Effects of Schema-Activating Pre-reading Questions on English Reading Comprehension : A Case Study of M.5 Students, PSU Demonstration School

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ชื่อวิทยานิพนธ์	ผลของคำถามก่อนอ่านเพื่อกระตุ้นความรู้เดิมต่อความเข้าใจในการอ่านภาษาอังกฤษ กรณีศึกษานักเรียนชั้นมัธยมศึกษาปีที่ 5 โรงเรียนสาธิตมหาวิทยาลัยสงขลานครินทร์
ผู้เขียน	นางสาวทยภร กระมุท
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ปีการศึกษา	2543

บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาผลของคำถามก่อนอ่านเพื่อกระตุ้นความรู้เดิมที่มีต่อความเข้าใจในการอ่านภาษาอังกฤษของนักเรียนชั้นมัธยมศึกษาปีที่ 5 โรงเรียนสาธิตมหาวิทยาลัยสงขลานครินทร์ ในแง่ของระดับความเข้าใจและเวลาที่ใช้ในการอ่าน

กลุ่มตัวอย่างมีจำนวน 58 คนซึ่งคัดเลือกโดยใช้แบบทดสอบวัดความสามารถทางการอ่าน แบ่งเป็น กลุ่มทดลองและกลุ่มควบคุม กลุ่มละ29 คน แต่ละกลุ่มประกอบด้วยนักเรียนที่มีความสามารถทางการอ่านสูง จำนวน 15 คน และนักเรียนที่มีความสามารถทางการอ่านต่ำ จำนวน 14 คน ก่อนการวิจัยมีการทดสอบเครื่องมือที่จะใช้กับนักเรียนที่มิได้เป็นกลุ่มตัวอย่างจำนวน 30 คนเพื่อหาความเหมาะสมของเครื่องมือและเวลาที่ควรจะใช้ในการอ่าน

การศึกษาแบ่งเป็น 2 ขั้นตอน คือขั้นการฝึกและขั้นการทดสอบ ในขั้นการฝึก กลุ่มตัวอย่างอ่านเนื้อหาจำนวน 6 เรื่องโดยแบ่งเป็น 3 ครั้งครั้งละ 2 เรื่องแต่ละครั้งกำหนดเวลา 1 ชั่วโมง กลุ่มทดลองจะได้รับการฝึกการอ่านโดยมีคำถามก่อนอ่านของแต่ละเรื่อง ในขณะที่กลุ่มควบคุมได้รับการฝึกอ่านแบบไม่มีคำถามก่อนอ่าน ในขั้นการทดสอบ กลุ่มตัวอย่างอ่านเนื้อหาจำนวน 4 เรื่องโดยกำหนดเวลาให้ 2 ชั่วโมง กลุ่มทดลองได้รับคำถามก่อนอ่าน ก่อนที่จะอ่านเนื้อหานั้นๆและตอบคำถามท้ายเรื่อง ในขณะที่กลุ่มควบคุมอ่านเนื้อหาและตอบคำถามท้ายเรื่อง นอกจากนี้ นักเรียนทั้ง 2 กลุ่มจะต้องบันทึกเวลาในการเริ่มต้นอ่านเนื้อหาแต่ละเรื่องและเวลาที่สิ้นสุดของการอ่านแต่ละเรื่องเพื่อเป็นข้อมูลในการหาค่าความแตกต่างระหว่างเวลาที่ทั้ง 2 กลุ่มใช้

ผลของการวิจัยสรุปได้ดังนี้

1. ระดับความเข้าใจในการอ่านภาษาอังกฤษของกลุ่มตัวอย่างทั้งสองกลุ่มแตกต่างกัน โดยกลุ่มทดลองทำคะแนนการอ่านได้ดีกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01

2. เวลาที่ใช้ในการอ่านภาษาอังกฤษของกลุ่มตัวอย่างทั้งสองกลุ่มแตกต่างกัน โดยกลุ่มทดลองใช้เวลาในการอ่านน้อยกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.01

3. ไม่มีสหสัมพันธ์ระหว่างความสามารถในการอ่านภาษาอังกฤษกับเวลาที่ใช้ในการอ่านภาษาอังกฤษในกลุ่มทดลอง อย่างไรก็ตาม มีแนวโน้มที่นักเรียนในกลุ่มทดลองจะได้คะแนนการอ่านเพิ่มขึ้นในขณะที่ใช้เวลาในการอ่านลดลง

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ABSTRACT

The purpose of this study was to investigate the extent to which schema-activating pre-reading questions affected the English reading comprehension of Matthayomsuksa 5 students at PSU Demonstration School in terms of their comprehension level and comprehension time.

The study was conducted with fifty-eight students selected by using a reading proficiency test. These students were systematically classified into the control and the experimental groups of 29 each. In each group, there were fifteen good readers and fourteen poor readers. Before the main study, the passages as the instruments used in this study were piloted with thirty students who did not participate in the main study to find out the suitability of content and the appropriate reading time needed.

The main study consisted of two stages: training and testing. In the training stage, both subject groups read six passages in three one-hour periods (2 passages per period). The experimental group was trained to use schema-activating pre-reading questions while the control group was trained to read without pre-reading questions. In the testing stage, both subject groups read four passages in two hours. The experimental group received the slip containing schema-activating pre-reading questions before reading each passage while the control one read the passages and did the post reading questions. All subjects were required to record their starting and finishing time of each passage, so the amount of their comprehension time could be calculated.

The major findings of this study consisted of three main interesting points, summarized as follows:

1. The English reading comprehension level of both groups was significantly

different, i.e. the experimental group read significantly better than those in the control group ($p < 0.01$).

2. The comprehension time of both groups was significantly different, i.e. the experimental group spent significantly less time in reading than those in the control group ($p < 0.01$).

3. There was no significant correlation between the reading comprehension level and the comprehension time in the experimental group. However, there was a tendency for the subjects in the experimental group to raise their reading comprehension level and reduce their reading time.

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Tayaporn Kramut

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CHAPTER 1

INTRODUCTION

I. Rationale of the Study

1. Background

In this Information Technology Age, it is necessary for Thai students to learn English as a tool for obtaining the up-to-date and useful information which normally comes through printed and electronic media such as newspapers, magazines, CD ROM, and E-mail. All of these require reading. That is why Thai students as EFL learners need to have effective and efficient reading skills, in coping with the amount of reading required.

Reading has long been considered the most important skill in English language learning. Dubin (1982:14) proposed that "By all measures, reading would seem to be the most attainable language skill for students in countries where English is not widely spoken." This indicated that reading was probably the most important of the four skills, especially for EFL learners (Nanta Chiramanee, 1992; Eskey, 1975). Moreover, Araya Piyakun (1998) suggested that students needed to improve their reading ability because reading was the key skill to help them develop their other language skills.

Because of the importance in reading English, the Ministry of Education sees the value of providing Thai students with many reading comprehension courses. This is reflected in the Ministry's statements in the upper secondary education curriculum that one of the purposes of the education was to help students learn through reading (Upper Secondary Education Curriculum 1981, 1990 Revision). Therefore, teachers need to take an important role in encouraging the development of students' reading ability in order to help them increase their readiness in preparation for their higher education.

Most Thai students do not have satisfactory ability in reading English although they have studied English for several years. According to Malinee Chandavimol (1998:32), there are some basic reasons for poor English reading comprehension among Thai

students. One of these problems is a lack of appropriate or effective reading strategies because most teachers' methods of teaching do not concentrate on students' acquisition of reading strategies and the application of reading strategies to their reading. Surapei Tonsiengsom (1986) suggested that most teachers treated reading as a passive skill and they usually used traditional methods of teaching reading in their classes, resulting in the students not wanting to read difficult texts because they are not equipped with effective reading strategies to help them read. Likewise, Nanta Chiramanee (1992) indicated that the poor reading ability of Thai students might result from the fact that most Thai teachers of English were not properly trained to teach English. These teachers normally used traditional ways of teaching such as reading the texts to the class and then translating them into Thai, the technique which did not make students read better.

Malinee Chandavimol (1998:32) further explained this point: "It is all true that many teachers simply tell their students to read a text. After that the students are told to do the exercises. There is little or no attention paid to pre-reading, during-reading, and post-reading activities." This traditional way of teaching reading reflects most teachers' belief concerning what reading is, that is, a passive language process which requires little interaction between the reader and the text.

In fact, reading is not a passive process of picking up information from the page letter by letter or word by word, but is interactive. That is, the reading process needs active participation from the readers (Dubin, 1982). And in active reading, background knowledge is a critical factor required to help students comprehend texts better in a very short time. Grabe (1991:378) stated that

> The readers make use of information from his/her background knowledge, his/her schemata, as well as information from the printed page to comprehend texts. Reading is also interactive in the sense that many skills work together simultaneously in the process.

Therefore, teachers need to find effective reading theories and strategies which can be used in activating students' background knowledge relevant to the text they are going to read so that they can read more successfully.

2. Roles of Schema Theory in Reading Comprehension

According to an approach which views reading as an interactive process, schema theory plays an important role in developing teaching strategies for reading comprehension. Malinee Chandavimol (1998:34) stated that "schema theory offers a strong model for interaction with any given text. The most important point about this model is that students comprehend what they read when their schema, or prior knowledge, is activated by the words on the page." Thus students need to be taught not only how to understand what they are reading, but also how to use their background knowledge while reading the texts. This seems to be an important task for teachers, helping students activate their prior knowledge in order to better comprehend the texts.

The teaching of reading can be considered to have three phases: pre-reading, while-reading, and post-reading (Shih, 1992). The teaching of how to use schema or background knowledge can be incorporated in the first phase. It is in the initial stage, where students' background knowledge can be activated to help in text comprehension. Thus, teachers should arrange for pre-reading activities in this stage. According to Malinee Chandavimol (1998), the purposes of pre-reading activities are to build new schemata and to activate existing schemata so that the students will have the necessary background knowledge ready to help them comprehend the text. She further stated that "before someone reads a text, s/he should have prior knowledge, that is, usable schemata, which may come from experience, general knowledge, or from the pre-reading activities organized by the teacher" (Malinee Chandavimol, 1998:36). One of the common pre-reading activities to activate schema is to present pre-reading questions.

The use of pre-reading questions to activate background knowledge has been recommended by many scholars to facilitate reading comprehension. Hudson (1982) found that in reading comprehension, providing background information and previewing reading texts were particularly important for less proficient language students. Similarly, Langer (1984) stated that learning new information required prior knowledge or some related information. Pre-reading questions were used to activate students' background

knowledge relevant to a central concept from a text. So pre-reading questions could alert the students to the type of information they would read and also help them increase attention in reading texts.

Shih (1992) also stated that pre-reading questions would serve as a teaching device to let students know the direction of the discussion and important concepts which should be especially attended to. She explained that the more relevant background knowledge students could relate to a reading assignment, the more prepared they would be for the reading.

Pre-reading questions not only help activate students' background knowledge, but also help make readers read with certain purposes. Doff (1993), for example, stated that students would want to read if they were presented with pre-reading questions because they wanted to find out the answers, look for particular information, and predict what they would read. Presenting pre-reading questions helped students set goals. Frank (1990) said that pre-reading questions not only helped the students start reading with a specific goal, but also presented all important points and activated schema related to key points and concepts. He also proposed that

> "the fastest, most efficient reading begins with a specific purpose. Conversely, trying to read without a goal in mind will make learning more difficult. ... Memory experts have found that having a definite set of goals or questions about study materials gives the students a hook on which to hang new information." (Frank, 1990: 32-34).

Thus, there is little doubt that students can benefit from some pre-reading questions before they start reading.

Many scholars and much research apparently support the use of pre-reading questions in teaching reading comprehension. However, in the Thai context, there is a relatively small number of research conducted on the use of pre-reading questions as a key to activate background knowledge. Hence, it should be worthwhile to conduct research with Thai students, paying special attention to the use of pre-reading questions to activate background knowledge in order to shed more lights on how effective they are

in enforcing reading comprehension. Moreover, it will also be useful to find out whether activation of background knowledge will help students read faster.

II. The Study

1. Purpose of the study

This research aimed to investigate the extent to which *schema-activating pre-reading questions* (hereafter in this study referred to as SAPQs) affected reading comprehension. The main focuses were:

1. To compare the English reading comprehension ability of Mathayomsuksa 5 (M.5) students who were trained to activate background knowledge with SAPQs with that of students who were not trained with SAPQs
2. To compare the comprehension time by Mathayomsuksa 5 (M.5) students who were trained to activate background knowledge with SAPQs with that by the students who were not trained with SAPQs
3. To find out the correlation between the reading comprehension levels and the comprehension time of both the control and experimental groups

2. Hypothesis of the study

It was hypothesized that the reading comprehension ability of the students who were trained to activate background knowledge with SAPQs would be significantly better than that of students who were not trained with SAPQs. Also the comprehension time by students who were trained to activate background knowledge with SAPQs would be less than that of the students who were not trained with SAPQs. Moreover, the reading comprehension levels and the comprehension time by the experimental group would reveal a significant correlation.

3. Research question

The research asked one main question with two aspects:

Do SAPQs affect the students' reading comprehension ability and the comprehension time, and is there any negative correlation between these two aspects?

4. Definition of terms

a) **SAPQs:** SAPQs stands for Schema-Activating Pre-reading Questions.

b) **Comprehension time:** The length of time the subjects used in the whole process of doing the test, from the time they started reading the text to the time they finished answering the post reading questions (for the control group), and from the time they started reading SAPQs to the time they finished answering the post reading questions (for the experimental group)

5. Scope and limitations of the study

This study investigated only the effects of SAPQs on the reading comprehension of M.5 students at PSU Demonstration School in the 1999 Academic Year. The emphasis was on the effects of SAPQs on both the reading comprehension level and the comprehension time by the students in the study. .

Since this study investigated only M.5 students at this school in the 1999 Academic Year, the result of the study should be taken as tentative rather than conclusive.

6. Basic Assumptions

In this study, there were three assumptions:

1. Factors such as sex, age, religion, and the fact that the subjects in the control group might have previously been familiar with the activation of background knowledge before this study would not be taken as variables which would affect the reading comprehension in this study because they could not be controlled.

2. All of the subjects in the experimental group who were presented with SAPQs were assumed to have read the SAPQs, so that their background knowledge was activated before they read each of the four passages in the testing stage.

7. Expected results

It was expected that the students who read with SAPQs would perform better in their reading comprehension test and that they would spend less time on comprehending texts than those who were not equipped with SAPQs. This could lead to the expectation of the negative correlation between reading comprehension levels and comprehension time.

8. Implications

It was hoped that the results of the research would provide useful information to teachers in the following aspects.

1. If it was proved that SAPQs enhance reading comprehension and reduce the comprehension time, the information obtained would be useful in encouraging teachers to consider using this technique in their reading classes in order to help the students' reading comprehension.

2. If SAPQs were proved ineffective in increasing reading comprehension and reducing the comprehension time, other stimuli should be studied in order to bring in to help students read more efficiently.

CHAPTER 2

REVIEW OF LITERATURE AND RELATED RESEARCH

This study was on the effect of the activation of students' background knowledge on their reading comprehension. Thus, related literature and research on reading were reviewed below to provide readers with relevant background information.

The review was divided into 6 main sections as follows:

1. Reading comprehension
2. Certain factors affecting reading comprehension
3. Reading models: Bottom-up, Top-down, and Interactive
4. Schema theory
5. The activation of students' background knowledge in the pre-reading stage and reading comprehension
6. Related research on the use of pre-reading questions to activate students' background knowledge

I. Reading Comprehension

Reading is a major means of learning (Dubin, 1982). This is the reason why teaching reading is an important basis for students. The ability to understand what they are reading is necessary for them because, if not, they cannot learn or remember when most of the subjects they learn are presented in written form. Thus, teachers who teach reading need to take the text comprehension process as a major concern in understanding how students comprehend texts because this will eventually enable them to implement a better reading comprehension program in their classrooms (Rubin, 1993).

In order to manage their reading lessons, teachers should know about the nature of reading comprehension. Most scholars who have provided information about the nature of reading comprehension agree that reading comprehension is a complex process involving many interacting elements (Rubin, 1993; Perfetti and Lesgold, 1979). In general, reading comprehension refers to an ability to get the meaning of

what is read (Rubin, 1993). The process of comprehending what is read depends on a relationship between what the reader already knows and what is included in a text (O'Donnell and Wood, 1992; Flood and Lapp, 1983). Hence, comprehension cannot take place when the reader knows nothing about the topic because there is nothing for the reader to link the new information with (O'Donnell and Wood, 1992).

Harris and Sipay (1990: 9-10) concluded that "reading comprehension is the result of the interaction between and among the reader's (1) recognition and perception of the graphic symbols used to represent language, (2) linguistic information, (3) cognitive skills, and (4) knowledge about specific topics and the world in general."

II. Some Factors Affecting Reading Comprehension

Reading comprehension sometimes may not take place. If this happens, it is probably because there was no proper interaction between the reader and the text. In cases like this, Pearson and Johnson (1978) suggested that teachers needed to consider why their students could not comprehend the texts by focusing their attention on the factors which could affect students' reading comprehension. Such factors may be those in the reader, or in the text. The combination of these factors might benefit or impair the students' reading comprehension. In brief, reading comprehension is a complex process and there are many factors affecting this process (Rubin, 1993; Richards, Platt and Platt, 1992; Klein, Peterson and Simington, 1991; Clay, 1991; Haris and Sipay, 1990; Smith, 1988; Devine, 1986).

Factors in Readers

Factors in readers are things like sex, age, linguistic competence, vocabulary knowledge, reading rate, interest, motivation, and prior knowledge (Rubin, 1993; Pearson and Johnson, 1978; Harris, 1971). These factors seem to be the indicators of how effective readers are in their reading.

Rubin (1993) proposed that sex differences influenced the level of reading competence. Harris (1971) stated that the reading competence of female students was better than that of male students. A number of researchers, such as Norma (1976),

Narong Thongpan (1983), and Rubin (1993), agreed with Harris (1971). Piaget (1955) explained that female students' readiness in reading was higher than that of male students as a result of the cultural influence.

Age is another factor which influences reading comprehension. Harris (1971) pointed out that older students have more reading ability than younger ones. The world knowledge of older students is much more than that of younger ones. Their cognitive growth, as the result of maturational forces, helps them increase their reading ability as they grow (Reutzel and Cooter, 1992; Harris, 1971; Vygotsky, 1962; Piaget, 1955).

Another factor which can affect reading comprehension is linguistic competence. Students with higher linguistic competence comprehend texts better than those with lower linguistic competence (Pearson and Johnson, 1978). This competence is the result of learning experience, and knowledge of language (rules of grammar and vocabulary) (Richards, Platt and Platt, 1992). It is assumed that as the students grow up, their linguistic competence will increase.

Vocabulary knowledge can also affect reading comprehension. Smith (1997) postulated that vocabulary knowledge was important for students comprehension of texts because texts were composed of ideas and ideas were expressed in words. Students cannot understand texts if they lack vocabulary knowledge, or if they do not know what most of the words mean (Barchers, 1998; and Nagy, 1988). Thus, students with good vocabulary knowledge will comprehend texts better than those with little vocabulary knowledge (Beck, McKeown, and Omanson, 1987).

Nuttall (1996) added reading speed as one possible factor which could affect reading comprehension. However, the nature of relationship between reading speed and reading comprehension varied. While sometimes fast readers comprehended a lot and slow readers comprehended none, other times fast readers comprehended none, and slow readers comprehended a lot (Fry, 1981). Moreover, reading speed seems to link with other factors such as interest and motivation. Interest in the material provides motivation to read, which in turn drives comprehension, probably because the motivated reader concentrates on reading. When reading is required, students' motivation and comprehension will be enhanced if the readers are really interested in what they are reading (O'Donnell and Wood, 1992). Indeed, students will understand the content of texts easily when they are interested in the topic presented and hence are

motivated to read. Thus, in reading on a topic of high interest to them, they will spend little time in comprehending (Pearson and Johnson, 1978). In addition, Harris and Sipay (1990) suggested that the time spent in reading was also determined by the style and linguistic difficulty of the reading material.

Above all these, however, is prior knowledge which is considered the most important factor in determining the reader's comprehension (Barr, 1995; Alvermann and Phelps, 1994; Rubin, 1993; Devine, 1986; and Rumelhart, 1981). That is, the extent and quality of the reader's prior knowledge determine how well he can understand a text (Harris and Sipay, 1990). Lesli (1990) suggested that a reader with more prior knowledge could comprehend the text better than those readers with less prior knowledge by activating and using it to help in comprehension. Thus, it is possible to say that reading comprehension may not occur when readers lack sufficient topical knowledge or fail to activate the relevant knowledge they possess (Alvermann and Phelps, 1994; Reutzel and Cooter, 1992; Harris and Sipay, 1990).

Factors in Texts

Apart from the factors in readers, factors in texts can also affect reading comprehension. These include text type, level of linguistic complexity, and level of content familiarity.

Most studies on the effect of text type in reading have suggested that text type could influence the level of students' reading comprehension. For example, Malee Nitsaisook (1996) observed that the students seemed to be unhappy in reading the narrative and expository texts. However, the real cause of unwillingness to read these types of texts was that they were composed of complex sentences blended together. Lesli (1990) suggested that the difficulties in reading narrative and expository texts might be related to the level of linguistic complexity, or the unfamiliarity with the text structures. This notion was in line with O'Donnell and Wood (1992) who also noted that students did not want to read difficult texts but loved to read texts which were easy to follow and also easy to understand. Thus, text type appeared to influence students' reading comprehension and also affect motivation and interest in students.

As mentioned above, text types governs the choice of linguistic structures, thus affecting the level of comprehension. Texts with high level of linguistic complexity often predict low level of comprehension. Thus, it may be said that another factor in the text which affects reading comprehension is the level of linguistic complexity. Rubin (1993) found that the level of linguistic complexity of the text directly affected the interest and motivation of the students. The study of Malee Nitsaisook (1996) showed that students did not like reading difficult texts because it was hard for them to cope with the complicated structures when their reading ability was insufficient. O'Donnell and Wood (1992) and Lesli (1990) also agreed that when students were forced to read texts with a high level of linguistic complexity, they tended to be bored and their reading comprehension level was low.

Another important factor which affects students' reading comprehension is the level of content familiarity i.e. how much background knowledge they have concerning the text. Wilson and Anderson (1986) stated that students could understand familiar content easier than the unfamiliar. When students read texts with familiar content, particularly on subjects they are interested in, they would better comprehend them. When they read familiar content, they could recall on their existing background knowledge to help them read (Alvermann and Phelps, 1994; Rubin, 1993; Dechant, 1993, Alvarez and Risko, 1989; Rumelhart, 1981).

Obviously, there are many factors affecting the process of reading comprehension, and these factors relate directly to each other. Thus, teachers should seriously consider these factors when they manage their reading lessons.

III. Reading Models

Reading is a very complex process and many theorists have tried to explain the process according to their own models. A number of models of the reading process have been formulated, most of which can be considered as belonging to one of the following three classes: bottom-up, top-down, or interactive, and each model has its unique elements (Samuels and Kamil, 1988). A more comprehensive view of the reading process models is provided below.

Bottom-up Models

Bottom-up reading models are the text-driven approach to comprehension (Barnett, 1989). That is, they view reading as proceeding from the parts of language (graphic symbols) to the whole (meaning) (Carol, 1999; Barchers, 1998; and Klein, Peterson, and Simington, 1991). This is the reason why these reading models were named "bottom-up process".

In these models, reading is seen as a process of translating graphic symbols into speech during oral reading or into inner speech during silent reading. Most bottom-up theorists believe that the only activity unique to reading is breaking down the written code (Harris and Sipay, 1990). To understand a text, readers basically have to analyze words and sentences in the text itself (Richards, Platt and Platt, 1992). The readers begin with the letters on the page and then combine them to form more complex levels of language: words, sentences, and paragraphs. Readers derive the meaning from the print (Reutzel and Cooter, 1992). This means that they must be able to decode words accurately before developing comprehension skills in reading (Klein, Peterson, and Simington, 1991).

Bottom-up theories draw their theoretical framework from a branch of psychology called behaviorism (Reutzel and Cooter, 1992). The print on a page is an essential element in bottom-up theories of the reading process as the stimulus for reading (Alvermann and Phelps, 1994; LaBerge and Samuels, 1976). In the bottom-up models, the printed material is supposed to supply information not the reader (Rubin, 1993). These reading models then claim that the role of the reader is really a passive one because s/he is only an information processor (Nuttall, 1996).

The "bottom-up" models of reading were very popular during the 1950s and 1960s (Carol, 1999). During this period, teachers applied the Audio-lingual method in their classes and emphasized the importance of phoneme-grapheme relationship as proposed by the structuralists. The ideas of the bottom-up models of reading, which were based on the morpheme, or smallest meaningful unit of word, thus, were widely accepted (Carrell, 1988, quoted in Nanta Chiramanee, 1992).

However, bottom-up models of reading lost their popularity after many researchers found that there were some weak points in this reading model, such as the

lack of feedback and compensatory mechanism from the linear processing, the denial of the role of prior knowledge, and the over-emphasis on the role of the reader as a decoder (Samuels and Kamil, 1984; Mitchell, 1982; Stanovich, 1980; Eskey, 1973 quoted in Nanta Chiramanee, 1992).

Another reason why bottom-up models of reading became less popular might be the emergence of the view of reading as an active process, the idea that readers are actively engaged in the reading process. This gave rise to another approach to the reading process --top-down models of reading.

Top-down Models

Top-down models view reading in the opposite way to bottom-up models; the flow of information begins with the whole (meaning) and precedes down to the parts of language (letters) (Stanovich, 1980, quoted in Nanta Chiramanee, 1992). These models are based on Gestalt Theory, which claims that the whole is greater than the sum of the parts. They see reading as a meaning construction process, not a process of carefully attending to visual clues or stimuli in the text (Reutzel and Cooter, 1992). This is the reason why these models of reading were named "top-down process."

Top-down models place total emphasis on the importance of what the readers bring to the reading event -- their prior knowledge, experiences, and emotions, which are frequently considered important factors in the reading process (Klein, Peterson, and Simington, 1991; Flood and Lapp, 1983). Top-down models assume that comprehending begins when the readers access appropriate background knowledge and experiences to make sense of the print. What the readers already know determines in large part what they will be able to comprehend (Alverman and Phelps, 1994; Klein, Peterson, and Simington, 1991). Thus, the readers, who play an active role in the process, are believed to supply more information than the printed material (Harris and Sipay, 1990). The readers contribute the meaning to the text instead of deriving it directly from the text (Rubin, 1993; Harris and Sipay, 1990). They draw on their experiential background knowledge to predict the meaning of the text and then read to confirm or correct their predictions (Carol, 1999). This process of finding meaning,

focusing on the interaction between the reader and the text, is the key to the theory of top-down reading (Barchers,1998).

Top-down models of reading were popular around the 1970s, and many researchers believed that readers needed to be both active and fluent in their reading. Their reading comprehension depended mostly on their background knowledge, not on the print and phonics of the text (Goodman, 1970 quoted in Nanta Chiramanee, 1992).

However, there were some arguments against the ideas of the top-down models of reading. Eskey (1988, quoted in Nanta Chiramanee, 1992) claimed that the crucial weakness of top-down models of reading was the total emphasis on the higher-level skills while disregarding for the importance of lower level ones. Moreover, Stanovich (1980, quoted in Nanta Chiramanee, 1992) stated that there was a false assumption concerning this approach on the level of word recognition of good and poor readers. Many studies have found that both good and poor readers rely on their prior knowledge to facilitate their word recognition, and that ability in prediction and use of prior knowledge could not be an indicator of good readers as these models try to emphasize (Eskey, 1988 quoted in Nanta Chiramanee).

Both bottom-up and top-down models have weaknesses. While the former put total emphasis on the text, the latter overemphasize the reader's background knowledge. Thus, the interactive approach, which proposed a more proper balance of the components of both top-down and bottom-up approaches, emerged to correct the weak points in those two models of reading (Reutzel and Cooter, 1996).

Interactive Model

The term "interactive" refers to the "interaction between information obtained from bottom-up decoding and information provided by means of top-down analysis, both of which depend on certain kinds of prior knowledge and certain kinds of information-processing skills" (Eskey, 1988:96, quoted in Nanta Chiramanee, 1992). Interactive theories of the reading process place equal emphasis on the role of a reader's prior knowledge and on the print. The reading process is viewed as the interaction of bottom-up and top-down processing skills.

Rubin (1993:21) argued that "reading involves the skillful combination of linguistic and semantic knowledge with visual information in order to reconstruct the meaning intended by the author." That is, the reader uses these two sources of information at the same time to interpret a text (Carol, 1999; Walker, 1992; Reutzel and Cooter, 1992; Grabe, 1991; Harris and Sipay, 1990). The degree to which a reader uses print or prior knowledge will depend largely on the familiarity with the topic being read, how interested the reader is in the topic, the purpose for which s/he is reading, and his or her linguistic competence (Alverman and Phelps, 1994). Thus, if the readers have a fair amount of background knowledge about the subject, the reading will be much easier than if they have little or no knowledge about the topic (Barchers, 1998). On the other hand, if they have very little background knowledge, they will rely heavily on linguistic competence to decode the text. In short, the interactive approach claims to be able to cover the weaknesses in both bottom-up and top-down processing.

Since students' background knowledge is considered one important factor affecting reading comprehension, it is necessary to understand the relationship between background knowledge and reading comprehension. This can be done with the help of schema theory.

IV. Schema Theory

Prior knowledge, or schema, is an important factor in reading comprehension. Bartlett (1932:201) has defined the term "schema" as "an active organization of past reactions, or past experience." For other scholars, schema refers to beliefs, concepts, expectations, processes — everything readers take from their past experiences to make sense of their world (O'Donnell and Wood, 1992; Reutzel and Cooter, 1992; Collins and Lyman, 1990; Anderson and Pearson, 1988; Smith, 1985). Schema also includes a wide range of ideas, skills, and attitudes (Alvermann and Phelps, 1994). In brief, schema is a pack of acquired knowledge, experience, and understanding which is built up over long periods of time (Barr, 1995; Alvermann and Phelps, 1994; Lyman and Collins, 1990; McWhorter, 1990).

It is essential to understand the functions and importance of schema in reading comprehension because schema is probably the most influential factor in active

reading (Alvermann and Phelps, 1994; Rubin, 1993; and Rumelhart, 1981). Schema theory provides an explanation of how knowledge is acquired, processed, organized, stored, and activated (Dechant, 1993; Alvarez and Risko, 1989; Paris, Wixon and Palincsar, 1986; and Rumelhart, 1981). Moreover, schema theory describes how people organize the raw data of everyday experiences into meaningful patterns (Alvermann and Phelps, 1994).

According to Adams and Collins (1979), schema theory emphasizes how readers activate their relevant existing knowledge to link with the new information in the text (Alvermann and Phelps, 1994; Rubin, 1993; Rumelhart, 1981). To be specific, the schema helps readers (1) assimilate new information, (2) see what is important, (3) make inferences, (4) summarize by aiding in the separation of important ideas from less important ones, (5) remember (Lyman and Collins, 1990).

So, when preparing students to read a text, the teacher should understand the critical roles that schemata play in the comprehension process. Chall (1983) suggested that teachers should help their students make connections between what they are about to read and what they already know because these connections could determine how well they comprehend and how motivated they are concerning that topic. According to Collins (1993), students need to relate what is new to what is known in order to understand and use what is read. The role of background knowledge and the student's ability to draw upon it are essential to critical thinking (Nichols, Williams, et.al, 1997; Norris and Phillips, 1994; Collins, 1993; Tierney and Pearson, 1983; Beck, Omanson, and McKeown, 1982; Guthrie, 1981; Rumelhart, 1981).

A teacher's preparation for reading should involve helping students develop the necessary background knowledge for dealing with the content of the text (O'Donnell and Wood, 1992). Moreover, teachers should try to activate students' prior knowledge, and build appropriate background knowledge when necessary (Alvermann and Phelps, 1994).

Educators and researchers have suggested numerous instructional strategies to help students activate and use prior knowledge to aid comprehension. One of them is to create an opportunity to challenge the students to call on their schemata (Reutzel and Cooter, 1992). Knowledge-activation activities may lead some students to better reading. Such activities can be organized throughout the three phases of the reading

process; the pre-, while-, and post- reading stages. A number of studies have shown that pre-reading activities significantly raise available background knowledge, and this in turn seems to improve students' reading comprehension (Knutson, 1998; O'Donnell and Wood, 1992; Christen and Murphy, 1991; Harris and Sipay, 1990; McKenna and Robinson, 1990; Rengen, 1987; Langer, 1984).

V. The Activation of Students' Background Knowledge in the Pre-reading Stage and Reading Comprehension

To improve students' reading comprehension, teacher's prime consideration should be the involvement of students in their reading. One way to do it is by activating their background knowledge in the pre-reading stage. However, many learners need help in activating their background knowledge to comprehend the text.

Greenwald (1985) stressed the importance of pre-reading activities and the importance of applying reader-text interaction strategies. Eskey (1997), Hirasawa and Markstein (1993), Bauso (1988), and Barnett (1988) agreed that pre-reading activities could introduce the text and encourage learners to use their background knowledge. In addition, Williams (1984), Hirasawa and Markstein (1993), and Carrell (1988) believed that the pre-reading phase would help introduce and evoke reader's interest in the topic or title, motivate readers by giving a purpose for reading, provide readers with some language preparation for the text, activate readers' existing background knowledge, and build up new background knowledge about the text. Thus, in preparation for reading, teachers should employ pre-reading activities to relate reading material to students' background knowledge. They should help students make predictions about material to be read, and ask questions before reading (O'Donnell and Wood, 1992; McWhorter, 1990; Harris and Sipay, 1990).

There are many techniques that can be used to formulate purposeful reading activities in the pre-reading stage. They are, for example, previewing text, predicting, and providing pre-reading questions.

Previewing is a technique that facilitates active reading and encourages learners to think beyond the basic levels of knowledge and comprehension. It can also be a means of familiarizing learners with the content and organization of an assignment

before they read and it also provides them with a great deal of information. Previewing texts activates their thought processes, puts their mind in gear and helps them start thinking about the subject. For O'Donnell and Wood (1992), previewing a text is the first step in establishing purposes for reading. It leads to the formulation of questions that would help activate prior knowledge and guide the reading. Previewing a text with students should arouse their interest and help them approach the text in a more meaningful and purposeful manner as the discussion compels them to think about the situation or points raised in the text.

Predicting is another pre-reading technique which can involve students in their reading. It enables learners to approach the material systematically and to read actively. Making predictions involves drawing upon their background knowledge and experience, making connections between what they already know about the subject and the clues they pick up through previewing. Learners can then read the material more easily and more rapidly (McWhorter, 1990).

Providing pre-reading questions before students begin to read the passage also helps activate, review, develop their background knowledge, preview key concepts, or set purposes for reading. Pre-reading questioning is based on the belief that having a purpose for reading helps students maintain and focus their attention while reading and thus facilitates their comprehension (Harris and Sipay, 1990). Pre-reading questions can help them avoid distractions because they know what they want to find out and focus their attention on the material they are reading. The questions may guide or direct their attention to what is important in each section they are reading (McWhorter, 1990). Frank (1990) proposed that having a goal would increase the speed at which one could go through new material. Most learners find that by improving their concentration, they can reduce their reading time (Knutson, 1998; McWhorter, 1990).

Moreover, good pre-reading questions can lead readers to consider difficult ideas, and may prompt new insights (O'Donnell and Wood, 1992; Dole, 1991). In addition, Walker (1992) claimed that asking pre-reading questions required students to form ideas rather than to give right or wrong answers. These seem to be the characteristic of pre-reading questions which help to activate students' background knowledge, provide key concepts, set purposes, and point out some focuses of the texts.

VI. Related Research on the Use of Pre-reading Question to Activate Students' Background Knowledge

Several studies have demonstrated the facilitative effects of prior knowledge on comprehension. The findings support the notion that schema, or prior knowledge, plays an active role in what learners comprehend (Aron, 1986; Nunan, 1987; Johnson, 1981). Moreover, research on activation of students' background knowledge has suggested the use of pre-reading questions as one of the reading activities through which teachers can make their students' pre-reading more effective. Tudor and Tuffs (1991) suggested that the prior activation of text-relevant schemata could serve to meaningfully enhance the comprehension and retention of the message content by L2 learners.

Reyes and Molner (1991) and Langer (1981) suggested that one possible strategy to use in the pre-reading stage is the PreReading Plan (PreP). They indicated that PReP was a useful reading strategy which helped students integrate their prior knowledge with the new information in texts. This strategy was designed to bring students' background knowledge to help them in the preparation for reading by using questions to activate background knowledge relevant to the concept of a text.

In a study on the effects of position and types of questions in reading prose material, Berliner and Shavelson (1974) experimented with second year undergraduate students who had the same learning aptitude. They classified the questions into two levels: high level questions (students analyzed or evaluated the information they had read such as evaluative or divergent questions) and low level questions (students recalled or used the information in the text to answer questions, for example, display or convergent questions). The subjects were put into five groups, one group for each of four question levels (pre-high level questions, pre-low level questions, post-high level questions, post-low level questions), and one control group with no questions. The subjects were tested after finishing their reading and they had to do the next test two weeks later. It was found that the students who received post-high level questions obtained the highest reading scores. Moreover, one of the findings indicated that the reading scores of the students who received either high or low questions in the preceding position were better than those in the control group. This result seemed to

indicate that the level and the position of questions affected students' reading comprehension differently. In particular, the use of pre-reading questions helped students activate their background knowledge which would assist them to read and comprehend the text more purposefully.

Wong (1985) worked on the effects of self-questioning instruction on reading comprehension. The subjects in this study were four groups of undergraduate students. The first group was trained to formulate their own questions after reading every twenty lines, the second to formulate five questions after reading the whole passage, the third to formulate five questions before reading the passage, and the last one to read twice without formulating any questions. After training, twenty one items reading comprehension test were administered to all groups of subjects. The findings indicated that every group trained to formulate questions by themselves got higher reading scores than the group which was trained to read twice without formulating questions. One of the findings suggested that pre-reading questions seemed to help students read. This result was in line with the finding of Berliner and Shavelson (1974) and it seemed to emphasize the advantages of pre-reading questions in helping students to better comprehend texts.

Nolan (1991) studied the three groups of students using different strategies or combination of strategies: self-questioning, self-questioning and prediction, and traditional reading strategies. This study was conducted with students in grades five and six. Two groups of students were used as experimental groups while another group was used as the control group. The subjects received different types of reading strategies. The findings indicated that the two groups of subjects trained to use the self-questioning strategy got higher reading scores than the control group. This finding seemed to indicate that pre-reading questions either provided by the teacher or generated by the students themselves helped them better comprehend the text.

Saowanee Siriboonlong (1992) studied the effects of the different positions of questions on reading comprehension of students with different levels of language competence. Her study was carried out on 360 Prathomsuksa 6 students. These students with low and high levels of language competence were randomly assigned to four groups, each of which consisted of ninety students. These groups learned to apply different types of reading strategies: pre-reading questions, while-reading questions,

post-reading questions, and one group read without questions. Students who received while-reading questions got the highest reading scores and students who read with pre-reading questions got higher reading scores than those who read without any questions. This finding supported the notion that pre-reading questions help students get higher reading scores.

Carr and Thomson (1996) did an experiment on the effects of prior knowledge and schema activation strategies on inferential reading comprehension of children with and without learning disabilities. They found that all groups (16 eighth graders with learning disabilities, 16 age level peers, and 16 reading level peers especially learning disabilities students) benefited from the experimenters' activation of prior knowledge in reading comprehension. Those students also benefited from it when reading passages with unfamiliar topics. This finding seemed to agree with the previous findings which demonstrated the important role of pre-reading questions in helping students' reading comprehension.

In conclusion, all of the above studies reflect the positive results of pre-reading questions, apparently because such questions can be used to assess, activate, and elaborate readers' prior knowledge in order to improve comprehension of texts. However, none of the previous studies have investigated the effects of pre-reading questions exclusively.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

This experimental research aimed to investigate the effects of SAPQs on English reading comprehension of Mathayomsuksa 5 students at the Demonstration School, Prince of Songkla University. The methodology employed was as follows:

1. Subjects

In this study, the population was 106 students in Mathayomsuksa 5 (M.5) at the time of investigation who were taking the English reading course (ENG 025C) in the second semester of the 1999 Academic Year at the Demonstration School, Prince of Songkla University, Pattani Campus.

The subjects of the study were chosen after the administration of a reading test designed by Bunriddh Ravangvong (1999). Since the number of the population was quite large, the 27% technique was used to divide them into good and poor readers (Fan, 1952). Fifty-eight students with comparable reading ability as measured by the test were taken as the subjects of the study. They were then put into two groups with equal numbers: 29 in the experimental group and the other 29 in the control group of the study, and each of them composed of 15 good readers and 14 poor readers.

2. Selection and Development of Research Instruments

The research instruments used to acquire information for this study consisted of a reading proficiency test and ten reading passages.

2.1 The Reading Proficiency Test

In order to select the subjects of the study, the reading proficiency test designed by Bunriddh Ravangvong (1999) was used as an instrument to assess the reading ability of the M.5 students. This test (see Appendix A) was chosen because it was designed for use

with M.5 students with a supposedly suitable content, language level, and varieties of text types. The reliability of the test was 0.81.

2.2 The Reading Passages

This study used ten reading passages as the main research instruments, and the procedures for the selection of passages were as follows :

1. Three passages used in the English reading course (ENG 025C) were randomly selected and their readability estimates were measured using Fry's Readability Formula (Nuttall, 1982) so that it could be used as a criteria for the selection of passages for research instruments. It was discovered that the average readability level of the texts used in the ENG 025C course was of grade 10. See Appendix D for readability estimate of student's course book, calculated by using Fry's Readability Formula.

2. Passages from the Science Research Associates (SRA) standardized series, which are structurally-graded and widely recognized, were tested for the readability estimate of the texts in each color to find out which color matched the level of the students' course book. SRA passages are color coded, so that texts designated with the same color have the same level of difficulty. Three texts from each color were randomly selected, and the readability estimate of these selected passages was measured by applying Fry's Readability Formula (Nuttall, 1982). The result was that the readability estimate of the texts taken from the orange color set was of grade 10, which was the same as those in the student's course book. It was then assumed that the orange color coded texts were of the same level of difficulty and suitable for use as an instrument in this study.

3. Ten passages from the orange set of the SRA series were selected according to two main criteria: the level of the texts, which was of grade 10, which is the level of texts in the students' course book, and the suitability of content in terms of its familiarity to most Thai students. Six of them were used in the training stage, and the other four in the testing stage. Each passage was a complete story of 180-350 words with post-reading comprehension questions in the form of a multiple choice test.

The ten selected passages were measured to obtain readability estimates. It was revealed that the readability estimate of all passages was of grade 10. See Appendix D for the estimation.

2.3 Construction of Schema-Activating Pre-reading Questions (SAPQs)

After the text selection procedure, SAPQs were designed for each passage using the following procedure.

1. Each reading text was examined to establish what background knowledge should be activated to help students comprehend the text.

2. SAPQs were set to tap the general concept of each passage.

3. The thesis advisor team was consulted in order to check the points being focused on in terms of content, appropriateness of language complexity, forms of questions, and level of difficulty.

4. The SAPQs for passage No.3, involved the topic "Witch Doctors", which is a familiar topic in Thai culture, whereas the topic "Skiing" in passage No.6 is less familiar. However, these topics were selected to pilot with a group of M.5 students who were not the subjects of the study to see whether SAPQs of these passages could activate the students' background knowledge.

3. Research Methodology

The study was divided into three main stages.

3.1 Preparation

3.2 Pilot study

3.3 Main study

3.3.1 Training stage

3.3.2 Testing stage

3.1 *Preparation*

The preparation involved subject selection. The methodology for subject selection was as follows:

All M.5 students in the second semester of the 1999 Academic Year at the Demonstration School, Prince of Songkla University, Pattani Campus were asked to do the reading proficiency test designed by Bunriddh Ravangvong (1999). The scores obtained were used to divide them into two groups, good and poor readers, using the 27% technique. The students designated good and poor readers were systematically assigned to the experimental and control groups. Students with comparable scores were paired. Then, one student in each pair was assigned to the control group and the other to the experimental group. Details are shown in Appendix F.

The two groups had similar levels of reading ability, as reflected in the mean values of reading ability measured by the reading proficiency test mentioned above: 33.86 for the control group, and 33.93 for the experimental group.

3.2 *Pilot study*

A pilot study was conducted with a group of 30 M.5 students studying at the Demonstration School, who were not involved in the main study. The main purpose of the pilot study was to find out the suitability of the selected passages in terms of content and reading time and also to see whether the SAPQs could activate students' background knowledge. Two of the ten passages (passages No.3 and No.6) in the training stage were selected for the pilot study.

The participants in the pilot study were similar to the subject groups in terms of learning background and reading abilities. They were systematically classified into the control and experimental groups with the mean values of reading abilities of 34.34, and 34.31 respectively as presented in Appendix E. The former were trained to read without SAPQs while the latter to read with SAPQs.

3.3 *Main study*

The main study was divided into two basic stages.

3.3.1 The training stage

Six passages (passages No.1-No.6) were used in this stage. The experimental group was given training in using SAPQs by the researcher in order to familiarize them with this technique before the testing stage. It was believed that this training could establish their knowledge of using SAPQs for their future reading.

The emphasis of using SAPQs was on activating the subjects' background knowledge, not on confirming the correctness of students' background information. After reading each passage, they answered post- reading comprehension questions.

In this stage, the experimental group and the control group did not do the activities at the same time. This was to prevent the problem of overhearing. Hence, the subjects in the control group started their reading an hour later after the subjects in the experimental group had finished their work.

The control group read the same passages without SAPQs under the supervision of the researcher, who only asked them to read and answer post-reading comprehension questions.

Each of the subject groups spent three one-hour periods in the training stage. Two passages were used in each period (passages No.1 & No.3, No.2 & No.5, and No.4 & No.6 respectively). The procedure for each session of the training is presented below.

Procedure for the training stage

Activities	Subjects	
	Control Group	**Experimental Group**
Pre-reading	None	Read SAPQs
While-reading	Read passages	Read passages
Post-reading	Answer post-reading questions	Answer post reading questions

3.3.2 Testing stage

At the end of each session in the training stage, both the control and experimental groups were asked to take a reading comprehension test in which the effectiveness of using SAPQs was assessed. Four passages (No.7, 8, 9, and 10) were used in this stage. The passages were distributed one by one to those target groups i.e. the subjects had to finish one before another was given to them. However, each subject in the experimental group was given SAPQs written on a piece of paper in order to activate their background knowledge before being given passages to read and post-reading questions to do. The control group started reading the same passages without SAPQs and then did post-reading questions. The two subject groups were tested at the same time. The time allocated for the test was approximately two hours.

The other important aspect of the research question, the comprehension time, was recorded by the students themselves by writing their starting and finishing time on the test papers.

The procedure in the testing stage is presented below.

Procedure for the testing stage

Activities	Subjects	
	Control Group	**Experimental Group**
Pre-reading	Record starting time	Record starting time
	None	Read SAPQs
While-reading	Read passages	Read passages
Post-reading	Answer post-reading questions	Answer post-reading questions
	Record finishing time	Record finishing time

4. Data Analysis and Statistical Techniques

There were both independent and dependent variables in this study:

Independent variable

The independent variable in this study was the use of SAPQs (whether the subjects were provided with SAPQs or not).

Dependent variable

There were two main dependent variables relevant to research question in this study: the scores on the post-reading comprehension questions, and the comprehension time.

4.1 The scores on the reading comprehension test

The procedures in analyzing the test results were as follows:

1. After the test, the four passages (No.7, 8, 9, and 10) were marked and the total scores each subject obtained were calculated.
2. The mean values and standard deviation (SD) of each group were calculated.
3. A t-test was used to analyze whether the mean values of these two groups were significantly different from each other. The data was computed using SPSS/PC+ and the T value was used to determine the level of significance in the differences between the mean values.

4.2 The comprehension time

The procedure in analyzing the comprehension time was as follows:

1. The mean values of comprehension time by each group was calculated to find out the means and the standard deviation (SD) of each group.
2. A t-test was used to analyze whether the mean values of these two groups were significantly different from each other. The data was computed by using SPSS/PC+ and the T value was used to determine the level of significance in the difference of the mean values.

CHAPTER 4

FINDINGS AND DISCUSSION

This chapter presents the results and discussion, with the research question formulated in Chapter 1 serving as a framework. The presentation is based on the data in the testing stage of the study and the findings are classified into three main sections as follows:

1. The reading comprehension levels of the subjects who were trained to activate their background knowledge with SAPQs (the experimental group) and that of the students who were not trained with SAPQs (the control group)
2. The comprehension time by the subjects in the experimental group and by those in the control group
3. The correlation between the reading comprehension levels and the comprehension time by the subjects in the experimental group and those in the control group

The findings for the three sections are presented in the order shown above. The information was presented through the same pattern, that is, the difference between the control and experimental groups on all passages and then on each passage, followed by that between the good readers in the two groups and then the poor readers.

1. Reading comprehension levels

The hypothesis: The reading comprehension levels of the students in the experimental group would be significantly higher than those of the control group.

1.1 Reading comprehension levels of all subjects for all passages

To find out whether the training of SAPQs had significantly affected the levels of comprehension of the experimental group, making them much higher than those of the control group, the means of the reading comprehension levels of the two groups were calculated and a t-test was then used to find out the significant difference. The results are presented in Table 1 below.

Table 1. Reading comprehension levels of all subjects in all passages

Subject	No. of Subject	Total Score	$\bar{x}$	SD	df	t
Control Group	29	32	17.44	5.91	28	5.274**
Experimental Group	29	32	22.37	2.11	28	

** Significant at 0.01 level

The results indicated that there was a significant difference in the reading comprehension levels of the subjects in the control and experimental groups. That is, as a whole the subjects in the experimental group read significantly better than those in the control group ($t= 5.274$, $p < 0.01$). Since there was no significant difference in the reading comprehension levels of the two groups prior to the study (see Research Methodology p.4, Chapter 3), it was assumed that the reading comprehension levels of the subjects in the experimental group was higher after they received SAPQs.

The finding that the reading comprehension levels of the subjects in the experimental group were significantly higher than those of the control group confirmed the first hypothesis. This result agreed with the previous studies of Saowanee Siribunlong (1992) and Berliner and Shavelson (1974), who studied the effect of the placement of questions at different positions on reading comprehension. One of her results demonstrated the importance of using pre-reading questions in raising students' reading comprehension levels because after receiving pre-reading

questions the students in the experimental group did their reading tests better than those in the control group, and Berliner and Shavelson's study (1974) showed similar findings.

1.2 Reading comprehension levels of all subjects for each passage

To further investigate the effect of SAPQs on reading comprehension levels of the control and experimental groups for each of the passages, a paired t-test was applied to test whether there was any significant difference between the performances of the subjects in these groups. The results are shown in Table 2 below.

Table 2. Reading comprehension levels of all subjects for each passage

Passage	Total Possible Score	Control Group N=29		Experimental Group N=29		df	t
		$\bar{x}$	SD	$\bar{x}$	SD		
No.7	8	6.27	1.19	6.79	0.94	28	1.82
No.8	8	3.93	2.17	5.58	0.78	28	4.45**
No.9	8	3.24	1.82	5.00	0.96	28	5.30**
No.10	8	4.00	1.89	5.00	0.80	28	2.91*

** Significant at 0.01 level

* Significant at 0.05 level

The subjects in the experimental group did better on all passages than the control group though the difference was not significant for passage No.7 (Skin). That is, the experimental group read passage No.8 (Camel), No.9 (Freezing), and No.10 (Surfing) significantly better than the control group ($t = 4.45, 5.30$, $p < 0.01$, and $t = 2.91$, $p < 0.05$ respectively).

1.3 Reading comprehension levels of good readers for all passages

To find out if good readers in the experimental group received higher reading scores than those in the control group, the mean score of each group was calculated and a t-test was used to compare them so the significant difference could be seen.

Table 3. Reading comprehension levels of good readers for all passages

Good reader	No. of Subject	Total Score	$\bar{x}$	SD	df	t
Control Group	15	32	21.46	4.48	14	1.774
Experimental Group	15	32	23.53	1.59	14	

The results indicated that the reading comprehension levels of the good readers in the experimental group were higher than those of the good readers in the control group, but not at a significant level. It can be assumed that good readers might not benefit much from pre-reading questions; also, the good readers in the control group might have been able to activate their background knowledge though they were not trained to use pre-reading questions. This might imply that good readers in both groups could activate their background knowledge by themselves.

1.4 Reading comprehension levels of good readers for each passage

The overall reading comprehension scores of good readers in both the control and experimental groups presented above showed no significant difference. This meant that the effect of SAPQs was not apparent. There might be, however, a significant difference in the levels of reading comprehension of good readers in both groups when they read each passage, showing that SAPQs were effective. So, the mean scores of each group for each passage were calculated and are shown in Table 4 below.

Table 4. Reading comprehension levels of good readers for each passage

Passage	Total Possible Score	Control Group N=15		Experimental Group N=15		df	t
		$\bar{x}$	SD	$\bar{x}$	SD		
No.7	8	6.93	0.59	7.06	0.59	14	0.56
No.8	8	5.33	1.87	5.80	0.77	14	1.02
No.9	8	4.20	2.00	5.40	0.73	14	2.24*
No.10	8	5.00	1.64	5.26	0.59	14	0.60

* Significant at 0.05 level

The reading scores obtained by the good readers in the experimental group were higher than those in the control group in every passage though there was a significant difference only in passage No.9 (Freezing). In other words, the good readers in the experimental group read passage No.9 significantly better than those in the control group ($t = 2.24$, $p < 0.05$).

1.5 Reading comprehension levels of poor readers for all passages

The test results of the poor readers were also examined to find out whether they obtained higher reading scores than the control group after they were trained to use SAPQs. The findings for each group, represented by the mean scores, are shown in Table 5 below.

Table 5. Reading comprehension levels of poor readers for all passages

Subject	No. of Subject	Total Score	$\bar{x}$	SD	df	t
Control Group	14	32	13.14	2.93	13	8.278**
Experimental Group	14	32	21.14	1.91	13	

** Significant at 0.01 level

The reading comprehension levels of the poor readers in the experimental groups were significantly higher than the scores of poor readers in the control group ($t = 8.278$, $p < 0.01$). Hence, it may be said that the poor readers in the experimental group benefited considerably from SAPQs in terms of their reading comprehension levels. SAPQs were apparently able to activate their background knowledge and help them read better.

1.6 Reading comprehension levels of poor readers for each passage

For poor readers, SAPQs seemed to be effective in helping them read most of the passages, as can be seen in Table 6 below which presents the mean scores of each group for each passage.

Table 6. Reading comprehension levels of poor readers for each passage

Passage	Total Possible Score	Control Group N=14		Experimental Group N=14		df	t
		$\bar{x}$	SD	$\bar{x}$	SD		
No.7	8	5.57	1.28	6.50	1.16	13	1.79
No.8	8	2.42	1.28	5.35	0.74	13	7.91**
No.9	8	2.21	0.80	4.57	1.01	13	7.25**
No.10	8	2.92	1.54	4.71	0.91	13	3.89**

** Significant at 0.01 level

The poor readers in the experimental group read significantly better in every passage except passage No.7 (Skin). That is, the poor readers in the experimental group read passages No.8 (Camel), No.9 (Freezing), and No.10 (Surfing) significantly better than the control group ($t = 7.91$, 7.25, and 3.89, $p < 0.01$ respectively). It may be concluded that in general SAPQs were suitable to use with poor readers to enhance their reading comprehension.

Discussion on the Effects of SAPQs on the Reading Comprehension Level

According to the results as a whole, SAPQs seemed to be a possible way to increase students' reading comprehension levels. When the reading comprehension levels of the control and experimental groups were compared, the results clearly showed that the students in the experimental group had a significantly higher reading comprehension level than the control group. The significant differences between these two groups reflected the effectiveness of SAPQs in improving students' reading comprehension levels.

However, when explored in detail, the findings presented some interesting issues worth investigating.

The finding indicated that the reading comprehension levels of good readers in the experimental group were not significantly higher than those of good readers in the control group, except in passage No.9 (Freezing). This was interesting and suggested the need to consider why SAPQs could not help good readers in the experimental group to significantly outperform good readers in the control group. One possible reason might be that as a whole the reading abilities of good readers were quite high and they could activate their background knowledge by themselves. So the use of SAPQs had little effect on activating their background knowledge to help them read and so differentiate them from the ones who were not trained to use SAPQs. That is, it is normal for good readers to try to activate their background knowledge and relate it to the new information (Duffy and Roehler, 1987). This result seemed to agree with the study of Charat Traiboon (1998), whose findings suggested that in the pre-reading stage, students with high reading abilities used effective reading strategies such as predicting or imagining what would happen in the story to help them read better. In short, good readers used effective strategies and eventually achieved similar results no matter whether they were given help (SAPQs) or not.

For passage No.9 (Freezing), however, there was a significant difference on the reading comprehension levels in the three comparisons previously made: all subjects (Table 2, p.3), good readers (Table 4, p.4), and poor readers (Table 6, p.6). The fact that the subjects in the control group obtained the lowest score for this passage suggested that this passage was the most difficult to read without help. This was also the case for the subjects in the experimental group. There could be two possible reasons for this: one is that the level of language complexity was high, and the other is that the level of students' familiarity with the content was low. Since the level of difficulty was under the control of the text selection process, the latter cause seems more likely--that is, the subjects were not familiar with this topic. In this case, SAPQs seemed to play an important role in raising reading comprehension levels by providing key points and concepts to help the students comprehend such content (Frank, 1990). Hence, it could be assumed that in case of relatively high reading ability, SAPQs would enhance reading comprehension on the less familiar content (Wilson and Anderson, 1986).

The finding that poor readers in the experimental group read significantly better than those in the control group indicated that SAPQs were effective in helping poor readers better comprehend the text and were suitable to the development of the poor readers' reading comprehension level. SAPQs seemed to be the way to activate poor readers' background knowledge to help their reading. This is in line with Hudson (1982) who stated that in reading comprehension, providing background knowledge and previewing reading texts were particularly important for less proficient language students, and Fred (1990) who also indicated that pre-reading questions helped low ability readers achieved the highest learning performance.

Although the levels of reading comprehension of poor readers in the experimental group were significantly higher than those of poor readers in the control group for passage No.8 (Camel), No.9 (Freezing), and No.10 (Surfing), there was no significant difference between their reading comprehension levels for passage No.7 (Skin).

The results showed that the subjects in the control and experimental groups did best on passage No.7 (Skin) no matter whether they were good or poor readers or whether they were in the experimental group or in the control group. They all obtained the highest mean values. This implied that the passage was either simple in terms of language or familiar to the students in terms of content, or both of these. Again, the argument against the simplicity of language is that the level of difficulty of language in the passage was under the control of the text selection procedure to make sure that every passage was at the same level of readability. The likely reason, then, was that the content of passage No.7 (Skin) was quite familiar to the subjects' lives. It was noted that the content was related to materials they learned when they studied in Matthayomsuksa 2, first semester: the Science Core Course (SCI 203) Chapter 8, page 69-70, and Health Education (HE 203) Chapter 1, page 1-6. Thus, all the subjects in both groups could activate and relate their background knowledge to the content of this general topic, resulting in an insignificant difference in performance. This is probably the reason why there was no significant difference in comprehension levels in passage No.7 (Skin). This finding seemed to suggest that the contents of the other three passages, which were about camel, freezing, and surfing were not so familiar to the poor readers of both groups. Thus, when poor readers in the experimental group

received SAPQs to help them comprehend such content, they could outperform those in the control group.

In summary, SAPQs helped increase students' reading comprehension levels, especially the poor readers. However, in the case of unfamiliar contents, SAPQs helped even good readers. On the other hand, in the case of familiar contents, SAPQs did not help much, even the poor readers.

2. Comprehension time

Hypothesis: The comprehension time by the students in the experimental group would be less than that of the control group.

2.1 Comprehension time by all subjects for all passages

In this part, the results of the comprehension time by the subjects in both groups are presented to prove whether the students in the experimental group spent less comprehension time than those of the control group after receiving SAPQs.

Table 7. Comprehension time by all subjects for all passages

Subject	No. of Subject	$\bar{x}$ (mins.)	SD	df	t
Control Group	29	37.17	6.87	28	4.282**
Experimental Group	29	29.82	6.75	28	

** Significant at 0.01 level

The results indicated that there was a significant difference in the comprehension time of the subjects in the control and experimental groups. That is, the subjects in the experimental group spent significantly less comprehension time than those in the control group ($t = 4.282$, $p < 0.01$). This suggested that SAPQs activated students'

background knowledge and helped them spend less comprehension time. It appeared that the more they could activate their background knowledge, the less time they used in comprehending the texts.

The results presented in Table 7 seemed to support the second hypothesis, that the students with SAPQs would spend less comprehension time than those without SAPQs. It seems that SAPQs not only helped students activate their background knowledge, but also provided goals or purposes for the readers in reading, letting them read with their predictions and eventually used less time in comprehending texts. Frank (1990) stated that "the fastest, most efficient reading begins with a specific purpose." Therefore, good readers would understand more and spend less time in comprehending texts when they had purposes in mind and knew which information should be concentrated on.

2.2 Comprehension time by all subjects for each passage

To further investigate the effect of SAPQs in terms of the reduction in time used by the control and experimental groups on each passage, a paired t-test was used to test whether there was any significant difference between the subjects in these groups on each passage. The findings are shown in Table 8 below.

Table 8. The comprehension time by all subjects for each passage

Passage	Control Group N=29		Experimental Group N=29		df	t
	$\bar{x}$ (mins.)	SD	$\bar{x}$ (mins.)	SD		
No.7	9.55	2.62	7.34	2.05	28	3.81**
No.8	10.10	2.78	7.44	1.57	28	4.19**
No.9	9.00	2.15	7.86	1.86	28	2.38*
No.10	8.51	1.74	7.13	2.01	28	2.51*

** Significant at 0.01 level

* Significant at 0.05 level

The subjects in the experimental group spent significantly less comprehension time in every passage than those in the control group ($t = 3.81, 4.19, p < 0.01$; $t = 2.38, 2.51, p < 0.05$). This result confirmed the second hypothesis, that when the students were provided with SAPQs, they would benefit by reading faster.

It is clear that the training in activating background knowledge by using SAPQs helped the experimental group read faster.

2.3 Comprehension time by good readers for all passages

A paired t-test was used to compare the comprehension time by good readers, and the results are presented below.

Table 9. Comprehension time by good readers for all passages

Subject	No. of Subject	$\bar{x}$ (mins.)	SD	df	t
Control Group	15	34.66	7.59	14	2.061
Experimental Group	15	28.93	5.56	14	

The good readers in the experimental group spent less comprehension time but the difference was not significant. The result seemed to show that SAPQs could not significantly help reduce the time good readers used in comprehending texts.

The results seemed to show that activating good readers' background knowledge by using SAPQs was not effective in terms of time reduction. A possible reason was that good readers in both subject groups had quite high reading ability, so they spent much the same length of time in reading the same texts.

2.4 Comprehension time by good readers for each passage

The following table presents a comparison of the comprehension time by good readers in the experimental group and that by the control one.

Table 10. Comprehension time by good readers for each passage

Passage	Control Group N=15		Experimental Group N=15		df	t
	$\bar{x}$ (mins.)	SD	$\bar{x}$ (mins.)	SD		
No.7	9.46	2.61	6.73	1.87	14	3.44*
No.8	9.40	3.04	7.40	1.45	14	1.96
No.9	8.13	2.29	7.53	1.76	14	0.87
No.10	7.66	1.98	7.26	1.87	14	0.48

* Significant at 0.05 level

The good readers in the experimental group spent less time in comprehending every passage though there was a significant difference only for passage No.7 (Skin). That is, the good readers in the experimental group spent significantly less time on passage No.7 ($t = 3.44$, $p < 0.05$). It could be assumed that in comprehending familiar content (see discussion on page 8), good readers who were provided with clues from SAPQs were able to spend less time than the ones with similar abilities but without SAPQs as clues to help.

2.5 Comprehension time by poor readers for all passages

The analyses of the comprehension time by poor readers aimed to find out any differences between the length of time that poor readers in the control and experimental groups used while comprehending passages. The results are presented in Table 11 below.

Table 11. Comprehension time by poor readers for all passages

Subject	No. of Subject	$\bar{x}$ (mins.)	SD	df	t
Control Group	14	39.85	4.97	13	4.683**
Experimental Group	14	30.78	6.25	13	

** Significant at 0.01 level

There was a significant difference in the comprehension time by the poor readers in the control and experimental groups. That is, the poor readers in the experimental group spent significantly less comprehension time than that in the control group ($t = 4.683$, $p < 0.01$). It might be said that SAPQs reduced the time poor readers spent in comprehending texts.

As can be seen from Table 11, SAPQs was beneficial for the poor readers in terms of time reduction.

2.6 Comprehension time by poor readers for each passage

The findings presented below showed the differences between the mean values of the comprehension time of these two groups.

Table 12. The comprehension time by poor readers for each passage

Passage	Control Group N=14		Experimental Group N=14		df	t
	$\bar{x}$ (mins.)	SD	$\bar{x}$ (mins.)	SD		
No.7	9.64	2.73	8.00	2.00	13	1.93
No.8	10.85	2.34	7.50	1.74	13	4.64**
No.9	9.92	1.59	8.21	1.96	13	2.64*
No.10	9.42	0.75	7.00	2.21	13	3.93*

** Significant at 0.01 level

* Significant at 0.05 level

The poor readers in the experimental group spent significantly less time in comprehending every passage except passage No.7 (Skin). That is, the poor readers in the experimental group spent significantly less time in comprehending passages No.8 (Camel), No.9 (Freezing), and No.10 (Surfing) than those in the control group ($t = 4.64$, $p < 0.01$; 2.64, 3.93, $p < 0.05$ respectively). This suggested that poor readers benefited from SAPQs in terms of time reduction.

Discussion on the Effects of SAPQs on the Comprehension Time

Comprehension time was another aspect this study focused on. It tried to find out whether students who received SAPQs to help them activate their background knowledge spent less time than those who read without SAPQs.

As a whole, the effects of SAPQs on the time students spent on comprehending passages was apparent. The students benefited from the use of SAPQs in terms of time reduction. However, in each sub-group, some interesting findings were found in both good and poor reader groups. They suggested that the level of familiarity with the content could cause differences in the length of comprehension time by groups of different reading abilities. The evidence showed that SAPQs had the opposite effects on the comprehension time for passages No.7 (Skin) and No.9 (Freezing) by good and

poor readers. That is, in passage No.7 (Skin), there was a significant difference in the comprehension time by good readers while there was none by poor readers. On the contrary, in passage No.9 (Freezing), good readers in the experimental group did not spend significantly less time in comprehending this passage than those in the control group, while poor readers did.

Passage No. 7 (Skin) deserves to be focused on. There was a significant difference in the time spent on comprehending this passage by good readers in the experimental and control groups while the opposite result was obtained in the poor reader groups.

Good readers, whose reading ability was quite high, usually spent the same length of time in comprehending passages. According to Wilson and Anderson (1986), good readers could use their schemata to judge which topic was familiar to them and they would pay less attention to such a topic, putting more effort into less familiar content. Hence, for passage No.7 (Skin) which is considered to contain the most familiar content for all subjects, good readers in the experimental group spent less time in reading. Moreover, when they received SAPQs as clues to provide key concepts and information, good readers were able to activate their existing schemata to help them predict what they would read more easily. As a result, they could read this passage in a shorter time than those who had quite the same ability but were not given SAPQs as clues to help. In short, SAPQs helped further reduce the comprehension time, which was already short, making it even shorter. That is why there was a significant difference in the time used only in passage No.7 (Skin).

On the other hand, poor readers in the control and experimental groups did not use significantly different lengths of time in comprehending passage No.7 (Skin) although the comparison of the mean values indicated that those in the experimental group did spend less time than those in the control group. A possible reason for the insignificant difference was that the content of passage No. 7 (Skin) was so familiar to both groups that they could comprehend it equally easily. However, the poor readers in the experimental group also had to spend time in reading SAPQs, whereas the control group did not. Thus, the time they used was much the same as that of the control group, who did not receive SAPQs as a guide.

However, when poor readers read less familiar texts, SAPQs helped reduce the comprehension time. The possible reason was that SAPQs provided some useful clues to help poor readers read unfamiliar texts faster than those who read without any clues to help. That is why there were significant differences between the comprehension time by poor readers for passages No.8 (Camel), No.9 (Freezing), and No.10 (Surfing). To put in simpler words, SAPQs help reduce the comprehension time of good readers when the content is familiar and help reduce the comprehension time of poor readers when the content is unfamiliar.

In brief, the data analyses concerning the comprehension time confirmed the hypothesis that the time spent on comprehending texts by students who were trained to activate background knowledge with SAPQs would be less than the time spent by those students who were not trained with SAPQs. It could be assumed then that SAPQs reduced the time students spent on comprehending texts.

3. Correlation between reading comprehension levels and comprehension time of the control and experimental groups

The hypothesis: The correlation between the reading comprehension levels and the comprehension time of the experimental group would be significant.

To analyze the correlation, the Pearson Product-Moment correlation coefficient was applied to the data obtained in this study. The findings are shown below.

3.1 Correlation between reading comprehension levels and comprehension time for all texts of the control and experimental groups

Fry (1981) suggested that in general there was little relationship between the length of time spent in reading and the level of comprehension. This statement may be interpreted that it is not necessarily the case that fast readers will have good comprehension or that slow readers will have poor comprehension. At the same time, it is not necessarily the case that readers will comprehend every text with similar

efficiency. This is due to certain factors affecting reading comprehension, such as the level of content familiarity and language complexity. The results found in this study, as presented in Table 13, clearly confirmed Fry's statement.

Table 13. Correlation between reading comprehension levels and comprehension time for all texts of the control and experimental groups

Subject	No. of Subjects	Scores ($\bar{x}$)	Time ($\bar{x}$) (mins.)	Correlation (r)
Control Group	29	16.75	37.17	-.399*
Experimental Group	29	22.37	29.48	-.231

* Significant at 0.05 level.

The results showed that there was a significant negative correlation between the two aspects (r = -.399) in the control group. That is, the subjects in the control group spent a long time and also obtained a low reading comprehension score.

On the other hand, the results indicated that there was no significant correlation between the reading comprehension levels and the comprehension time in the experimental group although the subjects in this group did spend less time and obtained higher reading scores.

3.2 Correlation between reading comprehension levels and comprehension time for each passage of the control and experimental groups

To find out whether the reading comprehension levels significantly correlated with the comprehension time for each passage, the correlation values between these two aspects were calculated. The results are presented in Table 14 below.

Table 14. Correlation between reading comprehension levels and comprehension time for each passage of the control and experimental groups

Passages	Groups	Scores ($\bar{x}$)	Time ($\bar{x}$) (min.)	Correlation (r)
No.7	**Control**	6.27	9.55	.087
	Experimental	6.79	7.34	-.150
No.8	**Control**	3.93	10.10	-.034
	Experimental	5.58	7.44	-.222
No.9	**Control**	3.24	9.00	-.581**
	Experimental	5.00	7.86	-.139
No.10	**Control**	4.00	8.51	-.173
	Experimental	5.00	7.13	-.155

** Significant at 0.01 level.

For passage No.9 (Freezing), the reading comprehension levels of the subjects in the control group negatively correlated with the comprehension time for this passage, while there was no significant correlation for the other three passages (r = -.581). The result for passage No.9 (Freezing) might be the effect of the unfamiliarity with the content, as discussed previously in the comprehension section. Students spent a long time reading but still obtained the lowest scores for this passage.

There was no significant correlation between the reading comprehension levels and the comprehension time for all texts for the experimental group.

3.3 Correlation between reading comprehension levels and comprehension time of good readers for all texts of the control and experimental groups

To further investigate the correlation between the reading comprehension levels and the comprehension time of good readers, the Pearson Product-Moment Correlation was applied to calculate whether there was any significant correlation between these two aspects. The results are shown in Table 15 below.

Table 15. Correlation between reading comprehension levels and comprehension time of good readers for all texts of the control and experimental groups

Subject	No. of Subjects	Scores ($\bar{x}$)	Time ($\bar{x}$) (mins.)	Correlation (r)
Control Group	15	21.46	34.66	-.159
Experimental Group	15	23.53	28.93	-.237

There was no significant correlation between the reading comprehension levels and the comprehension time of good readers in both control and experimental groups.

3.4 Correlation between reading comprehension levels and comprehension time of good readers for each passage of the control and experimental groups

The overall relationship between the reading comprehension levels and the comprehension time for all texts of good readers showed no significant correlation. There might be, however, significant correlation between these two aspects of good readers in both groups when each passage is considered individually. The correlation between these two aspects of each group for each passage were calculated and are shown in Table 16 below.

Table 16. Correlation between reading comprehension levels and comprehension time of good readers for each passage of the control and experimental groups

Passages	Groups	Scores ($\bar{x}$)	Time ($\bar{x}$) (min.)	Correlation (r)
No.7	Control	6.93	9.46	.021
	Experimental	7.06	6.73	-.305
No.8	Control	5.33	9.40	.325
	Experimental	5.80	7.40	-.114
No.9	Control	4.20	8.13	-.580*
	Experimental	5.40	7.53	-.285
No.10	Control	5.00	7.66	.240
	Experimental	5.26	7.26	.124

* Significant at 0.05 level.

For passage No.9 (Freezing), the reading comprehension levels of good readers in the control group negatively correlated with the comprehension time for this passage ($r = -.580$) but there was no significant correlation between these two aspects in other three passages as mentioned previously in the discussion of Table 14.

For the experimental group, there was no correlation between the reading comprehension levels and the comprehension time in any passage.

3.5 Correlation between reading comprehension levels and comprehension time of poor readers for all texts of the control and experimental groups

The correlation between the reading comprehension levels and the comprehension time of poor readers was also examined to find out whether there was any relationship between these two aspects in the poor reader groups. The findings for each group, represented by the correlation values, are shown below in Table 17.

Table 17. Correlation between reading comprehension levels and comprehension time of poor readers for all texts of the control and experimental groups

Subject	No. of Subjects	Scores ($\bar{x}$)	Time ($\bar{x}$) (mins.)	Correlation (r)
Control Group	14	13.14	39.85	-.241
Experimental Group	14	21.14	30.78	-.119

There was no significant correlation between the reading comprehension levels and the comprehension time of poor readers in either the control or the experimental groups.

3.6 Correlation between reading comprehension levels and comprehension time of poor readers for each passage of the control and experimental groups

Poor readers produced similar results to those of the good readers in this regard, i.e. there was no significant correlation between the reading comprehension levels and the comprehension time. However, there was a need to find out whether there was any significant correlation between these two aspects in poor reader groups for individual passages. The results are presented in Table 18 below.

Table 18. Correlation between reading comprehension levels and comprehension time of poor readers for each passage of the control and experimental groups

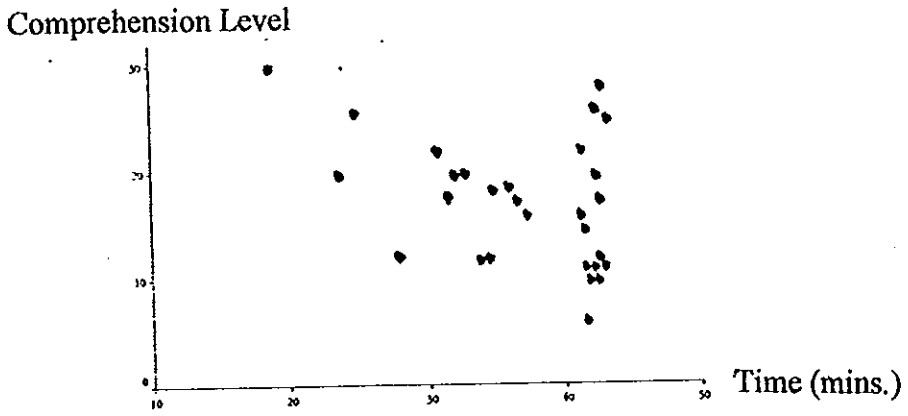
Passages	Groups	Scores ($\bar{x}$)	Time ($\bar{x}$) (min.)	Correlation (r)
No.7	Control	5.57	9.64	.194
	Experimental	6.50	8.00	.066
No.8	Control	2.42	10.85	-.029
	Experimental	5.35	7.50	-.326
No.9	Control	2.21	9.92	-.047
	Experimental	4.57	8.21	.088
No.10	Control	2.92	9.42	-.038
	Experimental	4.71	7.00	-.379

There was no significant correlation between the reading comprehension levels and the comprehension time of poor readers in both the control and experimental groups for any passage.

Discussion on the Correlation between the Reading Comprehension Levels and the Comprehension Time

The correlation between the reading comprehension levels and the comprehension time can be of two types: desirable or undesirable. The desirable correlation is when the subjects obtain high reading comprehension levels and spend little time in comprehending texts. On the other hand, the undesirable correlation is when the subjects obtain low reading comprehension levels and spend a lot of time in comprehending texts. However, the undesirable inverse correlation was found in the control group as shown in Figure 1 below.

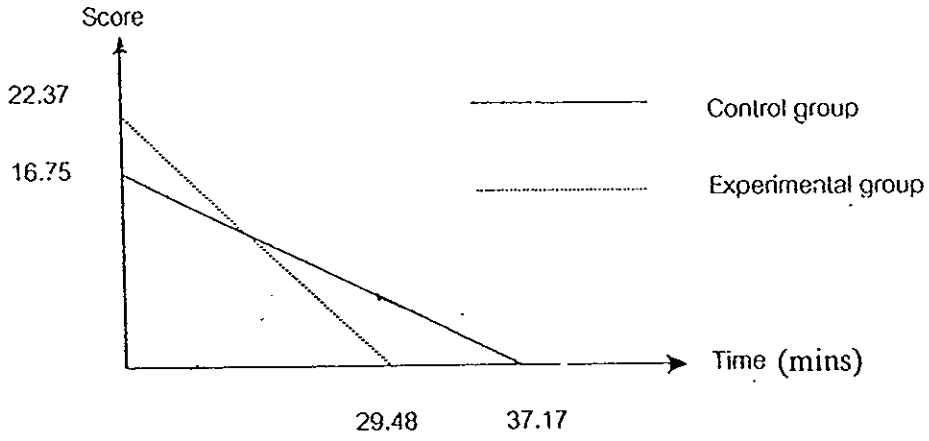
Figure 1. Negative Inverse Correlation between Reading Comprehension level and Comprehension Time in the Control Group



As shown above, the findings in this study suggested that there was a significant negative correlation between the reading comprehension levels and the comprehension time only in the control group. However, this kind of correlation is undesirable.

On the other hand, there was no significant negative correlation between these two aspects in the experimental group. However, Figure 2 below could present the desirable relationship between these two aspects in the experimental group.

Figure 2. The Relationship between Reading Comprehension Levels and Comprehension Time of the Control and Experimental Groups



The findings of the experimental group presented no significant correlation between the reading comprehension level and the comprehension time. However, the subjects in the experimental group were expected to spend little time in reading and gain high level of comprehension, and they seemed to be able to do that, because the subjects in the experimental group obtained higher reading comprehension levels and spent less time in comprehending all texts than those in the control group. The findings indicated the tendency towards the desirable negative correlation in performance though the actual desired relationship has not yet been achieved.

On the other hand, there was a significant negative correlation between these two aspects in the control group i.e. they obtained low reading scores and spent a long time in reading (see Table 13, p.18) but this is undesirable. The correlation between these two aspects in the control group seemed to be the result of the moderate negative correlation between these two aspects of good readers in passage No.9 (Freezing) (see Table 14 and 16, p.19-21) which was the only one showing a significant correlation. The level of significance of the inverse relationship for this passage was high enough to raise the whole result to the significant level. Passage No.9 (Freezing), as discussed earlier, was the most unfamiliar text. Naturally, when students read texts which are unfamiliar to them, they would spend a long time reading and may obtain low reading scores.

In summary, although the correlation found in the experimental group was not as expected, however, there were signs that the performance was changing towards the expected outcome. Many research findings in the past also showed similar results. For example, Tanarat Sirisawat (1980) and Sompong Kwankam (1985), who tried to investigate the relation between the reading speed, reading comprehension level, and learning achievement, found that there was no relationship between these three aspects.

Conclusion

The findings of this research seemed to suggest the positive effects of SAPQs, which could be summarized according to two main points, as follows:

Firstly, SAPQs could help students improve their reading comprehension levels. When the students received SAPQs as a guide to form a framework for thinking, their background knowledge was activated and in turn helped them to read. Through SAPQs, students knew the general theme of the text, could predict what they would read, and did not go in the wrong direction. However, SAPQs were more effective in helping poor readers. The results in the poor reader group indicated that SAPQs could help these students to quite considerably improve their reading comprehension level.

Secondly, SAPQs could help the students reduce their reading time. When the students in the experimental group read SAPQs, they knew in which direction the reading was going and which information they should attend to. They could read faster when they received SAPQs. This study showed that SAPQs helped both good and poor readers to spend less time in reading.

In addition, focusing on the level of familiarity of the texts, it was found that SAPQs helped the students to be effective in reading unfamiliar contents. When the students in both groups read familiar contents, they had quite similar background knowledge for their reading, and so paid little attention in reading (see the results for both good and poor readers in reading passage No.7 (Skin) in Table 4 and 6, p.5-6). However, when they read unfamiliar contents, there was a need for them to rely on their background knowledge because it could help them set new schemata to enhance their reading (see Table 4 and 6, p.5-6).

Lastly, the findings indicated that there was a significant negative correlation between the reading comprehension level and the comprehension time in the control group. However, it was an undesirable inverse correlation. On the other hand, there was no significant negative correlation between these two aspects in the experimental group but the findings seemed to suggest the tendency of the desirable inverse relationship. That is, the students in the experimental group obtained more reading scores and spent less comprehension time.

CHAPTER 5

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

This chapter summarizes the study and provides readers with useful information, based on the implications of the study, concerning ways to improve English reading comprehension, as well as, recommendations for further research.

Summary of the Findings

The overall findings of this study can be summarized as follows:

1. As the English reading ability of the subjects in the control and experimental groups was not significantly different prior to the study, the English reading comprehension levels of both subject groups were significantly different after the use of two different approaches ($p < 0.01$). That is, as a whole, the subjects in the experimental group who were trained to activate their background knowledge with SAPQs read significantly better than those in the control group. However, a closer look at the performance of good readers in both subject groups revealed some interesting points. There was no significant difference when the performance of the good readers in both groups was investigated. Perhaps, the good readers in both groups had quite a high reading ability and they also used similar reading strategies in reading. So there was no significant difference in their performance. However, the good readers in the experimental group obtained higher reading comprehension levels than those in the control group for all passages, and especially in passage No.9 (Freezing) which showed a significant difference in their comprehension. In the case of poor readers, SAPQs helped those in the experimental group to read significantly better than those in the control group. It can be assumed that the activation of students' background knowledge by using SAPQs helped raise the level of students' reading comprehension.

2. The English reading comprehension levels of good readers in both subject groups were significantly different in reading unfamiliar content as in passage No.9 (Freezing). That is, good readers in the experimental group who were trained to

activate their background knowledge with SAPQs read such a text significantly better than those in the control group. At the same time, the use of SAPQs seemed to be effective with the poor readers to help them read unfamiliar content significantly better than those in the control group. It can be implied that SAPQs would enhance the reading comprehension by providing key points and concepts to help students comprehend unfamiliar content. On the other hand, there was no significant difference on the reading comprehension levels when the subjects, be they good or poor readers, or be they from experimental or control groups, read familiar contents.

3. The comprehension time of both subject groups was significantly different after the use of different approaches ($p < 0.01$). That is, the subjects in the experimental group spent significantly less comprehension time than those in the control group. It can be inferred that SAPQs helped reduce the comprehension time, particularly for the poor readers.

4. The comprehension time of good readers in both subject groups was significantly different in reading familiar content, such as in passage No.7 ($p < 0.05$). That is, SAPQs helped good readers in the experimental group spend significantly less comprehension time than those who had quite the same reading ability but read without SAPQs. However, there was no significant difference in the comprehension time in poor reader groups in this passage.

5. For the experimental group, though the reading comprehension levels improved and the comprehension time decreased, there was no significant negative correlation between these two aspects. However, there was a significant negative correlation which was an undesirable one between these two aspects for the control group, i.e. they spent a long time in reading but they obtained quite low reading comprehension levels.

Implications for Teaching Reading Comprehension

Some practical implications that can be made of the findings of this study can be used to improve reading comprehension. They are as follows:

1. The finding of this study indicated that SAPQs as one of the

effective pre-reading activities, helped the subjects in the experimental group read better and spend less time in reading. Teachers need to realize the importance of effective pre-reading activities, particularly in arousing the students' attention to the text to read. Hence, good pre-reading questions should be provided to train students to read with activated schemata.

2. For reading to be purposeful activity, students need to be provided with definite goals or directions to prepare them for reading no matter how familiar they are with the texts. Teachers need to consider effective pre-reading activities which set the students with purposes for reading. As the finding of this study showed that the activation of SAPQs was effective with the experimental group and prepared them to their reading.

3. Schema-Activating Pre-reading Questions (SAPQs) can be one reading technique to help students become effective and efficient readers. The training in the use of SAPQs should be sufficiently long to help students learn how to formulate their own questions which is desirable in real life reading. This would enable them to be effective readers.

Recommendations for Further Research

Based on the findings of this study, some recommendations for further research are provided, as follows:

1. This study was conducted with a rather small number of subjects in only one school; as a result, the findings may not be readily generalized. Hence, it would be useful to study the effectiveness of pre-reading questions with a larger sample size, and with different levels of education. It would also be interesting to study this technique with subjects of different ages to see whether people with different ages would read more effectively by using this technique. The results would help increase our understanding of the effectiveness of using pre-reading questions in teaching reading.

2. In this study, all texts used were of the same genre, so it was not

possible to determine whether there was any relationship between the text types, and pre-reading questions. It would be interesting to seek answers to this question, using different text types.

3. The passages used as the main instrument in this study were of the same level of linguistic complexity, hence the relationship between or among the levels of complexity of the texts, the level of familiarity of contents, and the use of pre-reading questions was not examined. It would be beneficial to find out more about these relationships.

4. This study trained the experimental group to use SAPQs in three one-hour periods in training the experimental group to use SAPQs. It was quite a short period. It might be better if the amount of training time is increased, and it would be useful if the teachers themselves do this kind of study because they have a lot of time to train their students before the actual testing.

5. In this study, there were some differences in the training and testing stages. That is, in the training stage, the investigator presented SAPQs and helped the subjects activate their background knowledge while in the testing stage, SAPQs were presented in a slip and the subjects read and activated their background knowledge on their own. In further research, the methodology should be kept consistent. Towards the end of the training stage, the same procedure as in the testing stage should be followed to familiarize the students with the procedure to be taken in the testing stage, i.e. SAPQs should be presented in a written form and the subjects would learn to read and activate their background knowledge by their own.

6. Since the subjects in this study were trained to activate their background knowledge with the use of SAPQs by the investigator, further research should find out whether the subjects can generate their own pre-reading questions to help them read after they have been trained through SAPQs.

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APPENDIX A

THE READING PROFICIENCY TEST

(used in the preparation stage)

TEST OF ENGLISH READING ABILITY

Level : Science-based M.5 secondary school students

Time : 90 minutes

Total score : 60 points

Directions : Read the following texts, and then choose the best answer to each question by marking an X on the number of your choice (1, 2, 3, or 4) on your answer sheet.

Text 1

WATCH YOUR STEP!

1. What is the main purpose of this notice?
    1. To warn someone to be careful
    2. To give information to someone
    3. To report something to someone
    4. To ask someone to do something

2. Where is this notice often found?
    1. In a lift
    2. At a car park
    3. In a bathroom
    4. At the foot of the stairs

Text 2

EMERGENCY NUMBERS	
Police	
F.B.I.	PE7-1001
Foxcroft Police	224-3600
Fire	
Foxcroft Fire Dept	224-7100
Ross County Fire Co	279-1212
Emergency Services	
Central Medical Centre	PE7-7070
Foxcroft Hospital	224-9000
Foxcroft Rescue Squad	229-4317
Poison Information	229-6504
Telephone	
Business office (weekdays)	PE7-1234
Emergency Repair	PE7-7000

3. If one of your roommates ate a bowl of noodles and he or she was allergic to them, what number would you call?
    1. 224-3600
    2. 224-7100
    3. 229-6504
    4. PE7-7000

4. If you were in Foxcroft, what number would you call to report that your house was broken into?
    1. 224-3600
    2. 224-7100
    3. 229-4317
    4. PE7-7000

Text 3

Contents

Monday August 17, 1998

Open a new world of English with Student Weekly

5.On what page would you find the news headed "**School to Close for the Asian Games**" ?

1. Page 4
2. Page 5
3. Page 6
4. Page 25

6.If you wanted to talk to an overseas friend by letter, on what page would you find his/her address?

1. Page 7
2. Page 9
3. Page 13
4. Page 19

7. If you wanted to know a forecast of events that might happen to you in a week, on what page would you read it?

    1. Page 6
    2. Page 9
    3. Page 11
    4. Page 12

8. According to Text 3, which of the following may *NOT* be true?

    1. The column **"Quiz Time"** may appear on page 25.
    2. The column **"Songs and Fun"** is likely to appear on page 23.
    3. The information about **"Conditions, Application, prizes, etc."** is likely to appear on page 19.
    4. A few pieces of writing on different topics showing the writers' opinions may appear on page 8.

Text 4

<table>
<tr><td colspan="6">GOING OUT OF BUSINESS
BARGAINS! BARGAINS! THE SHOE BOX FINAL CLEARANCE</td></tr>
<tr><td colspan="2"><u>ALL WOMEN'S SHOES</u>
Now
Reg. to 10.00 $ 6.00
10.00 to 17.99 8.00
18.00 up 12.00</td><td colspan="2">LAST 10 DAYS
SALE HOURS DAILY
9:30 A.M. TILL 9 P.M.
Sunday 11 to 4</td><td colspan="2"><u>ALL CHILDREN'S SHOES</u>
Now
Reg. to 9.00 $5.00
9.00 to 17.00 8.00
18.00 up 12.00</td></tr>
<tr><td>ALL SANDALS Now 40% OFF</td><td>ALL SNEAKERS 40% OFF</td><td>ALL HANDBAGS Now 50% OFF</td><td colspan="2">ALL SLIPPERS Now 50% OFF</td><td>MEN& WOMEN'S LEATHER SHOES 50& OFF</td></tr>
<tr><td colspan="2">Pi 5-7626</td><td colspan="2">Ample Free Parking</td><td>LIC. NO. 3413</td></tr>
</table>

9. What is the main reason for the sale?

    1. The store is going to close its business.
    2. The store is offering big bargains of shoes.
    3. The store is clearing out old stocks of shoes.
    4. The store is providing a yearly clearance sale.

10. According to the sale, how much will a mother pay for two pairs of children's shoes that used to cost $10.00 each?
    1. $6.00
    2. $8.00
    3. $16.00
    4. $20.00
11. According to Text 4, which of the following is ***NOT TRUE*** ?
    1. It is open both on weekdays and at weekend.
    2. The items on sale are different kinds of shoes only.
    3. The sale at the Shoe Box will continue for ten days only.
    4. Men & women's leather shoes are being sold half prices.

Text 5

OIL OF ULAN FOAMING FACE WASH

Oil of Ulan Foaming Face Wash is a 100% soap-free and oil-free cleanser. It cleans thoroughly without irritating your skin like soap can. And it contains a light Ulan moisturiser to help maintain your skin's moisture balance. Your skin is left feeling clean, yet soft and youthful looking.

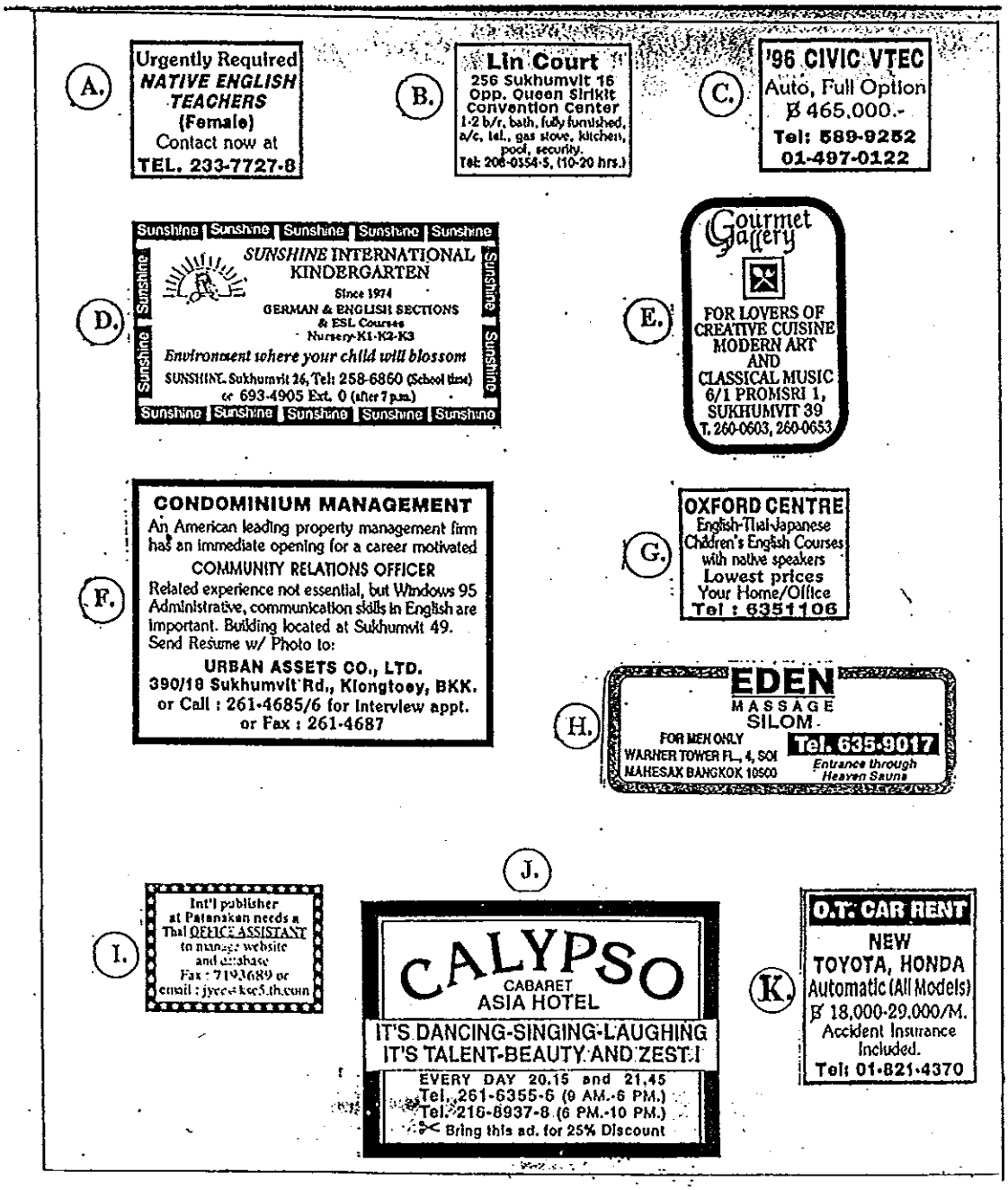
TO USE : Squeeze a small amount onto your palm and lather with water. Gently massage on face, then rinse thoroughly. After cleansing, use Oil of Ulan Moisturiser to reduce fine lines for younger looking skin. Dermatologist tested. For all skin types.

Gently enough to use twice daily.

12. Which of the following is ***NOT*** one of the qualities of Oil of Ulan Foaming Face Wash?
    1. Feeling clean after use
    2. Balancing the skin's moisture
    3. Cleansing the face thoroughly
    4. Maintaining the oil on the face
13. What are the correct steps of using this product?
    1. Squeeze – massage – rinse – cleanse
    2. Squeeze – lather – massage – rinse
    3. Squeeze – massage – cleanse – rinse
    4. Squeeze – massage – rinse- moisturise

14. Who can use this product?
    1. Dermatologists
    2. Young people
    3. Ladies only
    4. Everyone

Text 6 (A-K)



15. Which advertisement is for anyone who is looking for a place to live?
    1. B
    2. D
    3. F
    4. I

16. Which advertisement is for anyone who really enjoys the stage performance?
    1. B
    2. E
    3. H
    4. J

17. Which of the following advertisements is ***NOT*** related to the heading **"PERSONNEL WANTED"?**
    1. A
    2. F
    3. G
    4. I

18. Based on Text 6, which of the following is ***NOT CORRECT***?
    1. Wilai wants to have her own car, so she should dial 589-9252.
    2. Mr. Wilson wants to teach English, so he should dial 233-7727-8.
    3. Pete wants to eat out with his girlfriend, so he should dial 260-0603.
    4. Anong wants her son to learn English, so she should dial 258-6860.

Text 7

Indications : Expectorant and relief of coughs due to common cold or bronchitis.

Directions for use :

Adults : 1-2 tsps every four hours.
Children Age 12-18 yrs. : 1 tsp every four hours.
Age 4-12 yrs. : ½ tsp every four hours.
Under 4 yrs. : See your doctor.

NO REFILL
Exp. date 10/99

19. According to this label, how often should **you** take this medicine?
    1. Four times a day
    2. Five times a day
    3. Six times a day
    4. As often as you want

20. What does the children's dosage depend on?
    1. Their ages
    2. The time of the day
    3. The doctor's prescription
    4. The number of teaspoonfuls

21. Which of the following statements is ***NOT TRUE*** according to the medicine label?
    1. This medicine is in the form of a liquid.
    2. This medicine may be dangerous for small children.
    3. The maximum dosage that should be taken by an adult is 12 tsps a day.
    4. The maximum dosage that should be taken by an 8-year-old boy is 6 tsps a day.

22. Supposing that **you** have just taken the first dose of this medication at 09.45 a.m., at what time can **you** take the next one?
    1. At 12.15 p.m.
    2. At 01.45 p.m.
    3. At 02.10 p.m.
    4. At 03.45 p.m.

23. For whom is this medication recommended?
    1. Anyone who has a headache and a runny nose.
    2. Anyone who needs the relief of allergy to the cold weather.
    3. Anyone who is suffering from a fever, a sneeze, and nasal congestion.
    4. Anyone who has a common illness affecting the nose or throat or both.

Text 8

Sao Paulo—At least 53 people were killed and 39 injured on Tuesday when two buses collided with a tanker truck on the Anhanguera highway near Araras, 176 km north of Sao Paulo. The buses, carrying about 100 passengers on a religious pilgrimage, collided with a tanker truck, which had lost control, sparking a fire on the highway,eyewitnesses told CBN radio.—AFP

24. What would be the best headline of the news item?
    1. Bus accident on highway
    2. Tanker truck on fire on highway
    3. Buses crashed into truck, killing 53
    4. 100 killed and injured in road accident

25. Which of the following is ***NOT TRUE*** about the news?
    1. The bad accident was reported to CBN radio.
    2. There were at least 92 victims suffering from the accident.
    3. The accident resulted from the collision between two buses and a tanker truck.
    4. The bus drivers could not control their buses because of the fire caused by the tanker truck.

Text 9

Dear Editor,

I have a big problem about speaking English with foreigners. I'm so shy and nervous. Maybe it's because I'm afraid that I will say something wrong, or my grammar will be poor. Perhaps, I'm afraid they will laugh at me.

I compare myself to some foreigners who speak Thai. Their accent is funny, so I think I must have a funny accent when I speak English. In fact, I'm really shy to communicate with people, both Thais and foreigners. Do you have any suggestions?

Pongsak Sawlongkum,
Thalago, Nakhon Sawan.

26. Why did Pongsak write this letter?
    1. To ask for some advice from the editor
    2. To reveal his big problem to the readers
    3. To share his ideas about speaking English with foreigners
    4. To express his attitude towards foreigners who can speak Thai

27. Which of the following is ***NOT TRUE*** about Pongsak?
    1. He feels very excited when talking to other people.
    2. His English accent is as good as foreigners' Thai accent.
    3. He is afraid of making mistakes when speaking English.
    4. He is unwilling to speak in the presence of other people.

28. What would be the most suitable title of this letter?
    1. Fun with English!
    2. Funny English Accent!
    3. A Big English Problem!
    4. English Communication!

29. What can be inferred from the letter about Pongsak?
    1. He lacks self-confidence in speaking.
    2. He often compares his English accent with foreigners'.
    3. He wants to improve his speaking skills but not other skills.
    4. He thinks the accent is the most important in speaking English.

30. What is the main point of this letter?
    1. Pongsak gets nervous if someone laughs at him when he talks.
    2. Pongsak has a big problem when talking to foreigners in English.
    3. Pongsak cannot speak English well because of his funny accent.
    4. Pongsak cannot communicate with foreigners because of his poor English.

Text 10

A drug is a chemical that affects the way the body works and is used to treat diseases.

There are many different kinds of drugs and they affect the body in (31) ways. Some drugs, such as vitamins, may supply chemicals the body needs to (32) properly. Some (33) work on the entire body. Some drugs work on just one part of the body, such as the central nervous system, which is made up of the(34)and the spinal column. Among the kinds of drugs that (35) the central nervous system are tranquillisers, which relax a person, stimulants, which (36) a person, and pain killers, which stop a person from feeling pain.

Some drugs do not work on the body itself. They (37) germs that enter the body and (38) diseases.

Drugs can be (39) if they are taken too often or in too large a dose. The drug (40) results from a particular drug being taken too often by a person. This kind is well known as a habit-forming drug. When that person becomes an addict,he or she will feel sick unless he or she keeps on getting this drug.

31. 1. Some 2. certain 3. different 4. particular	32. 1. Help 2. work 3. expand 4. develop	33. 1. Drugs 2. people 3. systems 4. vitamins	34. 1. Back 2. brain 3. nerves 4. tissues
35. 1. Support 2. change 3. supply 4. affect	36. 1. Excite 2. frighten 3. interest 4. surprise	37. 1. Cure 2. take 3. make 4. fight	38. 1. Influence 2. change 3. cause 4. treat
	39. 1. Useful 2. harmful 3. plentiful 4. wasteful	40. 1. Addiction 2. invention 3. production 4. consumption	

Text 11

How can you avoid AIDS?

It is fairly simple to avoid AIDS, even if some people find it hard to change their behaviour. Many people are not at risk : They do not have sex with casual acquaintances or commercial sex workers, nor do they have multiple sex partners. For someone to be as safe as possible, he or she should stay with one sexual bedfellow, who is faithful to them and not infected.

If men have more than one sexual (41), they should use condoms when they have (42). Women should make sure that their partners (43) condoms. Remember, condom use alone isn't 100% (44). A properly used condom, however, can significantly (45) your chances of HIV infection.

Also, to (46) AIDS, needles and syringes should always be (47). Any Instrument that comes into contact with (48), e.g. ear piercing needles, razor blades and (49) should be made free from bacteria.

Finally, (50) e.g. alcohol, amphetamines are known to impair judgement and create situations that may put individuals at risk for HIV infection. Being aware that one's behaviour is very important. Therefore, drug use must be checked to insure safe practices. Being under the influence of a drug,especially alcohol has been known to raise risk factors towards HIV infection.

41. 1. Relationship 2. practice 3. member 4. partner	42. 1. Sex 2. HIV 3. need 4. love	43. 1. Buy 2. wear 3. have 4. order	44. 1. Clean 2. good 3. safe 4. fit
45. 1. Risk 2. reduce 3. increase 4. maintain	46. 1. Ban 2. stop 3. avoid 4. spread	47. 1. Burned 2. sterilised 3. destroyed 4. pasteurised	48. 1. Blood 2. head 3. liquid 4. alcohol
	49. 1. Hairdryers 2. hairnets 3. rollers 4. scissors	50. 1. Drugs 2. drinks 3. tonics 4. liquids	

Text 12

One of the most successful entertainers today is Madonna. She is one of the world's top pop singers and has sold millions of records. But who is Madonna?

Madonna Louise Veronica Ciccone was born in a large family in Michigan, U.S.A., in 1958. Even as a child she had many **talents**. At the age of eight, she acted in a friend's homemade film. She also appeared in high school plays and gradually became interested in dancing. After graduation, she went to the University of Michigan for some time.

Shortly after that, she left for New York and arrived with only $35 in her pocket. She worked with dance groups for some time and then began to get interested in pop music. She learned to play the guitar and write songs. She began to develop her own musical style, mixing the sounds and rhythms of rock'n'roll, pop, and dance music. Then, in 1983, she produced a record of her own. It was called *Madonna*.

This first album attracted the attention of disc jockeys and dance clubs. By 1984, it was known across the U.S.A. She quickly became recognised as one of the pop talents in popular music. More successful records followed, as well as national and world tours. Young people around the world loved her songs like "Vogue" and "Like a Virgin," and they bought millions of copies. Since then, Madonna has continued to record successful hit songs and videos, and she has also starred in several movies. But for many people, she is still the Queen of Pop.

51. What is the main idea of this text?
1. Why Madonna has sung pop songs until now.
2. How Madonna entered the world of entertainment.
3. How Madonna has become very successful in her life.
4. Why Madonna's records have been sold everywhere in the world.

52. Which of the following is ***NOT*** Madonna's **talents**?
1. She starred in several movies.
2. She performed high school plays.
3. She performed dancing in her music videos.
4. She studied at the University of Michigan for a while.

53. Which of the following **four** events happened to Madonna in the **second** order?
1. She created her own musical style.
2. She performed on the stage worldwide.
3. She became a university student for a period of time.
4. She produced a record of her own called Madonna.

54. What would be the best title for this text?
1. A Hot Dancer!
2. A Successful Girl!
3. A Talented Musician!
4. A Popular Movie Star

55. What would be the author's main purpose of this text?
1. To describe Madonna's talents
2. To promote Madonna's albums
3. To reveal Madonna's real history
4. To interest disc jockeys and dance clubs

56. What is the author's attitude towards Madonna?
1. Critical
2. Admiring
3. Humorous
4. Indifferent

Text 13

We say the water evaporates. But what does this mean? Evaporation is the process by which a liquid that is exposed to air gradually becomes a gas or vapour. Many liquids evaporate quite quickly than water. This is true of alcohol, petrol and ammonia. Some liquids, such as mercury, evaporate very slowly.

What causes evaporation? To understand this, we must know something about the nature of matter. As we know, every substance is made up of molecules. Two forces are at work on these molecules. One is cohesion, which draws **them** together. The other is the heat motion of the individual molecules, which makes them fly apart.

When the force of cohesion is stronger, the substance is a solid. When the heat motion is so strong that it overcomes cohesion, the substance is a gas. When the two forces are balanced fairly evenly, we have a liquid.

Water, of course, is a liquid. But on the surface of the liquid, there are molecules that are moving so quickly that they fly into space and escape the force of cohesion. This process of escaping molecules is evaporation.

Why does water evaporate more quickly in sunshine or when heat is applied? The greater the heat, the more heat motion there is in the liquid. This means more molecules will have enough speed to escape. When the fastest molecules escape, the average speed of those left behind is lowered. So the remaining liquid is cooled by evaporation.

57. What would be the author's main purpose?
1. To provide facts about molecules of some liquids
2. To give examples of the molecules of some liquids
3. To explain the evaporation of some liquids, especially water
4. To compare the speed of evaporation of some liquids, including water

58. What does the word "**them**" (line 9) refer to?
1. Two forces
2. The liquids
3. The substances
4. The molecules

59. What can be inferred from the text?
1. Evaporation does not occur if there is no water.
2. The water evaporation usually happens when the weather is rather hot.
3. When water dries up, it has become a gas or vapour and part of the air.
4. Different kinds of water turn into vapour at different levels of speed.

60. In what kind of fundamental textbooks would this text most likely be found?
1. Physics
2. Biology
3. Ecology
4. Chemistry

APPENDIX B

THREE PASSAGES TAKEN FROM THE STUDENT'S COURSEBOOK

Three Passages Taken from the Student' Course Book

(That's Correct! Book 2)

PASSAGE NO.1 (P.26)

Many of today's crowded cities have run out of land. They are forced to expand upward, with skyscrapers reaching higher and higher. Some people think that the cities of the future would evolve from today's skyscrapers. But instead of many large buildings, a future city would be made up of one superbuilding. Inside this single massive building would be houses, shops and offices of thousands of people.

Such a superbuilding called Arcosanti is actually under construction, as an experiment in Arizona. It is a 25-storey building designed to house 5,000 people. A superbuilding would be free from some of the problems that worry people today. For example, you'd probably move from one part of the city to another in elevators and on moving sidewalks. There would be no cars, no traffic jams and no pollution.

Other people think that cities may develop in entirely different ways. Advances in electronic communications may make it possible for people to work, shop and chat with friends without leaving their homes. Rather than living in superbuildings, people may live in small villages linked to one another by communications networks.

PASSAGE NO.2 (P.41)

Do you live in a nuclear family or an extended family? The former is made up of a father, a mother and children living together. The latter is made up of two or more sets of parents and children living together. If you were a child living in an extended family, you might be living not only with your parents but also with your grandparents, uncles, aunts, and cousins.

People in the Asian countries usually live in extended families. You can sometimes find more than twenty people living together under the same roof. Shalinee, a 16-year-old Indian girl, who has just got married and moved into her husband's family house, talks about how she feels living in such a big family.

"I am living with lots of relatives. Without all the uncles, aunts and children, I would be very lonely. Also, without them, I would have to do all the housework. That would be too much – going to the market everyday, doing all the cooking, cleaning and washing. As it is, I have my aunts and sisters-in-law to help."

Judy, Shalinee's American pen friend, has other ideas. She says,

"Living with many people means you have to share facilities – the bathroom, the kitchen, the TV and video and other things. And there's the problem of lack of privacy. That is, there are always people around to watch what you are doing, to ask questions. You can never be alone. To me, the idea is just unthinkable."

However, not all Americans would agree with Judy. Jimmy, her 11year-old brother, seems to favour the idea of an extended family.

"I don't mind", he said. "I'd love to have lots of cousins to play with. It's nice to have many children in the same house."

PASSAGE NO.3 (P. 120)

For most of us the idea of a holiday means rest, taking life easy and enjoying ourselves. Maybe we go to the sea, or somewhere cooler up in the mountains, usually with friends or the family. What we are looking for is a chance to get away from the business of studying or working and to relax.

However, in many countries young people often choose a rather different kind of holiday. In Britain, for example, there are hundreds of holidays organised for young people who are looking for an active time and want to try new sports or develop skills with other young people.

This kind of holidays, usually called adventure holidays, is offered by several centres and covers a very wide range of interests, including all types of sports and leisure activities. Some of these holiday centres concentrate on only one or two sports. An example would be a horse-riding holiday where young people can get expert tuition, not only on riding but also on looking after horses and equipment. Most of these holidays also include a longer trip of two or three days on horseback. Other centres provide a variety of sports activities, depending on the place where the centre is situated. Centres close to the sea usually concentrate on water sports, and here it is possible to try a number of different sports during your holiday. Such activities might include windsurfing, water-skiing, sailing and skin-diving. Centres in the mountains have a different type of programme, and here you can try rock-climbing, hang-gliding canoeing and orienteering. All these centres also have qualified instructors to help both beginners and more advanced students. Other types of holiday centres are for those who have non-sporting interests. Examples of these would be painting or photography holidays. Photographers learn not only how to take better pictures but also how to develop their films and print pictures.

The accommodation on these holidays is good but simple, not like living in a comfortable hotel. Sometimes meals are provided, but often there is just a kitchen to cook one's own meal. Prices start from about £ 80 per week, which includes the use of all the equipment you will need for the different activities.

APPENDIX C

THE READING PASSAGES

Passages No.1-6 were used in the training stage

Passages No.7-10 were used in the testing stage

PASSAGE NO.1

Teacher showed some examples of labels and then asked the following questions.

SCHEMA-ACTIVATING PRE-READING QUESTIONS (SAPQs):
1. Have you ever seen these kinds of *labels* before?
2. Where can you find a *label*?
3. Can you give me some examples of the *labels*?
4. Why do you need to read a *label*?
5. What kind of information can you find on a *label*?

Every word on the label describing a food, a drug, a cosmetic, or a medical device is important in protecting you and your family from buying an inferior product, from misusing a good one, from being tricked by dangerous quackery, or from unknowingly possessing an item harmful to health.

First of all, the label on a can or package of food must be completely truthful. If a loaf of bread is made with soy flour, the loaf cannot be labeled as white bread.

A label must not be misleading. This restriction is somewhat vague and therefore cannot prevent all violations. Although the government tries to eliminate all misleading labels, the consumer must nevertheless be always on guard. Just because a can of sardines has a fancy-sounding foreign name, don't take for granted that the fish were imported. It is the law, too, that manufacturers must list their names and places of business on their labels.

Manufacturers must use common names in identifying their products so that anyone can readily understand what he is buying. Synthetic foods must be prominently labeled as artificial. Foods composed of two or more ingredients must bear labels listing all ingredients in the order of predominance.

POST READING COMPREHENSION QUESTIONS OF PASSAGE NO.1

1. According to the article, the main purpose of a label is to
a. attract the consumer
b. protect the consumer
c. list the ingredients
d. protect the manufacturer

2. Careful reading of the label will prevent
a. misuse of a product
b. buying an inferior product
c. buying a harmful substance
d. A, B, and C

3. A loaf of bread made with soy flour
a. is not good bread
b. must be labeled as white bread
c. is harmful to health
d. must not be labeled as white bread

4. The author suggests that
a. some labels are misleading in spite of government inspection
b. all labels are misleading
c. most labels are vague
d. the government does nothing about misleading labels

5. A foreign name on a label
a. is never misleading
b. always indicates that the product is an import
c. may lead one to believe that the product is an import
d. is never completely truthful

6. Products are to be identified by
a. technical term
b. foreign names
c. common names
d. unusual names

7. The most important ingredient in a product must be listed
a. first
b. last
c. in the middle
d. as artificial

8. Implied but not stated:
a. At one time, some labels were deliberately misleading.
b. Every word on a label is important.
c. Synthetic foods are superior products.
d. Foreign foods always have misleading labels.

PASSAGE NO.2

SCHEMA-ACTIVATING PRE-READING QUESTIONS (SAPQs):

1. **What do you know about the *sun*?**
2. **What are the components of the *sun*?**
3. **Does the *sun* have any effects on the earth? What are they?**

Our sun is actually an orange, dwarf star. Although it is not nearly the hottest star known, its surface temperature is about 10,000 °F. and that of its interior is thought to be in the range of 20,000,000 °F. We commonly think of the sun as burning; yet it is too hot to burn and is composed of elemental gases.

The sun is 865,000 miles in diameter and has a mass one-third of a million times greater than the earth's. Scientists believe that it is two billion years old and, instead of cooling, is still getting hotter. Perhaps, within the next two billion years, it will reach a temperature of sufficient intensity to destroy the earth.

The sun's corona, or halo, is almost as hot as its interior. Solar prominences — tongues of hot gas — leap outward a half-million miles from the sun's surface at speeds reaching 250,000 miles an hour. Fortunately, these prominences do not travel the full ninety-three million miles to earth, nor are their terrific temperatures transmitted through space. Some of the energy from these disturbances does reach our atmosphere, however, and is believed to cause changes in weather.

POST READING COMPREHENSION QUESTIONS OF PASSAGE NO.2

1. The temperature of the interior of the sun is believed to be about
a. 10,000 °F
b. 20,000,000 °F
c. 2,000,000 °F
d. 20,000 °F

2. According to the article, the sun is composed of
a. gases
b. masses
c. molten lava
d. unknown substances

3. That the sun is two billion years old is
a. a well-known fact
b. an unfounded theory
c. a belief of scientists
d. not mentioned

4. According to this article, the sun
a. is getting hotter
b. may eventually destroy the earth
c. is getting cooler
d. both A and B

5. The mass of the sun is
a. one-third of a million times greater than the earth's
b. one-third of the mass of the earth
c. three times that of the earth's
d. one-third of a million times smaller than the earth's

6. Solar prominences are
a. mountain peaks
b. bright spots on the sun
c. eminent astronomers
d. tongues of hot gas

7. Solar prominences
a. reach the earth
b. travel through space
c. may affect the weather
d. both B and C

8. Implied but not stated:
a. The sun is actually an orange, dwarf star.
b. Our knowledge of the sun is far from complete.
c. The sun is the hottest star.
d. The earth's sun is the only one in existence.

PASSAGE NO.3

SCHEMA-ACTIVATING PRE-READING QUESTIONS (SAPQs):

1. **Have you ever heard of the word *witch doctors*?**
2. **Why are they called *witch doctors*?**
3. **How do they cure the patients?**
4. **Do you think the way they cure the patients works?**
5. **Do you believe in them?**
6. **Would you like to be cured by them?**

In primitive societies sick people had to rely on medicine men and witch doctor. (Some people still rely on them.) It was believed that a person was sick because he had been attacked by evil spirits. The witch doctor's job was to drive off these spirits.

His technique involved a combination of three methods, the first of which was religious. He chanted magic words and used good luck charms which he thought had power over the evil spirits that supposedly had entered the victim's body. Secondly, he deliberately fed the patient mixtures, which were often filthy and disgusting, to make the evil spirits so uncomfortable that they would gladly run away and so enable the patient to get well.

The third method was to give the patient medicines prepared from certain plants and herbs that were similar in shape or texture to the various organs of the body. From our point of view, this was the only method that had any value. Modern scientific study has shown that some of these remedies had real usefulness in curing sickness, or at least in relieving pain, but not for the reasons advanced by the witch doctor.

POST READING COMPREHENSION QUESTIONS OF PASSAGE NO.3

1. Medicine men and witch doctors
a. no longer exist
b. were evil spirits
c. still exist
d. both A and B

2. Primitive people believed that sick people
a. had been attacked by a virus
b. had been attacked by evil spirits
c. were evil spirits
d. should be eradicated

3. Magic spells and good luck charms
a. were a part of the religious ritual of healing
b. actually drove out evil spirits
c. made evil spirits powerless against certain herbs
d. were omens of ill fortune

4. Disgusting mixtures were fed to the patient
a. to make him uncomfortable
b. because they were believed to have medical value
c. because evil spirits liked them
d. to cause the spirits discomfort

5. Primitive medicines were prepared from
a. any plants or herbs
b. plants or herbs shaped like bodily organs
c. organs of the body
d. good luck charms

6. Many primitive remedies
a. cured sickness
b. relieved pain
c. were inventions of the devil
d. both A and B

7. When primitive people were cured, it was actually a result of
a. the witch doctor's prayers
b. the departure of evil spirits from the body
c. reasons unknown to the witch doctor
d. the great skill of the witch doctor

8. Implied but not stated:
a. Superstition is an ignorant person's explanation of things he cannot understand.
b. In primitive societies, sick people had to rely on medicine men.
c. Modern medicine owes much to the primitive witch doctor.
d. Superstition often does society much good.

PASSAGE NO.4

SCHEMA-ACTIVATING PRE-READING QUESTIONS (SAPQs):

1. **Have you ever heard of the word *televised lessons*?**
2. **What is it about?**
3. **How do they work?**
4. **What will be the usefulness or problems if *televised lessons* are used?**

The potential of closed-circuit television and other new electronic teaching tools is so great that it is fascinating to visualize "the school of tomorrow."

Televised lessons will originate from a central building having perhaps four or five master studios. The lessons will be carried into classrooms all over a city, or even an entire county.

After a televised lesson has been given, the classroom teacher will take over for the all important "follow-up" period. The students will ask any troublesome questions, and difficult points will be cleared up through discussion.

The teacher in the classroom will have additional electronic tools. On the teacher's desk, the traditional bright red apple will have been replaced by a multiple-control panel and magnetic tape players. The tape machines will run pre-recorded lessons which pupils will follow by headphones. The lessons will be specifically geared to the students' levels of ability. For instance, for the class as a whole studies history, each student will receive an individual history lesson, directed to his particular level of ability.

Should questions arise, the students will be able to talk directly to the teacher on individual "intercom" without disturbing the rest of the class. In this way, the teacher will be able to conduct as many as three classes at the same time.

POST READING COMPREHENSION QUESTIONS OF PASSAGE NO.4

1. This article is mainly about
a. television
b. electronics
c. the schools of the future
d. communication

2. Closed-circuit television will probably carry lessons to
a. a single classroom
b. one school
c. all the classrooms in the world
d. all the classrooms in a city or county

3. After the televised lesson
a. the students will go to their next class
b. the classroom teacher will take over
c. the students will ask questions
d. both B and C

4. In the schools of tomorrow, the teacher's desk will
a. contain electronic equipment
b. actually be a television set
c. no longer exist
d. look like an isolation booth

5. In the schools of tomorrow, students will
a. all study different subjects at the same time
b. study at different levels within a subject at the same time
c. not study
d. not have to read books

6. A student will ask a question by
a. raising his hand
b. Morse code
c. talking over an "intercom"
d. writing a note

7. Electronic tools will enable the teacher to
a. teach more than one class at the same time
b. retire
c. teach only a small number of pupils
d. rely on TV. Stations only

8. Implied but not stated:
a. Teachers will be obsolete.
b. The potential of closed-circuit television will be great.
c. Students will get more individual attention in the schools of tomorrow.
d. Mechanization will prevent students from receiving individual attention.

PASSAGE NO.5

SCHEMA-ACTIVATING PRE-READING QUESTIONS (SAPQs):

1. **What do you think of when you hear the word *sports car*?**
2. **What are the differences between ordinary cars and *sports cars*?**
3. **Is it possible to drive *sports cars* in a city?**
4. **What are the usefulness of *sports cars*?**

A sports car is a high-performance roadster, built to stick to the road even on curves that throw ordinary cars onto the shoulder. A manual gearshift, a firm—some would call it rough-ride, and powerful brakes are the features which generally characterize the sports car; yet the fans often disagree about a particular car's qualification. Nothing irks a purist more than hearing the words "sports car" applied to an ordinary soft-sprung roadster or to a closed car.

Fun, not transportation, is the main idea behind sports cars. They are, quite simply, a pleasure to drive—sensitive and responsive. For a man with mechanicalability, they also are fun to work on. A mass of technical information is available to the owner. Easily accessible, and with such features as overhead valves, the sports car engine is "built to be worked on". The majority of owners probably do their own tuning and pattering.

Many sports cars are tame enough for ordinary city driving. Owners point out those distinct city advantages: economy of fuel and garage space, and ease of handling in traffic and in parking.

POST READING COMPREHENSION QUESTIONS OF PASSAGE NO.5

1. After reading this article, the reader should
a. be able to define "sports car"
b. want to own a sports car
c. be able to fix a sports car engine
d. be confused about what a sports car is

2. Sports car fans
a. are quarrelsome
b. don't always agree on which cars qualify as sports car
c. always agree about what a sports car is
d. are Puritans

3. To qualify as a sports car, according to the purists, a car must be
a. open
b. closed
c. soft sprung
d. inexpensive

4. The chief attraction of a sports car is in providing
a. cheap transportation
b. work for mechanics
c. fun for its owner
d. easy parking

5. Owners of sports cars derive pleasure from their auto's
a. ability to win races
b. inexpensiveness
c. sensitive responses
d. roominess

6. Probably most owners of sports car are
a. poor drivers
b. mechanically inclined
c. lacking mechanical skills
d. economical

7. According to the article, a sports car can be easily worked on because of its
a. V-8 engine
b. manual gearshift
c. dual carburetors
d. overhead valves

8. Sports car owners agree that sports cars are
a. too fast for city driving
b. too fast for highways
c. unpopular with city drivers
d. advantageous to city driving

PASSAGE NO.6

SCHEMA-ACTIVATING PRE-READING QUESTIONS (SAPQs):

1. **What do you know about *skiing*?**
2. **Where can you *ski*?**
3. **What do you need when you *ski*?**
4. **What is the usefulness of *skiing*?**

There is, perhaps, no other sport in the world quite so exciting as skiing. For viewers, it is a spectacle of unsurpassed beauty. For skiers, it is a vivid personal experience, a thrilling test of mind, muscle, and nerves. And more and more, Americans are discovering this thrill for themselves. Not too long ago, skiing had virtually no part in the Americans sports scene. If it were thought of at all, it was purely as a European sport. Then came the 1932 Winter Olympics at Lake Placid, New York, Americans got their first good look at skiing and made for the hills. Today ski trains make regular runs from our cities to the great, white outdoors. Lodges and chalets dot the mountain sides offering skiers the warmth of their firesides.

In addition to joy and exhilaration, skiing offers other attractions. It is a comparatively inexpensive sport, and, for the young, the art of skiing is often mastered in a very short time.

The special thrill of skiing is well described by Buddy Werner. "It's all up to you," he says. "No teammates can help. You're alone. It's you against the snow, the mountains, the terrain, yourself. You're a warrior."

POST READING COMPREHENSION QUESTIONS OF PASSAGE NO.6

1. According to this article, skiing is probably the
a. most exciting sport in the world
b. least exciting sport in the world
c. most dangerous sport in the world
d. least dangerous sport in the world

2. To the spectator, skiing is
a. a vivid personal experience
b. a thrilling test of muscle
c. a spectacle of unsurpassed beauty
d. nerve-wracking

3. Skiing
a. has always been popular in American
b. has only recently become a popular American sport
c. can never become popular in American
d. has only recently become popular in Europe

4. In 1932, when the Winter Olympics were held at Lake Placid,
a. Americans became enthusiastic about sport
b. Americans saw skiing for the very first time
c. America did not enter into competition
d. America finished in last place

5. By the expression "made for the hills," the author means that
a. Americans took up skiing
b. Americans were afraid of skiing
c. Skiing became popular only in the backwoods
d. The only place Americans could ski was in the Rocky Mountains

6. One reason why skiing attracts sports lovers is that it is relatively
a. safe
b. inexpensive
c. enervating
d. monotonous

7. Young people like skiing, because
a. it takes a long time to learn
b. it is extremely dangerous
c. the skill can be mastered in a short time
d. skiers never get injured

8. According to Buddy Werner, the special thrill of skiing lies in the fact that it
a. is a team sport
b. teaches one to get along well in group
c. pits the skier alone against the elements
d. makes good soldiers

PASSAGE NO.7

SCHEMA-ACTIVATING PRE-READING QUESTIONS (SAPQs):

1. **Why do you need to have your *skin*?**
2. **Do you believe that the *skin* can tell you something about yourself?**
3. **What make people have different colors of *skin*?**

No organ of the body is less appreciated than the skin. One of our biggest and busiest organs—and the most telltale—it mirrors the state of our health, our age, and our race. Occupation and way of life may also become indelibly imprinted for all to see. Here are some facts about our outer covering organ to show that there is more to the skin than meets the eye.

Your skin is your thermostat. It regulates heat gain and loss so that the internal temperature remains within the normal range of 97 to 99 degree.

It takes about two square yards of skin to cover the average adult from head to toe. Undoubtedly the most intricate wrapping in existence, the skin contains three million cells, three feet of blood vessels, and twelve feet of nerves in each area the size of a postage stamp.

The widest difference between the darkest human skin and that of an albino is brought about by not more that 1/25 of an ounce of melanin. As far as is known, the amount of this dark brown or black pigment accounts for all our variations in racial colors, including yellow, brown, and black.

POST READING COMPREHENSION QUESTIONS OF PASSAGE NO.7

1. The skin is
a. appreciated by most people
b. an organ of the body
c. an inactive organ
d. relatively unimportant

2. By looking at a person's skin, it is possible to tell his
a. height
b. race
c. age
d. both B and C

3. As a thermostat, the skin
a. indicate our state of health
b. regulates body temperature
c. gives off heat
d. heats the body

4. The normal internal temperature of the body is
a. 97 to 99 degrees
b. 79 to 81 degrees
c. 79 to 99 degrees
d. 71 to 79 degrees

5. The average adult is covered by
a. three feet of skin
b. twelve yards of skin
c. two square feet of skin
d. two square yards of skin

6. In an area of skin the size of a postage stamp, there are
a. three million cells
b. three feet of cells
c. thirty thousand cells
d. twelve nerves

7. The widest difference between the darkest human skin and a skin almost totally white is due to
a. 25 ounces of melanin
b. 125 of an ounce of melanin
c. 125 ounces of melanin
d. 1 ounce if melanin

8. Variations in racial colors are caused by
a. differences in living conditions
b. differences in diets
c. a small amount of pigment
d. a large amount of pigment

PASSAGE NO.8

SCHEMA-ACTIVATING PRE-READING QUESTIONS (SAPQs):

1. **What do you know about a *camel*?**
2. **Why do people travel in the desert by riding *camels*?**
3. **Do you believe that it can travel without drinking for a long time?**
4. **If so, how long do you think it can go without drinking?**
5. **What does the length of time it can go without drinking depends on?**

Although the Arabian camel, or dromedary, can go without drinking for a long while, its hump does not store water as is commonly believed. The real secret of the animal's unusual ability to store water lies in the fact that very little of the camel's water is lost by evaporation through the skin. Instead of sweating out great quantities of water, the camel's body temperature rises, sometimes as much as eleven degree, to compensate for external heat. When a camel does require water, it replaces only the amount lost since its last drink.

In Egypt, between November and April, the camel can go for three or four months without drinking if it grazes in lush pastures where dew and showers keep the vegetation green. If only dry feed is available, the camel will get thirsty after several weeks—even during January.

The length of time a camel can go without drinking is greatly determined by time of year, force of wind, heat in the air, intensity of sunlight, amount of reflected heat, kind of feed, weight of the load carried, speed the animal travels, and number of hours spent daily in travel.

POST READING COMPREHENSION QUESTIONS OF PASSAGE NO.8

1. The purpose of this article is to
a. entertain
b. disprove a belief
c. give information on life in Egypt
d. compare camels with other animals

2. Camels retain the water they drink chiefly by
a. eating lush vegetation
b. not perspiring
c. inactivity
d. eating dry feed

3. The real purpose of a camel's hump is
a. to store food instead of water
b. to evaporate water
c. to carry huge loads
d. not mentioned

4. The camel sweats very little because
a. it has no pores in its skin
b. it is immune to the heat
c. its body temperature rises as external temperature increases
d. glandular deficiencies do not permit it

5. When a camel does drink, it drinks
a. very little
b. enough to last for three or four months
c. as much as it has lost
d. enough to last until the next oasis

6. The maximum length of time a camel can go without drinking
a. depends on how much water it has stored in its hump
b. depends only on the season of the year
c. is four months
d. varies

7. Which of the following does not affect the length of time a camel can go without drinking?
a. its diet
b. its sex
c. wind
d. heat

8. Implied but not stated:
a. A camel would make an excellent cavalry animal.
b. A camel can store up water to last for an indefinite time.
c. A camel needs water every three or four months.
d. A camel could easily adjust to the extremes of the desert.

PASSAGE NO.9

SCHEMA-ACTIVATING PRE-READING QUESTIONS (SAPQs):

1. **What do you do to keep your food fresh?**
2. **Is it possible to freeze your foods without a refrigerator?**
3. **Do you think that people in the past could freeze their foods? How?**
4. **What is the usefulness of freezing?**

In Labrador, a country so cold that meat is preserved by freezing it outdoors, Clarence Birdseye came to notice that meat which was frozen on the coldest days had a better flavour than meat frozen at other times. Being curious, he studied preserved meats under the microscope and found that if meats were frozen quickly on a very cold day, ice crystals did not have time to form long needles and the meat cells were not damaged.

Birdseye believed that if he could freeze other foods very rapidly, the same thing might happen. But, since there are not many days when the temperature drops 40 or 45 degrees below zero—even in Labrador—some way had to be found to freeze things rapidly without depending on the weather. Remembering that salty water can get very cold without freezing, Birdseye placed some cabbages in salt water and then exposed them to freezing winds. The cabbages froze quickly.

Later, Birdseye invented a machine to freeze foods while they were very fresh. Today, stores sell a great variety of frozen foods, and some foods that were once available only in certain districts or in season are now readily available in most communities in any season.

POST READING COMPREHENSION QUESTIONS OF PASSAGE NO.9

1. Meat which is frozen slowly
a. does not spoil
b. undergoes cell damage
c. undergoes no cell damage
d. is tastier

2. To freeze foods quickly, Birdseye experimented with
a. a microscope
b. meat in salt water
c. meat in freezing winds
d. cabbages

3. Cell damage is caused by
a. salty water
b. extremely low temperatures
c. outdoor freezing methods
d. needle-shaped ice crystals

4. salt water
a. never gets cold
b. freezes quickly
c. freezes at 32 °F
d. gets very cold without freezing

5. Birdseye's principal discovery regarding food preservation was that
a. rapid freezing would reduce cell damage
b. foods could be frozen and preserved for later use
c. salty water can get very cold without freezing
d. meat must be frozen at 45 degrees below zero

6. From Birdseye's experiments, we can conclude that there is an inverse relationship between
a. cell damage and salty water
b. Birdseye and frozen foods
c. cell damage and food flavour
d. food flavour and Labrador

7. Later, Birdseye invented
a. a refrigerator
b. a machine that would freeze foods quickly
c. a machine that would freeze foods slowly
d. the icebox

8. Much of the popularity of today's frozen foods is due to the fact that
a. foods may be widely distributed
b. disease can be eliminated
c. every American home has a deep freeze
d. such foods are now considered luxuries

PASSAGE NO.10

SCHEMA-ACTIVATING PRE-READING QUESTIONS (SAPQs):

1. **What do you know about *surfing*?**
2. **Where can you *surf*?**
3. **How do you *surf*?**
4. **What do you need when you *surf*?**
5. **What should *surfer* be like?**
6. **What is the usefulness of *surfing*?**

Surfing—the art of riding a wave on a pointed board—is the wildest, fastest natural water sport known to man. In recent year, it has developed into a major sport around the world, from Australia to South Africa. Husky Aussies brave man-eating sharks to ride the green waves Down under; Hawaiian experts risk their lives on huge, thirty-foot swells on the windward side of Oahu; Californians of all ages go out the year-round. In the wunter, surf-riders don waterproof survival suits to ride gray waves so cold that their flesh turns blue and their unprotected muscle knot.

Surfing is not sport for weaklings. Swimming a quarter of a mile or more, and pushing a surfboard out to where the swells are just right for launching, can be real work. Then, at precisely the right moment, you mount your aquatic steed and go slashing across the face of a powerful swell with the white water foaming at your heels. The hissing crest of the huge wave bites at your shoulder, threatening at any moment to smash you flat. In the next several seconds, a cool head and lightning quick reflexes will bring your board under control for that majestic ride down the back of the great, green mountain of water. Once on the beach, you know why surfing is growing in popularity as an international sport, and you're glad to be a member of this new water freternity.

POST READING COMPREHENSION QUESTIONS OF PASSAGE NO.10

1. Surfing is done
a. mainly in Australia
b. mainly on the leeward side of Oahu
c. all over the world
d. only in California

2. According to the author, surfing is
a. an art
b. a sport
c. a pointed board
d. both A and B

3. Sharks are a potential danger to riders in
a. Australia
b. Hawaii
c. South Africa
d. California

4. In California, surfing is
a. a minor sport
b. done all year-round
c. dangerous because of sharks
d. impossible in winter

5. The author believes that surfing
a. is an exciting sport
b. can be done by anyone
c. should be done by everyone
d. does not require courage

6. To be a surf-rider, one should be
a. quick-tempered
b. small-boned
c. able to react quickly
d. a superman

7. "Down Under" refers to
a. Oahu
b. South Africa
c. Australia
d. under the ocean

8. The author suggests that surfing is a comparatively dangerous water sport.
a. only in Australia
b. only on rough water
c. false
d. true

APPENDIX D

A SAMPLE OF THE ANALYSIS OF READABILITY ESTIMATE USING FRY'S READABILITY FORMULA

A Sample of the Analysis of Readability Estimate Using Fry's Readability Formula

Fry's Readability Formula for Estimating Readability

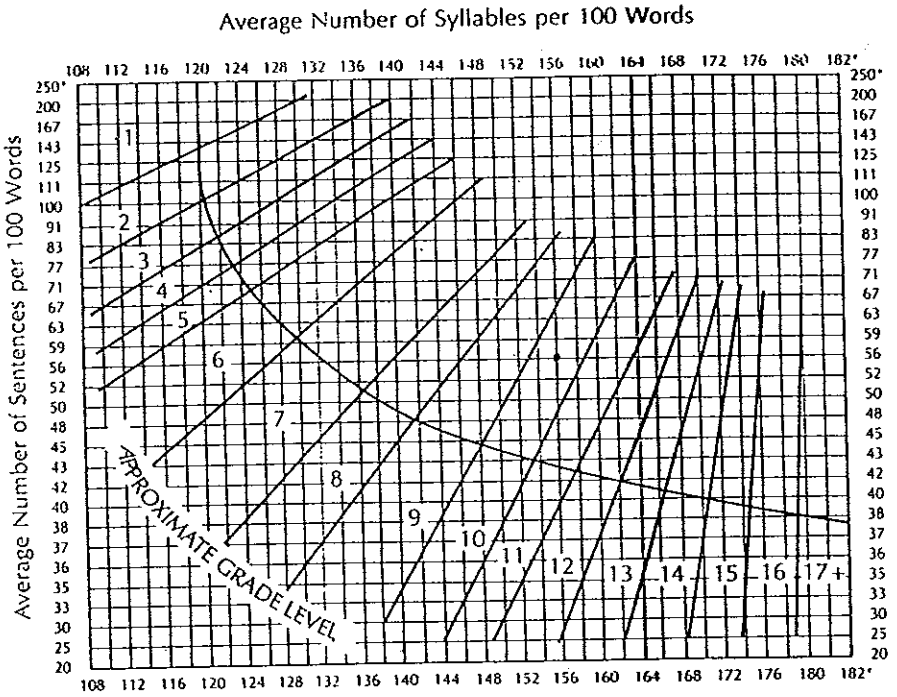
1. **Randomly selected three (3) sample passages and count out exactly 100 words each, commencing with the beginning of a sentence. Do count proper nouns, initializations, and numerals.**
2. **Count the number of sentences in the hundred words, estimating the length of the fraction of the last sentence to the nearest one-tenth.**
3. **Count the total number of syllables in the hundred-word passage. If you don't have a hand counter available, an easy way is simple to put a mark above each syllable beyond the first one. Then, when you get to the end of the passage, count the number of marks.**
4. **Enter graph with average sentence length and average number of syllables; plot a dot where the two lines intersect. The area where the dot is plotted will give you the approximate grade level.**
5. **A word is defined as a group of symbols with a space on either side; thus, Joe, IRA, 1945, and & are each one word.**
6. **A syllable is defined as a phonetic syllable. Generally, there are as many syllables as vowel sounds. For examples, stopped is one syllable, and wanted is two syllables. When counting syllables for numerals and initializations, count one syllable for each symbol. For examples, 1945 is four syllables, IRA is three syllables, and & is one syllable.**

Source: Edward Fry, " Fry's readability graph: Clarifications, Validity, and Extension to Level 17," Journal of Reading, 21 (1977), 242-252.

SAMPLE A: Readability estimate of the three selected passages from the student's course book using Fry's Readability Formula

Passage	No. of Sentences Per 100 words	No. of Words Per 100 words	No. of Syllables
No.1	7	187	167
No.2	6	298	153
No.3	4	374	150
Mean	5.6	286.3	156.6

FIGURE A: Graph for Estimating Readability for These Three Passages Taken from the Student's Course Book Using Fry's Readability Formula

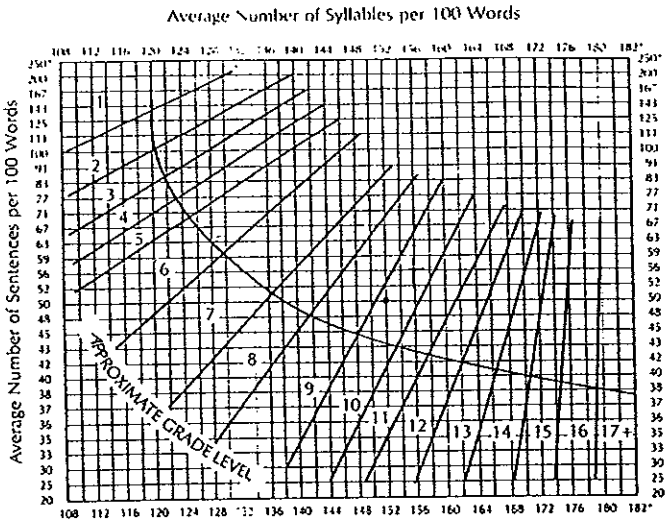


From Figure A, it can be assumed that the readability estimate of these three passages is of grade 10 when the plot is between 5.6 and 156.6.

SAMPLE B: Readability estimate of the ten selected passages from SRA series using Fry's Readability Formula

Passage	No. of Sentences per 100 words	No. of Words	No. of Syllables per 100 words
No.1	5	200	152
No.2	5	194	152
No.3	6	194	150
No.4	5	217	168
No.5	5	186	157
No.6	7	199	151
No.7	6	199	150
No.8	4	192	162
No.9	3	201	138
No.10	4	242	144
Mean	5	202.4	152.4

FIGURE B: Graph for Estimating Readability for These Ten Passages Selected from SRA Series Using Fry's Readability Formula



From Figure B, it can be assumed that the readability of these ten passages is of grade 10 when the plot is between 5 and 152.4 (data from Sample B).

APPENDIX E

THE DISTRIBUTION OF STUDENTS IN THE PILOT STUDY

The Distribution of the Students in the Pilot Study

Students	Experimental Group (score)	Control Group (score)
1.	39	39
2.	38	38
3.	37	37
4.	37	36
5.	36	36
6.	35	35
7.	34	34
8.	34	34
9.	34	33
10.	33	33
11.	32	33
12.	31	31
13.	30	30
14.	30	30
15.	29	29
Mean	34.31	34.34

APPENDIX F

THE DISTRIBUTION OF SUBJECTS IN THE MAIN STUDY

The Distribution of the Subjects in the Main Study

Subjects	Experimental Group (score)	Control Group (score)
1.	54	52
2.	51	51
3.	49	49
4.	48	47
5.	46	46
6.	44	45
7.	44	44
8.	43	44
9.	43	42
10.	42	42
11.	41	41
12.	40	41
13.	40	40
14.	40	40
15.	40	40
16.	28	28
17.	28	28
18.	28	28
19.	27	27
20.	26	26
21.	26	26
22.	25	25
23.	24	25
24.	23	24
25.	22	23
26.	21	22
27.	19	18
28.	17	17
29.	16	15
Mean	33.93	33.86

APPENDIX G

THE ENGLISH READING COMPREHENSION ABILITYOF THE SUBJECTS IN THE CONTROL AND EXPERIMENTAL GROUPS IN THE TESTING STAGE

The Reading Comprehension Scores of the Students in the Control Group in the Testing Stage

Subjects	Passage No.7	Passage No.8	Passage No.9	Passage No.10	Total	Mean
1.	7	5	4	4	20	5.00
2.	7	8	4	6	25	6.25
3.	7	7	6	8	28	7.00
4.	7	8	8	7	30	7.50
5.	7	6	5	4	22	5.50
6.	7	6	1	6	20	5.00
7.	6	4	4	4	18	4.50
8.	8	3	4	5	20	5.00
9.	6	6	3	4	19	4.75
10.	8	7	4	6	25	6.25
11.	7	4	8	6	25	6.25
12.	7	5	4	5	21	5.25
13.	7	5	4	4	20	5.00
14.	7	1	3	5	16	4.00
15.	6	5	1	1	13	3.25
16.	5	3	2	3	13	3.25
17.	6	3	3	2	14	3.50
18.	6	3	2	1	12	3.00
19.	5	5	3	4	17	4.25
20.	5	4	1	3	13	3.25
21.	5	3	4	3	15	3.75
22.	7	3	3	4	17	4.25
23.	7	0	2	3	12	3.00
24.	5	2	2	4	13	3.25
25.	6	2	2	3	13	3.25
26.	4	1	2	4	11	2.75
27.	3	2	1	0	6	1.50
28.	8	1	2	6	17	4.25
29.	6	2	2	1	11	2.75
Mean	6.27	3.93	3.24	4.00	17.44	4.36

The Reading Comprehension Scores of the Students in the Experimental Group in the Testing Stage

Subjects	Passage No.7	Passage No.8	Passage No.9	Passage No.10	Total	Mean
1.	8	6	7	5	26	6.50
2.	7	6	6	6	25	6.25
3.	6	6	5	5	22	5.50
4.	7	6	5	6	24	6.00
5.	7	7	6	5	25	6.25
6.	7	6	5	5	23	5.75
7.	8	6	5	5	24	6.00
8.	7	5	5	6	23	5.75
9.	7	6	6	6	25	6.25
10.	7	6	4	5	22	5.50
11.	8	7	6	5	26	6.50
12.	7	6	5	4	22	5.50
13.	6	4	5	6	21	5.25
14.	7	5	6	5	23	5.75
15.	7	5	5	5	22	5.50
16.	8	6	5	6	25	6.25
17.	6	5	5	6	22	5.50
18.	8	6	3	5	22	5.50
19.	6	5	5	4	20	5.00
20.	6	5	4	4	19	4.75
21.	7	6	5	4	22	5.50
22.	5	6	4	6	21	5.25
23.	4	5	7	4	20	5.00
24.	7	5	3	5	20	5.00
25.	6	6	4	5	21	5.25
26.	7	6	5	4	22	5.50
27.	7	6	5	5	23	5.75
28.	8	4	5	5	22	5.50
29.	6	4	4	3	17	4.25
Mean	6.79	5.58	5.00	5.00	22.37	5.59

APPENDIX H

THE COMPREHENSION TIME OF THE SUBJECTS IN THE CONTROL AND EXPERIMENTAL GROUPS IN THE TESTING STAGE

The Comprehension Time of the Subjects in the Control Group in the Testing Stage

Subjects	Passage No.7	Passage No.8	Passage No.9	Passage No.10	Total	Mean
1.	10	8	9	6	33	8.25
2.	7	17	9	9	42	10.5
3.	12	11	10	11	44	11.0
4.	3	6	4	5	18	4.50
5.	10	8	6	7	31	7.75
6.	10	7	8	7	32	8.00
7.	10	9	9	7	35	8.75
8.	8	5	4	7	24	6.00
9.	10	9	8	9	36	9.00
10.	13	10	10	10	43	10.75
11.	6	11	5	4	26	6.50
12.	10	14	9	8	41	10.25
13.	13	10	10	9	42	10.50
14.	10	8	10	10	38	9.50
15.	10	8	11	6	35	8.75
16.	7	9	9	9	34	8.50
17.	8	14	10	10	42	10.50
18.	9	13	10	10	42	10.50
19.	6	10	8	8	32	8.00
20.	13	10	11	10	44	11.00
21.	10	10	12	10	42	10.50
22.	12	9	8	9	38	9.50
23.	10	10	12	10	42	10.50
24.	5	8	7	8	28	7.00
25.	13	10	10	10	43	10.75
26.	10	11	12	10	43	10.75
27.	12	11	10	9	42	10.50
28.	13	10	11	10	44	11.00
29.	7	17	9	9	42	10.50
Mean	9.55	10.10	9.00	8.51	37.17	9.29

The Comprehension Time of the Subjects in the Experimental Group in the Testing Stage

Subjects	Passage No.7	Passage No.8	Passage No.9	Passage No.10	Total	Mean
1.	5	5	6	8	24	6.00
2.	4	5	5	5	19	4.75
3.	6	7	7	6	26	6.50
4.	8	9	10	10	37	9.25
5.	9	9	9	10	37	9.25
6.	5	7	6	6	24	6.00
7.	5	6	9	6	26	6.50
8.	10	10	5	10	35	8.75
9.	7	8	9	8	32	8.00
10.	9	8	9	8	34	8.50
11.	5	7	5	6	23	5.75
12.	9	8	9	8	34	8.50
13.	7	8	7	6	28	7.00
14.	6	8	9	4	27	6.75
15.	6	6	8	8	28	7.00
16.	9	8	10	9	36	9.00
17.	5	5	6	4	20	5.00
18.	5	9	6	5	25	6.25
19.	5	5	5	5	20	5.00
20.	10	8	10	9	37	9.25
21.	9	9	9	10	37	9.25
22.	8	6	10	4	29	7.25
23.	9	9	9	8	35	8.75
24.	10	8	7	7	32	8.00
25.	6	8	10	5	29	7.25
26.	10	5	5	5	25	6.25
27.	7	6	10	9	32	8.00
28.	10	9	9	9	37	9.25
29.	9	10	9	9	37	9.25
Mean	7.34	7.44	7.86	7.13	29.82	7.45

APPENDIX I

THE FORMULAE OF THE STATISTICAL ANALYSES

The Formulae Used in the Statistical Analyses

1. Computation of arithmetic Mean $(\overline{X})$

$$\overline{X} = \frac{\sum X}{N}$$

Where $\overline{X}$ = the mean

Σ = the sum of scores

X = the scores

N = the number of testees

2. Computation of Standard Deviation (S.D.)

$$SD = \frac{\sum (X - \overline{X})^2}{N-1}$$

Where SD = standard deviation

X = the scores

$\overline{X}$ = the mean of the scores

Σ = the sum of scores

N = the number of testees

3. Test of Significance of the Difference between Two Groups Mean Scores

Independent t - test

$$T = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\frac{SD^2_1}{n_1} + \frac{SD^2_2}{n_2}}}$$

Where $\overline{X_1}$ = the mean score of group1

$\overline{X_2}$ = the mean score of group 2

SD_1^2 = the variance of group 1's scores

SD_2^2 = the variance of group 2's scores

n_1 = the number of subject in group 1

n_2 = the number of subjects in group

4. Calculation of the Pearson Product – Moment of Correlation Coefficient

$$r_{xy} = \frac{\sum(y-\bar{y})(X-\overline{X})}{N \; S_y \; S_x}$$

Where r_{xy} = Pearson product – moment correlation coefficient

Σ = the sum of the scores

y = each subject 's scores on Test Y

$\bar{y}$ = mean on scores of Test Y

S_y = standard deviation on Test Y

X = each subject's scores on Test X

$\overline{X}$ = mean on scores of Test X

Sx = standard deviation on Test X

N = the number of subjects in one group

Source: Fraenkel, J. and Wallen, N. 1993. How to Design and Evaluate Research in Education. USA: McGraw-Hill.

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