THE EFFECT OF SEMANTIC MAPPING STRATEGY TRAINING ON READING COMPREHENSION OF SCIENTIFIC TEXTS AMONG MATRICULATION STUDENTS

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DEDICATION

This Graduation Project is dedicated to my dearest family for giving the strength and confidence in me. Especially to my beloved husband, Musli Nizam and my lovely daughter, Nurul Munawwarah who had put up with a busy wife and mother, my dearest parents, Hajjah Juariah and Hj Mohd Junaid, my in-laws and also my only sister, Nurjehan. Thank you very much to all for being understanding and giving me all the encouragement to excel in my studies.

DECLARATION

I hereby declare that the work in this dissertation is my own except for quotations and summaries which have been duly acknowledged.

Date:_____ _____

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ABSTRACT

THE EFFECT OF SEMANTIC MAPPING STRATEGY TRAINING ON READING COMPREHENSION OF SCIENTIFIC TEXTS AMONG MATRICULATION STUDENTS

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The objective of this study is to examine the effects of semantic mapping on the reading comprehension of scientific texts among Matriculation college students. This study sought to determine if there are any benefits in instructing Matriculation students to use semantic mapping as means of improving their comprehension of information in scientific texts. The sample consisted of 60 Matriculation students in two different Biology Science classes from Perak Matriculation College (KMPk). One class was assigned as the experimental group, while the other class as the control group. Both experimental and control groups were given the pretest and posttest. The experimental group received the semantic mapping training while the control group did not receive any special training except for normal learning sessions. The 60 students chosen for this study were those considered to be above average in English proficiency as determined by the results of the Malaysian University English Test (MUET) 2004. The findings indicated that semantic mapping strategy training affected the reading comprehension performance of scientific texts among Matriculation college students. The experimental group that received the semantic mapping training improved significantly in their posttest. The findings imply that ESL

teachers should encourage their students to use semantic mapping in their reading instruction as it facilitates comprehension.

ABSTRAK

Kesan Penggunaan Peta Minda Dalam Pemahaman Pembacaan Text Berunsurkan Sains Di Kalangan Para Pelajar Matrikulasi

Thuwaibah Binti Mohd Junaid

Objektif kajian ini adalah untuk mengenalpasti kesan penggunaan peta minda dalam pemehaman pembacaan text berunsurkan sains di kalangan para pelajar matrikulasi. Kajian ini ingin melihat jika terdapat kelebihan peta minda dalam pengjaran dan pembelajaran. Sampel kajian terdiri daripada 60 pelajar Kolej Matrikulasi Perak (KMPk) daripada jurusan Sains Hayat. Pelajar-pelajar ini dibahagi kepada dua kumpulan; 30 pelajar kumpulan rawatan dan 30 pelajar kumpulan kawalan. Kedua-dua kumpulan ini menduduki ujian pra dan pos. Hanya kumpulan rawatan yang menerima latihan di dalam penggunaan peta minda selama satu minggu. 60 pelajar ini dianggap cemerlang berdasarkan pada keputusan ujian MUET 2004. Dapatan kajian menunjukkan bahawa peta minda telah memberi kesan kepada pemahaman pembacaan para pelajar di dalam kumpulan rawatan. Keputusan menunjukkan perubahan yang ketara dalam ujian pos berbanding dengan kumpulan kawalan. Keputusan kajian ini boleh dijadikan panduan untuk para pendidik menggunakan peta minda dalam pengajaran dan pembelajaran.

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LIST OF ABBREVIATIONS

1.	KMPk	:	Kolej Matrikulasi Perak
2.	SPM	:	Sijil Pelajaran Malaysia
3.	MUET	:	Malaysian University English Test
4.	SPSS	:	Statistical Package for Social Science
5.	UPSI	:	Universiti Pendidikan Sultan Idris

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

In Malaysia, the Government has been encouraging the use of the English language and has, in fact, embarked on some adjustments in the education system by introducing the use of English in the teaching of Science and Mathematics. The decision taken was not easy as language is always a controversial and sensitive issue for Malaysians.

However, the government was of the view that this change was not only necessary but also vital to Malaysia's ability to keep pace and move ahead in the fast changing world. There was a lot of negative feedback from the hardliners on this new education system. This move was greeted by these hardliners with a chorus of criticisms and accusations, but the Government realized that we need to start somewhere as English has become the global lingua franca. Due to this Malaysians are encouraged to embrace English as their language of knowledge.

As English has now developed to become the language of knowledge and most of today's reading materials are written in English, a lot of non-native students are required to gain information from various fields of knowledge through the medium of written English. For students who are pursuing their studies in tertiary education, English is significantly important because through reading materials written in English, these students are able to exploit in depth any topic of interest. Specifically, in this Information Age, information and knowledge needed for us to develop further are found mostly in English written materials and college students find the need and necessity to carry out an extensive amount of reading these materials in order to undertake term assignments. Therefore, in order to meet their needs, college students need to show that they have increasing independence in their ability to acquire information from what is read. In other words, college students must be able to read efficiently in order to gain information from the texts they read.

There are several reading strategies that can be practiced by college students to help them comprehend expository texts they read. This present study examines one of several metacognitive strategies in reading that can be practiced by college students in order to help them gain information needed from various expository texts.

1.2 Metacognitive Strategies in Reading

No one can deny that the main goal of all reading instruction is comprehension. According to Nalder (1989), "……for all readers at all stages, reading for meaning is essential" (pg. 16). The ability to gain meaning from a piece of textual text involves extremely complex cognitive processes which requires that the reader make use of available contextual clues, competency in the written language of the text, as well as knowledge of the world at large.

Many college students continue to struggle with reading and writing. They are often unaware that they can actively participate in the reading process through use of metacognitive strategies, "the deliberate conscious control of one's own cognitive actions" (Baker & Brown,1985, pg. 453), or "the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective" (Flavell, 1979, pg 232).

The term "metacognitive" was introduced by Flavell (1979) consisting primarily of an understanding or perception of the ways different factors act and interact to affect the course and outcome of cognitive enterprises. Tei and Steward (1985) defined metacognitive as "having knowledge (cognitive) and having understanding, control over and appropriate use of that knowledge" (pg. 2). In other words, 'metacognition' can simply be defined as 'thinking about thinking'.

Learners who are metacognitively aware have their own strategies in order to find out or figure out what they need to do.

Nowadays, educators are still interested with the idea that student can be taught to independently employ specific reading strategies during the reading process. Garner (1988) had written that "…metacognitive processes are those processes in which the individual carefully considers thoughts in problem solving situations through the strategies of self-planning, self-monitoring, self-regulating, self-questioning, self-reflecting, or self-reviewing." (pg.29)

Traditional remedial courses often do not ask students to engage with texts, but instead focus on rote drills at a phrase or sentence level. The technique which is the focus of this research, the graphic organizer, is one which helps develop metacognitive awareness and reader engagement by asking students to interact with the text as a whole. Graphic organizers require direct interaction with the text more than other metacognitive strategies because more engagement is necessary during the construction of the organizers. These organizers are often called by a number of different names: semantic webs or maps, idea, discussion or story webs, and flow charts.

From the above statement, it is clear that the focus of this present study is on the effects of semantic mapping strategy training on the reading comprehension of expository texts among college students. Semantic mapping is the metacognitive strategy training in reading that will be discussed in this study.

1.3 Semantic Mapping

Generally, semantic mapping is defined simply as a visual strategy for vocabulary expansion and extension of knowledge by displaying in categories words related to one another (Antonacci, 1991). Semantic mapping is an adaptation of concept definition mapping but builds on students' prior knowledge or schema. While it draws on prior knowledge it recognizes important components and shows the relationships among the components. The framework of semantic mapping includes: the concept word, two category examples, and other examples. This is a very interactive process and should be modeled by the teacher first.

Hanf (1971) was the first to develop the mapping procedure; it was originally designed to improve the teaching of study skills. Semantic mapping is a term which embraces a variety of strategies designed to display graphically information within categories related to a central concept. Research indicated that semantic mapping can be a very useful reading strategy and a good alternative to traditional prereading and postreading activities (Carell, Pharis & Liberto, 1989). Semantic mapping involves brainstorm session in which students are to develop a map based on a topic before or after reading a text. It is effective for vocabulary development. In prereading and postreading activities, semantic mapping can be used in introducing the key vocabulary from the reading passage and also

provides the teachers with an assessment of the background knowledge. (Rasekh & Rajbary, 2003)

Dunston(1992) reviewed the research on different types of graphic organizers and concluded that semantic maps were most useful as post reading organizers. Griffin and Tulbert (1995) suggest that the use of semantic mapping is most beneficial as a post reading activity when used with lengthy passages.

Reading theorists have likened the process of reading comprehension to the building of bridges between the new and the unknown (Pearson, Hansen & Gordon, 1979). Since the 1970s, a number of schema researchers have demonstrated that having background knowledge of text structure helps to build comprehension (Carrell, 1987). Certainly, one of the major benefits of semantic mapping is that it helps to build schemata; however, this is only one of many possible benefits of using semantic mapping activities in reading classrooms.

Some researchers have found semantic mapping to be an effective teaching strategy in different areas of reading instruction. A study by Toms-Bronowski (1983) found that middle grade students who learned new vocabulary words through the use of semantic mapping and semantic feature analysis did better than students who relied upon other methods of learning vocabulary. Reutzal (1984) found the creation of maps to represent story elements improved the comprehension of basal reading stories by fifth grade students. Troyer (1994) reported semantic mapping to be an effective strategy in improving both the

reading comprehension and writing performance of upper elementary school children.

Bromley (1991) states that mapping develops schema by allowing new information to be related to prior knowledge. Bos and Anders (1992) used semantic mapping as one of the experimental conditions in a study of metacognitive strategies with learning disabled bilingual students. They found that because of their interactive nature, the use of semantic mapping was found to be an effective instructional tool in the learning of content area concepts. Armbuster and Anderson (1984) found that semantic mapping helps students to analyze the relationships between ideas in the text, thereby facilitating comprehension and the recall of ideas at a later time.

In the Malaysian context, studies on metacognitive strategies in reading do exist, but the issue of the effects of semantic mapping on reading comprehension remains an unexplored area. As shown in past researches, semantic mapping is an effective teaching strategy in different areas of reading instruction. Based on the previous researches findings mostly done in the West that are mentioned above, the present study sought to determine the effects of semantic mapping on reading comprehension of scientific text among Malaysian Matriculation College students.

1.4 Problem Statement

Most Malaysian classroom observations in schools and tertiary level show that ESL students face problems in comprehending texts in English (Ting, 1995). The lack of ability to comprehend texts in English is a major obstacle in academic pursuit for ESL students at tertiary level as they need to read for information from reference books written in English.

It has often been mentioned that as ESL students progress through college, they may experience difficulty in reading. This is because of the higher expectations of the varied types of texts, especially those related to their academic disciplines. At tertiary level, a unique characteristic of advanced informational materials is that they are mostly expository. Students who are familiar with the structure of narrative material are often at a loss to organize or to recognize organization in expository texts. They find it difficult to see the relationships of the ideas and information and they have difficulty in recalling information. (Naughton, 1993). This essentially means that students have to use specific reading strategies in helping them to comprehend the texts they read as the reading and understanding of expository texts appear to be of paramount importance when students need to produce term paper reports and assignments.

The lack of research in determining the effects of semantic mapping on the reading comprehension of college students formed the impetus for conducting this

study. To the best of the researcher's knowledge, similar research has not been conducted in Malaysia, especially among college students.

1.5 Rationale of the study

Due to the changes in the education system, where Mathematics and Science are to be taught in English, the Matriculation Division, under the Ministry of Education , Malaysia, had also started the usage of English in the teaching and learning of Mathematics and Science subjects early 2003. All the textbooks were prepared in English. These students were never exposed to the teaching and learning of Mathematics and Science in English when they were in schools. Thus, they may face difficulty in understanding texts written in English.

Generally, this study aims to examine whether semantic mapping can be introduced to students in Matriculation College who are taking science subjects in order to understand the various expository texts that contain a lot of details and use information needed from these texts to be used in their lab reports or assignments. This study developed out of recognition that only a small body of research into the use of semantic mapping among college students exist and that instruction in this metacognitive strategy might prove useful to college students.

It is hoped that the present study will provide a sharper focus on the effectiveness of semantic mapping on expository reading.

1.6 Purpose of the study

The purpose of this study is to examine the effects of semantic mapping on the reading comprehension of scientific texts among Matriculation college students. This study sought to determine if there are any benefits in instructing Matriculation students to use semantic mapping as a mean of improving their comprehension of information in scientific texts. The effects will be measured by comparing the results of pretest and posttest conducted among the students in experimental and control groups. Specifically, this study is based on these objectives:

1. To identify the difference in the comprehension test performance between the experimental group and control group in the pretest.

2. To identify the difference in the comprehension test performance between the experimental group who received semantic mapping strategy training and the control group who did not receive any training in the posttest.

1.7 Research Questions

On the basis of what this study attempts to investigate, two basic research questions are formulated. They are

1. Is there a significant difference in the comprehension test performance between the experimental group and control group in the pretest?

2. Is there a significant difference in the comprehension test performance between the experimental group who received semantic mapping strategy training and the control group who did not receive any training in the posttest?

Based on the research questions, this null hypothesis is tested;

Null Hypothesis

H_0 : There is no significant difference in the post test scores between the experimental group who received semantic mapping strategy training and the control group who did not receive any training in semantic mapping.

1.8 Significance of the study

Reading is an important receptive skill which enables students to have access to information and reference materials. In Malaysia, where Bahasa Melayu is the medium of instruction, students are usually able to read and comprehend texts in Bahasa Melayu However, when these students are confronted with texts in English, comprehension difficulties often occur. The students may face problems to grasp the important information from texts that contain a lot of details. It is important that a study be conducted to obtain a clear picture of how certain reading strategies can help students to comprehend expository texts.

The main aim of this study is to therefore examine if the semantic mapping strategy training will enhance performance in reading comprehension. Answers obtained to the mentioned research questions will promote the understanding of the reading strategy among the college students. This in turn will have implications for the teaching of reading in English language classrooms.