SA1 at pre-treatment phase, while RCC showed the best inter-correlation ($r = .59$) with SA2 at post-treatment phase. All the other variables such as VO and WR did not correlate significantly with

SA1 and SA2. In fact, VO, WR, RCC and RE did not show any significant inter-correlation with one another. However, it is important to take note that correlation is not necessarily causation.

One possible explanation why RE correlated well with SA1 is that initially the subjects depended heavily on their own limited prior knowledge and background experience to aid them in filling up the cloze blanks. Being weak readers, the subjects neither read widely nor regularly. Hence, they relied on their own poor knowledge and inadequate experience to complete the cloze exercises given to them.

The other explanation why RCC, not RE, correlated well with SA2 is that after the subjects had undergone 6 months of treatment using the semantic cloze procedure, they felt more proficient than before in completing the cloze exercises. Each subject learnt to master the cloze strategy as a skill to the best of his/her ability. As mentioned in the previous chapter, Bloomer (1962) has found that “the cloze procedure does have a positive effect on comprehension and grades” (p.178). However, if the cloze procedure is not working as well as it has been expected, it is because that completing a cloze exercise may be a skill unto itself that most students have not fully or adequately mastered it (Carroll, 1959).

Conclusion

The primary purpose of this study was to evaluate the efficacy and effects of the use of semantic cloze procedure to help a group of weak readers to improve in their performance in reading comprehension. On the whole, the current literature has failed to provide a definite conclusion that cloze procedure is an effective remedial strategy to improve reading comprehension. Based on the findings of this study, we felt that more could still be done to fine-tune its focus, especially in the area of correlation between syntactic knowledge and semantic knowledge and their impact on cloze procedure as a remedial technique.

As previously stated, another purpose of this study was to evaluate the efficacy and effects of increased exposure to semantic knowledge on the participants’ performance in reading comprehension. However, as findings of this current study showed that there was no significant improvement before and after intervention in the 23 students’ performance in expressive word knowledge and reading experience, evaluation of the connection between reading comprehension and word knowledge was not possible. We would seek to suggest two possible reasons for the insignificant improvement in expressive word knowledge and reading experience for the 23 participants.

Firstly, as stated by Nagy (1988), the third ingredient for powerful vocabulary instruction is meaningful use. However, the dominant language used and spoken at home and among friends for almost all the 23 participants was not English and thus this would have limited their opportunities for meaningful use of the instructed words learnt in school. That is to say, English language is usually used only when emphasis is stressed by teachers. As a result, a lack of opportunities for application of the instructed words meaningfully could have led to the insignificant improvement in semantic knowledge.

Secondly, a number of researchers had suggested students' motivational levels as determinant of academic performance (Aderman, 1999, Elliot & Harackiewicz, 1996, Goodman et al., 2011). A general observation made was that majority of the participants were not motivated or interested in giving of their best performance during the remedial sessions or under testing situations. In most cases, participants were eager to complete the tasks rather than seeking to achieve their best performance. Moreover, due to a lack of parental interest in the children's academic performance in school, some of the students simply do not have the desire or interest to do well in school. Consequently, the lack of motivation or interest to excel academically could have led to the insignificant improvement in semantic knowledge.

Limitations and Interferences

There are several limitations and interferences noted in this study. These are mentioned briefly below:

1. The weak readers form a wide spectrum of struggling readers. There is a need to narrow our scope to focus on a specific group of weak readers: either reluctant readers or disabled readers.
2. We acknowledge the possibility of four kinds of effects that might impact the findings of this study:
 - a. Hawthorne effect: It is a form of reactivity whereby subjects improve/modify certain aspects of their behavior that were being experimentally measured simply in response to the fact that they are being studied (Fox, Brennan, & Chasen, 2008; McCarney et al., 2007). The improvement in their SA2 cloze comprehension could be impacted by the motivational effect of the interest being shown in them. Moreover, it was difficult to control other factors (e.g., more attention being paid to the subjects) of the treatment which might influence the results of this study.
 - b. Observer/experimenter-expectancy effect: This is a form of reactivity in which the observer's cognitive bias can unconsciously influence the subjects of the study. The first author did not keep any qualitative case record of each subject's progress based on the observations done by her. Even if it was ever done, it could be a very subjective or biased viewpoint, since the first author, being the teacher to implement the treatment was quite aware of the study's purpose and hence, was more likely to have an expectation of improvement than what the findings had suggested.
 - c. Placebo effect: This refers to a phenomenon of a perceived or actual improvement in the subjects' performance in cloze comprehension as a result of the treatment, which may or may not benefit the subjects (Moerman & Jonas, 2002). Any informal feedback from the participating subjects on their progress could be some kind of placebo effect, i.e., a measurable, observable or felt improvement in behavior not attributable to the treatment that was administered.
3. We have also noted that it is difficult to stop parents from sending their children for extra lessons or private tuition outside school (without informing me as they were not obliged to do so) while the subjects were still undergoing the 6-month semantic cloze procedure. Hence, it became difficult to conclude if the semantic cloze procedure was the treatment that had helped or failed to help these subjects, and not because of the extra lessons or private tuition that they had sought, too.

Recommendations

Based on this study, we have two main recommendations to be made for future studies on semantic cloze procedure as a remedial teaching technique.

The first recommendation concerns the experimental validity of the study. For it to be valid, it must truly represent what it was intended to represent. Experimental validity refers to the manner variables influence both the results of the study and the generalizability to the population at large. As mentioned earlier, we have identified three possible effects on the results of this study: observer/experimenter expectancy effect, placebo effect and Hawthorne effect. In order to avoid the observer/experimenter expectancy effect, which is a significant threat to the internal validity of the study, we would recommend that in any future study, it is better to use a double-blind experimental design for a better control of any influencing factor, which can invalidate the findings. Next, similar to the placebo effect, in addressing the issue of avoiding the Hawthorne effect, it will be helpful to employ a control group to measure the effect of those not receiving any treatment in future studies. In this sense, the control group is being observed and see if those subjects in the group would exhibit similar changes in their behaviors as the experimental group, and, therefore, negating the Hawthorne effect.

Our second recommendation is that while the GAP Reading Comprehension Test (McLeod, 1990) is a good standardized measure to assess the examinee's reading comprehension through cloze procedure, it would also be better to use another standardized non-cloze assessment such as the Neale Analysis of Reading Ability-Third Edition (NARA-III) and the Oral and Written Language Scales-Second Edition (OWLS-2). A comparison of the results between a cloze and a non-cloze comprehension assessment would provide us a clearer picture of whether indeed that cloze procedure is an effective strategy to improve reading comprehension.

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Appendix I

A Sample of an Informational Text

THE FELINE: From Goddess to Pet

The cat has a history as fascinating and mysterious as the creature itself. The true beginnings of the domestic cat are unknown, but the cat may have first appeared around 3000 B.C. in a country called Nubia, which bordered Egypt. Egypt later conquered Nubia, and by 2500 B.C., the cat was domesticated in Egypt. The cat's first name in Egypt was Mye or Mau. The mau's status in Egypt grew rapidly; she was eventually considered guardian of the temple and was worshipped as a goddess. Ancient Egyptians believed the cat was the daughter of Isis and Goddess of the Sun and the Moon. They also believed that the glow from a cat's eyes held captive the light of the sun. The goddess Bast, who controlled the life giving sun's heat, had the head of a cat. Besides being worshipped as goddesses, cats also had a practical function: they kept mice from overrunning the Egyptian grain storehouses. Ancient Egyptians carved wooden figures of cats and crafted furniture and jewelry in the shops of cats. Most of the larger art museums today have at least one life-size sculpture of a cat from ancient Egypt.

Killing a cat in ancient Egypt was a crime punishable by death. Cats were mummified when they died and saucers of milk along with mummified rats and mice were placed in the cat's tombs. Cat cemeteries existed along the Nile River and cat mummies have also been found in the tombs of ancient Egyptians.

Although law prevented exporting cats from Egypt, cats were frequently stolen by Phoenician traders and taken to Mediterranean countries. Egyptian soldiers were encouraged to take any cats they saw during their foreign travels and bring them back to Egypt, their true home.

When Persia attacked the Egyptian city of Pelusium, the Persian king was aware of the Egyptians' devotion and loyalty to the cat and he devised a plan: he ordered his soldiers to search the city and take any cat they found. During the next attack, his soldiers each held up a live cat as they came near the Egyptian borders. Rather than harm the cats, the Egyptians surrendered their city to Persia.

The Greeks were probably the first Europeans to recognize cats for their mouse-catching talents. When Egyptians refused to sell or trade any of their cats, the Greeks stole several of the Egyptian cats and sold the kittens of these stolen cats to Roman, Gauls, and Celts. The cat became the symbol of liberty in ancient Rome. Roman artists often showed Libertus, the Goddess of Liberty, with a cat lying at her feet.

Cats were domesticated in India and the Far East later than in Egypt, around 2000 B.C. People in India and China praised cats for their ability to catch rats and mice. Ancient Chinese believed that cats brought good fortune and that the glow from a cat's eyes frightened away evil spirits.

In Burma and Siam it was believed that the souls of departed people lived in the bodies of sacred cats before moving on to the next life. Cats lived in the temples and palaces of Siam) which is now Thailand). In Japan religious ceremonies were sometimes held for the souls of departed cats. Cats in Japan were required to be kept on leashes until 1602; a law was then passed to set the cats free to kill the rats, which were hurting the silkworms.

By the end of the eleventh century cats were popular among sailors because of their rat-catching skills. Sailors admired cats because they destroyed disease-infested rats, which lived on ships. Many sailors believed that cats possessed special powers that could protect them at sea.

Although the cat was held in high regard and fancied during ancient times, the cat didn't fare well in Europe during the Middle Ages. Leaders of the Christian church began a campaign against cats. They were slaughtered in masses in just about all of Europe, which led to the near extinction of cats in Europe by 1400. Cats were associated with evil, witchcraft, voodoo, and black magic. Many people believed that witches regularly transformed themselves into cats. Men and women were tortured or even killed for helping a sick or injured cat. During the witch-hunts in Europe many innocent people were accused of witchcraft simply because they owned cats. Black cats were especially feared.

Why were cats persecuted during Europe's Middle Ages? Possibly because they travelled at night, and often bonded with elderly women living alone who were frequently victims of witchcraft accusations by suspicious neighbors. The aloofness and independent nature of cats may have added to the belief that they were evil. This terrible period of persecution of cats lasted about 400 years, but never spread to India or the Middle and Far East. By the eighteenth century, cats were once again looked upon favorably. In 1835, a law was passed in England forbidding the mistreatment of any animals.

Traders from the Orient, explorers, and colonists brought cats to the Americas in the 1700's. Cats even travelled to North America with the Pilgrims on the Mayflower. Most of these immigrant cats are ancestors of cats living here today.

Cats have lived with kings as well as presidents. White cats were popular among royalty, like Louis XV of France. Japanese and Chinese emperors owned white cats. Cats lived with Abraham Lincoln, Theodore Roosevelt, Calvin Coolidge, Herbert Hoover, Ronald Reagan, and Bill Clinton. Napoleon may have hated cats but his conqueror, the Duke of Wellington, was a cat lover, as was Queen Victoria. France's Cardinal Richelieu provided for the future care of his fourteen cats in his will. In India today the Hindu religion urges followers to provide food and shelter for at least one cat.

Some legends and superstitions about cats exist today, like that about the nine lives of cats. Another legend that survived from Europe's Middle Ages into the present states that on every black cat there is a single hair that is white. If you remove it without the cat scratching, this white hair will bring you wealth of luck in love. One superstition states that a black cat crossing one's path brings bad luck, but in Great Britain black cats are thought to bring good luck.

Today the elegant, graceful cat has become a popular house pet throughout the world. The cat is one of the smartest of tame animals. They are independent and hard to train. Cats are valued for

their gentle, affectionate natures. They have good memories; they remember who treats them well and who treats them badly. A cat's loyalty is earned; a cat won't stay where it is mistreated. They respond to loving owners with loyalty, affection, and respect.

Cats are noted for their keen senses: their sharp hearing, sense of smell, and ability to see in near darkness. Not only are the cat's eyes beautiful but their eyes are the largest in proportion to body size when compared to other animals. Cats are clean and have been praised for their mysterious, exotic looks. Perhaps Leonardo DaVinci summed it up best when he referred to the cat as "Nature's Masterpiece".

SOURCE: Coll, J. 2000. 'The Feline: From Goddess to Pet'.
http://www.indiana.edu/~eric_rec/fl/pcto/feline.htm.

Appendix II

INSTRUCTIONAL TEXT

The Trial of Anne Hibbins

❖ Learning the Strategy

Cloze is designed to help you understand and remember more of what you read. For this activity, you'll have to supply the missing words from a reading. It's a test that will build reading comprehension and vocabulary skills. You'll be able to tackle new reading material and use what you already know to help you figure out new words that are unfamiliar to you.

⊗ Practicing the Strategy

1. Read the cloze passage and try to fill in the blanks using what you already know about the topic. Also, use the sentences in the cloze passage to see if you can figure out words that would make sense in the blanks.
2. Next, read the complete passage. Concentrate and try to remember the details and terms you needed to know to complete the cloze activity.
3. Now, read the cloze passage again and try to fill in the blanks using what you remember from the reading passage. If you do not remember the exact term, see if you can fill in the blank with a synonym, which is a word that means the same thing.
4. Compare your responses from the first and second cloze activities to see if your understanding improved after reading the passage. Hopefully, each time you do this activity, your comprehension will improve!

Appendix III

CLOZE PASSAGE

The Trial of Anne Hibbins

The early history of the Massachusetts Bay Colony will forever be tainted by the witch trials during the 1600s. No real _____1_____ was needed in those days to convict a person of being a witch; sometimes only the word of a neighbor or even a child was enough to put someone to death.

The mass hysteria, trials, and hangings during 1692 are perhaps the most memorable: 156 _____2_____ people were accused, 30 were convicted of _____3_____, and 19 were executed. But 40 years earlier in that century, the same practice occurred. One well known case was the trial of Anne _____4_____.

Hibbins' family had emigrated to Massachusetts from England and was quite _____5_____ from the beginning. Her biggest problem, however, was her strong-mindedness and _____6_____ nature, which caused tension and ill-will among her neighbors and fellow church-goers. When she entered into a _____7_____ with the Puritan church in 1640, the church elders excommunicated her. Then, after her husband's _____8_____ losses and eventual death in 1654, Hibbins no longer had the protection of social status and wealth.

Overhearing neighbors talking about her, Anne _____9_____ nearly everything they said. This led to the accusation that she had _____10_____ powers. In 1655, she stood before a jury, accused of being a _____11_____, and was found guilty. Although the magistrates reviewed the verdict and _____12_____ it, her accusers pushed to have her _____13_____ before the General Court, where she was once again found guilty. The governor sentenced her to death by _____14_____.

Sadly, she had correctly _____15_____ what they were saying about her in the street that day, and her cleverness sent her to the gallows. Minister John Norton commented that Hibbins was hanged for having more wit than her neighbors.

ANSWERS:

- | | | |
|----------|-----------|-----------|
| 1. _____ | 6. _____ | 11. _____ |
| 2. _____ | 7. _____ | 12. _____ |
| 3. _____ | 8. _____ | 13. _____ |
| 4. _____ | 9. _____ | 14. _____ |
| 5. _____ | 10. _____ | 15. _____ |