AN EXPERIMENTAL STUDY OF THE EFFECTIVENESS OF THE STUDENT-GENERATED QUESTION TECHNIQUE ON READING ACHIEVEMENT OF THE FIRST YEAR NURSING STUDENTS AT MAHIDOL UNIVERSITY

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ชื่อวิทยานิพนธ์ การทดลองเพื่อหาประสิทธิภาพของการสอนการอ่านภาษาอังกฤษเพื่อความเข้าใจโดยใช้เทคนิคที่ให้ผู้เรียนตั้งคำถามเกี่ยวกับเนื้อเรื่องที่อ่านด้วยตนเอง ของนักศึกษาพยาบาลปีที่ 1 มหาวิทยาลัยมหิดล

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาประสิทธิภาพของเทคนิคการสอนทักษะความเข้าใจในการอ่านภาษาอังกฤษโดยให้ผู้เรียนอ่านแล้วตั้งคำถามด้วยตนเอง เปรียบเทียบกับเทคนิคที่ผู้เรียนอ่านแล้วตอบคำถามของครู โดยศึกษาว่าเทคนิคใดจะช่วยให้ผู้เรียนพัฒนาความเข้าใจในการอ่านภาษาอังกฤษได้มากกว่ากัน

ผู้วิจัยได้ทำการทดลองสอนทักษะความเข้าใจการอ่านภาษาอังกฤษกับกลุ่มตัวอย่างซึ่งเป็นนักศึกษาพยาบาลปีที่ 1 มหาวิทยามลัยมหิดล โดยแบ่งเป็น 2 กลุ่ม ๆ ละ 30 คน กลุ่มที่หนึ่งได้รับการฝึกให้อ่านแล้วตั้งคำถามด้วยตนเอง และกลุ่มที่สองสอนโดยให้ผู้เรียนอ่านแล้วตอบคำถามของครู เครื่องมือที่ใช้ในการทดสอบผลสัมฤทธิ์ทางการอ่านภาษาอังกฤษเป็นข้อสอบที่ผู้วิจัยสร้างขึ้นเพื่อวัดความสามารถในการอ่านทั้งก่อนและหลังการทดลอง ส่วนเครื่องมือที่ใช้ทดสอบทัศนคติของผู้เรียน

ที่มีต่อการเรียนการอ่านภาษาอังกฤษโดยผู้เรียนอ่านแล้วตั้งคำถามด้วยตนเองเป็นแบบสอบถามที่ผู้วิจัยสร้างขึ้นเช่นเดียวกัน การทดลองใช้เวลา 1 ภาคเรียน

สรุปผลการวิจัยได้ว่า การทดลองสอนโดยให้ผู้เรียนอ่านแล้วตั้งคำถามด้วยตนเองสามารถช่วยให้ผู้เรียนพัฒนาความเข้าใจในการอ่านภาษาอังกฤษได้มากกว่าการสอนโดยให้ผู้เรียนอ่านแล้วตอบคำถามของครู โดยมีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับความเชื่อมั่น .001 การวิจัยพบว่าผู้เรียนระดับอ่อนได้รับการพัฒนามากที่สุด รองลงมาคือผู้เรียนระดับปานกลาง ในขณะที่ ผู้เรียนระดับเก่งได้รับการพัฒนาน้อยที่สุด สำหรับความสามารถในการตั้งคำถามด้วยตนเองนั้น พบว่าผู้เรียนที่ได้รับการฝึกให้ตั้งคำถามสามารถตั้งคำถามด้วยตนเองได้ในระดับที่สูงกว่าผู้เรียนที่ไม่ได้รับการฝึก โดยมีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับความเชื่อมั่น .001 นอกจากนี้ผู้เรียนได้แสดงความคิดเห็นต่อการเรียนโดยเทคนิคที่ผู้เรียนอ่านแล้วตั้งคำถามเองว่า เป็นเทคนิคที่เรียนแล้วรู้สึกชอบ ช่วยกระตุ้นให้คิดก่อนอ่านเพื่อหารายละเอียด ช่วยให้ทราบประเด็นสำคัญของเรื่องที่กำลังอ่าน รวมทั้งทำให้มีโอกาสทำความเข้าใจเนื้อหามากขึ้น

จากผลการวิจัยทั้งหมด ผู้วิจัยจึงเสนอแนะว่า ครูสอนภาษาอังกฤษควรฝึกให้ผู้เรียนตั้งคำถามด้วยตนเองเพื่อช่วยให้ผู้เรียนพัฒนาความสามารถในการอ่านจนกระทั่งมีความสามารถในระดับที่จะอ่านด้วยตัวเองได้โดยที่พึ่งครูผู้สอนน้อยลง นอกจากนี้ครูควรจัดบรรยากาศการเรียนการสอนให้เหมาะสมต่อการฝึกให้ผู้เรียนตั้งคำถามด้วยตนเอง รวมทั้งครูควรเป็นตัวอย่างที่ดีในการถามคำถามด้วย

Thesis Title An Experimental Study of the Effectiveness of the Student-Generated Question Technique on Reading Achievement of the First Year Nursing Students at Mahidol University

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ABSTRACT

This experimental study investigated the effectiveness of the student-generated question technique. It aimed to find out whether teaching reading by students' questioning was better than answering questions posed by a teacher in increasing students' reading ability.

Two groups of first year nursing students at Mahidol

University were randomly assigned to either control or experimental groups. Each group consisted of 30 students. The control group received practice in answering a teacher's questions while the experimental group practiced generating their own questions after reading. They were taught for a semester in the regular reading course. The tool employed to determine the English reading achievement of both groups was an English reading achievement test constructed by the researcher. A self-generated question test was also administered to students in orders to determine whether trained and untrained students could generate questions on their own. A questionnaire eliciting students' attitudes toward the self- generated question technique was taken into consideration.

The findings of this study can be summarized as follows:

1. Teaching reading by the student-generated question technique significantly increased students' reading ability at a .001 level.

2. The weak and average students in the experimental group achieved significantly greater results than did those in the control group. Good students in both groups showed no statistically significant differences from each other.

3. Trained students gained a significantly higher mean scores than untrained students at .001 level.

4. The majority of students revealed positive attitudes toward the student-generated question technique.

The implications for teaching and reading English are as follows:

1. Students should actively be trained to generate their own questions instead of answering a teacher's questions. They should be equipped to be independent readers. To facilitate this, extensive training should be provided in reading courses.

2. Weak and average students should particularly be trained to monitor their state of reading comprehension by using the self-generated question technique.

3. English teachers should arrange an appropriate environment for training students to generate their own questions and they themselves should be good models for asking questions.

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CHAPTER I

INTRODUCTION

Reading is one of the primary skills of communication. Not surprisingly, teachers in general as well as English language teachers in particular rely heavily upon its use. According to Mirriam (1950 : 126-136), reading is the skill most used in a typical class of English, Undoubtedly, most teachers would label reading the most essential skill for acquiring knowledge or gathering information.

A number of studies have already been conducted with regard to the English reading skills of Thai students, a number of studies have already been conducted. These studies have not only examined the reading ability of Thai students but also the reading strategies they employ. Many researchers have argued that Thai students of English should be able to read independently . However, it has been found that the reading ability of tertiary level students (Subongkot : 1967, Thammongkol :1971, Tuaycharean : 1972, Manasuntorn : 1976, Suaysuwan : 1978, Sukhasem et al : 1980, Mangproyoon : 1981, Ratanapinyopong : 1983, Sinseubpol : 1984), as well as secondary level students (Iamsupanimt : 1983, Tangbarchertsuk : 1982, Chatnarudom: 1984, Sungthongjhin : 1986) is unsatisfactory. Although these students might read quite well in class under a teacher's

supervision, they cannot demonstrate this same ability under test conditions.

There may be two reasons for this failure. On the one hand teachers may assume that students know how to read English because they know how to read Thai language. On the other hand, teachers may so direct the reading class that students never learn how to take charge of their own reading process. Consequently, this experimental study was designed to determine the extent to which instruction in a self-access mode enables students to demonstrate improved reading ability.

To accomplish this goal, an experimental group of students was taught to generate their own questions while reading. A control group, in contrast, was neither encouraged to ask their own questions nor given instruction in constructing questions. The results of the study may help to convince teachers that reading must be taught and not just tested, and that an important way to teach reading includes having students direct their own reading process by means of self-generated question.

The presentation of this study is divided into five chapters. Chapter one discusses the rationale and background of the study , statements of the problem, purposes of the study, significance of the study, definition of terms, limitation of the study, and basic assumption. Chapter two reviews the literature and research related to

this study. Chapter three describes the subjects, method including the research design, instruments, and descriptive statistics of the study. Chapter four presents the data obtained. Chapter five summarizes and discusses the findings and make suggestions for implementation and recommendations for further study.

Rationale and background of the study

It is undeniable that reading is an essential tool in learning any language. Knowledge of any professional area can be acquired through reading (Wilson et al, 1951: 254; and Tinker and McCullough, 1968: 254), particularly in situations where English is learned as a foreign language (Carrell, 1988: 1) and materials are extensively written in English for academic purposes (Eskey, 1973: 169-184). Carrell also emphasizes this role of reading:

> Professionals in second language education should be vitally concerned with approaches that can improve the reading skill of learners.
>
> (Carrell, 1988: 1)

Reading is paramount and likely to be " the most attainable language skill " for students whose spoken language is not English (Dubin, 1982: 14).

Besides this general recognition of the significance

of reading, the need of English by nursing students must be taken into consideration. According to A Survey of Needs, Wants, and Expectations for the Use of English of Nurses : Undergraduates at Mahidol University investigated by Siriwong (1984), reading was the language skill most often used in the nurses work (53.5%) (p.146). In addition, reading was identified by the teachers'group as the skill most needed (74.1%) (p.146). From the information obtained, the investigator concluded that, regarding English, nursing students need to use reading skills in both their learning and their profession. Consequently, reading was the skill examined in this study.

Normally, the first year nursing students have only four hours English class a week, as one of their many subjects. Moreover, they have to concentrate on their major subject matter as reflected by administrative considerations. As a result, students are inevitably assigned a number of external readings because of the time constraint. Students are encouraged to use Robinson's (1946) technique (SQ3R : Survey, Question, Read, Recite, Review) for the external assignments. In traditional English classes, as well as in other subject areas, a teacher as a professional question maker always asks students guided questions leading to comprehension while students perform as passive readers. To be active readers, students should perform as the teacher by asking their own

questions. Unfortunately, they may lack the ability to ask their own questions because they have rarely been trained to construct questions (Sangakit, 1989 : 108). It is, therefore, reasonable for a teacher to transmit the ability of asking questions to students since this ability leads to the effective self-directed learning (Fraentel, 1980 : 160). Furthermore, Henry (1984 : 29) points out that the advantage of employing reader-generated questions is to enable students to see reading as an interactive process between the reader and the author. In this way, students can be independent readers.

Statement of the problem

According to Goodman (1967), reading is "a psycholinguistic guessing game" in which the reader constructs a message. Goodman views the act of constructing meaning as a cyclical process of sampling from the input, predicting, testing and confirming or revising those predictions, and further sampling. Cook and Mayer's (1983) delineation of the encoding process is similar to this view. Cook and Mayer explain the encoding processes which are mobilized by specfic reading strategies. These encoding processes are called selection, acquistion, construction, and integration. " Selection " is defined as the process of selective attention. " Acquistion " is the process of transferring information from attention to long-term memory.

" Construction " is to establish internal connections among ideas from the text. " Integration " means relating the relevant existing knowledge to the ideas and knowledge acquired from the text. Goodman, and Cook and Mayer similarly claim that the reading process involves both accessing existing knowledge and mapping new ideas into that knowledge. Cook and Mayer suggest that the encoding processes may serve as the goal of various reading strategies " (p.90). According to several attempts (Cook and Mayer : 1983, Block :1986, Chamot and Kupper : 1989, Oxford et al : 1989, etc), self-questioning instruction need to be conducted. Hunkins (1972 : 32), Tinsley (1973 : 710), and Nolte and Singer (1985 : 30) remark that the question is the most important instructional tool by which students can develop knowledge and skills in thinking. Student questioning is the focal point of the discovery process which actively involves students in the learning process. Hunkins stresses that :

> Questions enable pupils to investigate productively. Questions can guide pupils thinking as they proceed from examining specific facts to analyzing and evaluating generalized statements and vice versa.
>
> (Hunkins, 1972: 10)

Similarly, Goodman (1979: 20) and Hyman (1979: 1) define the question as the fundamental tool used for directing students to think of or solve a problem. Consequently, it is obvious

that the question is a vital tool for acquiring knowledge. A number of educators (Gall: 1970, John: 1983, Henry: 1984, Mikulecky: 1984, Gordon: 1985, Block: 1986, McKay: 1987, Langer and Neal: 1987, Redfield: 1989, Mealey and Nist: 1989) unanimously agree that training students to possess a question-asking skill is an important key for educational innovation. But students need to be taught to ask proper questions (Durkin: 1974, Torrance and Myers: 1974, Cates and Swaffer: 1979, McNeil: 1984, Oxford et al: 1989, Chamot and Kupper: 1989). Torrance and Myers (1974: 237), for example, remark that:

> Although children very often ask excellent questions, they also ask questions which are foolish, unnecessary, poorly expressed, irrelevant, untimely, impolite, and aimless. These questions that do not lead to constructive thinking might be called "unproductive". True education, however, is concerned with asking appropriate questions and getting useful or interesting answers and so teachers should encourage their pupils to ask questions that will be instrumental in their acquisition of knowledge and understanding. We can call these questions "productive".
>
> (Torrance and Myers, 1973: 237)

Students usually study passively. They rarely ask about what they do not understand. Floyd (1960; cited in Gall, 1970) found that students questions were 3.75%, 5.14%, and 3.64% of total number of questions asked during a taped class period of the first, second, and third grade classroom, respectively. In like manner, Dode (1966; cited

in Gall, 1970) and Bellack et al (1966; cited in Gall, 1970) report that the low incidence of student questions also occurs in social studies class at the elementary level, and at the senior highschool level, respectively. Moreover, this circumstance takes place in highschool English classes, as well (John, 1968; cited in Gall, 1970). The low incidence of student questions may be due to two reasons. On the one hand, students lack training in asking questions (Durkin: 1974, Torrance and Myer: 1974, Cornwall: 1986). Often, students are not able to generate specific questions since they are always offered opportunities to answer questions while a chance to practice asking questions is really rare (Cornwall, 1986: 12-13). On the other hand, the importance of "the question" or "the best question" is neglected since in school, at home, at work, on television quiz show, emphasis is instead placed on "the answer", "the best answer", or "the right answer" (Otiz, 1977: 14). That is, the emphasis is misplaced.

Because of the low incidence of student questions, several educators contend that attention should be shifted to questions asked by students rather than by teachers (Wellington and Wellington: 1962, and Carner: 1963; cited in Gall: 1970, Gall: 1970, Singer: 1978, Sanacore: 1985, Nolte and Singer: 1985, Zaher: 1987, Williamson: 1988). Zaher (1987: 36), for example, states that:

> This process (a teaching process that aims at helping students become active readers) departs from the traditional strategy of asking students questions before, during, and after reading. Instead, it focuses on teaching students to formulate their own questions. The purpose of such a process is to help students acquire a reading schema that emphasizes the reader's purpose and the dynamic interaction between the reader and the printed page.
>
> (Zaher, 1987: 36)

However, inspite of its seemingly obvious relevance, question asking has not yet been extensively researched. So far, self questioning has long been neglected and never conducted in English reading classes at any level of English instruction in Thailand. This experimental study is therefore justifiable, in the target situation, to determine whether students can be trained to be independent readers. The outcome may benefit students who want to search for information in print; moreover, some existing problems concerning reading ability may diminish. For example, Mangprayoon (1981), Sommart (1982), and Chatnarudom (1984) investigated the critical reading ability in English of the teacher students at north-east college, and the interpretative reading ability in English of the tertiary students, respectively. These researchers found that the outcomes were unsatisfactory. However, these problems may decrease if students are trained to generate their own questions to enhance reading comprehension.

Purpose of the Study

The purpose of this experimental study is to determine the effectiveness of student-generated question techniques on the reading achievement of the first year nursing students at Mahidol University. This study, therefore, is conducted:

1. To determine the English reading achievement of students not receiving instruction of the self-questioning technique.
2. To determine the English reading achievement of students receiving instruction of the self-questioning technique.
3. To compare the English reading achievement of students receiving conventional techniques and that of students receiving instruction in the self-questioning technique.
4. To compare the English reading achievement among students of different English reading ability -- good, average, and weak -- in both groups after instruction.
5. To compare the scores derived from a self-generated question test of students untrained to ask questions and those of students trained to generate their own questions after instruction.
6. To investigate students' attitudes toward using the self-generated question technique in

reading.

Significance of the Study

This study is designed to determine the effectiveness of the student-generated question technique on reading achievement of the first year nursing students. The results may have the following implications:

1. English reading teachers may gain a better strategy to facilitate teaching reading.
2. Students may better acquire knowledge from reading by developing this strategy.
3. Students may be encouraged to have a more positive attitude towards a self-questioning strategy than they have at the present time.
4. The self-access reading program might be set at any English language institutes so as to foster development of students using self-directed learning.

Definition of Terms

This study includes the following terms:

1. A Self-Questioning Technique

A way for students to ask their own questions in

written forms. Questioning consists of both question in spoken and written forms. This terminology includes other terms such as self-generated question, self-constructed questions, self-initiated questions, self-questioning, student-posed questions. These terms refer to questions asked by students.

2. A Taxonony of Questions

Tollefson's (1989) categories of type of questions employed in training students to ask include five levels as follows:

1. Literal comprehension : Questions requiring the recognition or recall of specific information.
2. Reorganization : Questions requiring the analysis, synthesis or organization of information.
3. Inferential comprehension : Questions requiring guessing or forming hypotheses from information explicitly stated.
4. Evaluation : Questions requiring making judgement of information.
5. Appreciation : Questions requiring students to respond to information.

3. Language functions

Language showing functions of process, shapes,

location, structure, measurement, comparison, cause and effect, classification and definition, and function.

4. Reading Comprehension

Students' ability to understand what they have read.

5. The English Reading Achievement

Students' ability to achieve English reading comprehension.

6. Pre- and Post- Reading Test

The English reading comprehension test constructed by the investigator.

7. Students/Subjects

The first year nursing students studying at Mahidol University.

8. The Control Group

Subjects studying in traditional reading instruction.

9. The Experimental Group

Subjects trained to ask their own questions in reading class.

10. Good Students

Students getting pretest scores from 26 to 29 (the

total scores are 40).

11. Average Students

Students getting pretest scores from 20 to 25.

12. Weak Students

Students getting pretest scores from 16 to 19.

Scope and Limitation of the Study

1. The experiment was conducted in a normal reading class. The duration of the study was 12 fifty-minute sessions in the first semester.

2. Materials for practice were taken from SRA Reading for Understanding 2 and 3; and adapted from other authentic materials.

3. The subjects in this experiment were 60 first year nursing students studying at Mahidol University. They were randomly classified into either a control group or an experimental group. The inter-subject factors were ability levels (good, average, and weak) and treatment (no question training, and question training).

4. The number of subjects and ability levels in the two groups was identical.

5. The subjects in the control group practiced in traditional reading instruction while those in an

experimental group were trained to ask their own questions. Both groups, however, were instructed by the investigator.

Basic Assumptions

In this experimental study, it was assumed that:

1. all subjects in both groups would have identical academic backgrounds and English reading proficiency.

2. all subjects would be willing to attend this experimental study and would work to their best ability.

3. the pretest would have no inference on subjects' posttest scores in both groups.

4. all subjects in the experimental group of this study would respond to all questionnaire items concerning their attitude towards a self-questioning technique honestly.

CHAPTER TWO

REVIEW OF RELATED RESEARCH AND LITERATURE

This study aims to determine the effectiveness of student-generated question techniques on English reading achievement of students at the tertiary level. The experiment was conducted in a normal class of English reading instruction at Mahidol University, Bangkok. The underlying theoretical issues examined are the following:

I Reading Comprehension and Levels of Comprehension.

II Learning Strategies in the Acquisition of Reading Skills.

III A Theory of Question Asking.

IV The Role of Questions and the Student-Questioning Technique.

V Levels and Types of Questions.

VI Suggestions on Self-Questioning Techniques Employed in Reading Instruction.

VII Research Studies in Self-Questioning : theory and practice.

A. Stages of Reading Instruction

B. Theoretical Perspectives in Self-Questioning Instructional Research

1. Schema Theory and Related Studies

2. Active Processing and Related Studies

3. Metacognitive Theory and Related Studies

I. Reading Comprehension and Levels of Comprehension

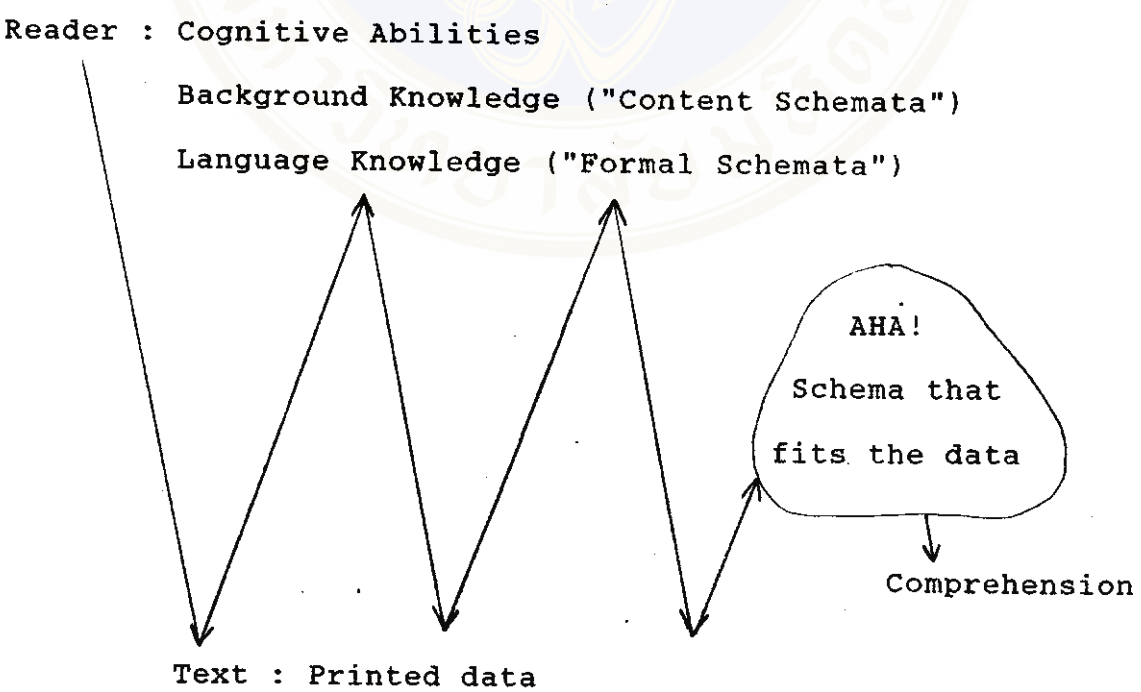
Reading is defined as a complicated skill consisting of several components and characteristics such as a psychological component, physical state, or social environment (Dubin, 1982: 14). Reading, therefore, is an integrated language process. According to Smith (1978: 12), reading is an active activity in which readers must make a substantial and active contribution whenever they comprehend printed material. Similarly, Anderson (1984: 186) summarizes, based on psycholinguistic model, that "reading is an active process" (p. 186). Moreover, Grellet (1981) declares that:

> ... reading is an active skill ... it constantly involves guessing, predicting, checking, and asking oneself questions.
>
> (Grellet, 1981: 8)

Similar view is held by Sanoccore (1984: 707) who claims that the ability to generate good questions while studying prose material is the crucial aspect of active comprehension. In addition, Nolte and Singer (1985) stress that:

> ... active comprehension is a process of generating questions throughout reading. In this process, the student establishes the goal, determines, what content is important, generates questions and searches for answers to them.
>
> (Nolte and Singer (1985: 24)

Nolte and Singer (1985: 30) further state that student-questioning is a process of reading that enables students to become independent in how to comprehend a text and that results in comprehension. Therefore, comprehension as a terminal goal of reading is widely emphasized because of its importance in the reading process. Goodman (1973), Smith (1973), Spiro (1980) and many others, as stated by Mikulecky (1984), have defined comprehension as "an interactive constructive process" (p. 262). The reader samples the text and makes guesses. As the reader makes guesses, he is matching the sampled input with previous knowledge so as to comprehend the meaning. The reader also confirms guesses through other samples. The process of reading comprehension can be illustrated as follows:



(Mikulecky, 1984 : 263)

According to this illustration, readers employ several skills to reach the ultimate goal of comprehension, since each reader, in terms of reading comprehension, is different. Comprehension, therefore, consists of several levels. What is more, each category of comprehension is organized differently by a number of educators. Bloom et al (1956) categorize comprehension into six levels in order to help students reach the goal of learning objectives. These levels are arranged from the lowest to the highest level as follows:

1. Knowledge

This level involves the recall of information including these sub-categories:

1.1 Knowledge of specifics

-terminology

-specific facts

1.2 Knowledge of ways and means of dealing with specifics

-conventions

-trends and sequences

-classifications and categories

-criteria

-methodology

1.3 Knowledge of the universals and abstractions in a field

-principles and generalizations

-theories and structures

2. Comprehension

This level refers to understanding divided into three types : translation, interpretation, and extrapolation.

2.1 Translation

Communication is transformed from one language, form of communication to another.

2.2 Interpretation

Interpretation refers to the explanation or summarization of a communication.

2.3 Extrapolation

This type extends the tendencies beyond the given information including the ability to deal with the conclusions in terms of making inferences, and skill in predicting.

3. Application

Application is the ability to apply abstractions to concrete situations.

4. Analysis

This level concerns the constituent elements and the whole of ideas including analysis of elements,relationships, and organizational principles.

5. Synthesis

It is the level of forming the elements, and parts to be the whole. This level consists of :

- production of a unique communication
- production of a plan, or proposed set of operations
- deviation of a set of abstract relations

6. Evaluation

Evaluation refers to judgement of information by using the internal evidence and external criteria.

Sanders (1966), adapting Bloom's categories of thinking, classifies comprehension into seven levels:

1. Memory

Memory as the lowest level requires students to recall or recognize information.

2. Translation

This level calls upon students to transform information into a different symbolic form or language.

3. Interpretation

Interpretation requires students to discover relationships among ideas or information.

4. Application

Students deal with solving a problem by using the appropriate generalizations and skills.

5. Analysis

This level concerns solving a problem by utilizing the conscious knowledge of thinking.

6. Synthesis

Synthesis requires solving a problem in the sense of original, creative thinking.

7. Evaluation

Evaluation emphasizes making a judgement of information according to standards students set.

Barrett (1968) categorizes the cognitive (and affective) dimensions of reading comprehension into five levels as follows :

1. Literal comprehension

Literal comprehension concerns ideas and information explicitly stated in the text. This level includes these types :

1.1 Recognition

Recognition calls upon students to locate or identify ideas or information explicitly. Recognition involves detail, main ideas, sequences, comparison, cause and effect relationships, and character traits.

1.2 Recall

This level requires students to recall the explicit ideas and information involving details, main

ideas, sequences, cause and effect relationships, and character traits.

2. Reorganization

Reorganization requires students to analyze, synthesize and organize ideas or information explicitly stated in the text. Reorganization tasks are classifying, outlining, summarizing, and synthesizing.

3. Inferential comprehension

Inferential comprehension involves thinking and imagination which goes beyond the explicit ideas or information. This level consists of inferring supporting details, main ideas, sequences, comparisons, cause and effect relationships, character traits,outcomes, and figurative language.

4. Evaluation

In this level, students deal with judgement on the basis of qualities of accuracy, acceptability, desirability, worth or probability of occurrence. Judgement involves reality or fantasy, fact or opinion, adequacy and validity, appropriateness,and worth, desirability and acceptability.

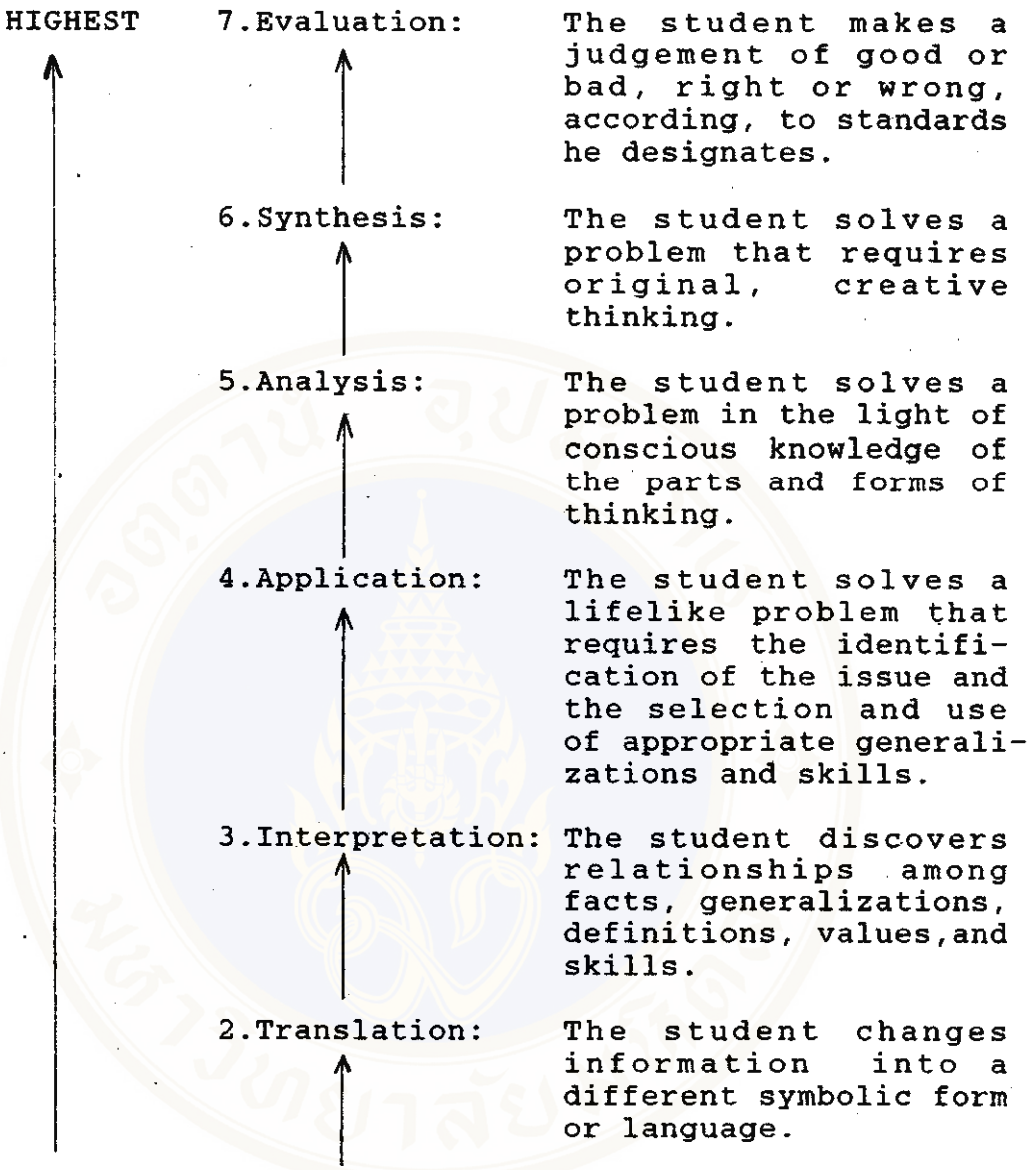
5. Appreciation

Appreciation requires students to be emotionally and aesthetically sensitive to the information and to react

to the worth of its psychological and artistic elements. This level includes the knowledge and the emotional response to literary techniques, forms, styles, and structures. Appreciation deals with emotional response to the content, identification with characters or incidents, reactions to the author's use of language, and imagery.

According to these taxonomies, students are called upon to comprehend what they have read since reading does not occur unless comprehension takes place (Smith and Barrett, 1979 : 61-69). The teaching of reading comprehension, therefore, is fundamental at all levels. Students not only comprehend the low levels, but they should reach the higher levels of comprehension (Bloom et al:1956).

Carin and Sund (1971), using Sanders' classification, raise the categories of thinking arranged into as hierarchy as in the following chart :



(Carin and Sund, 1971:26)

With regard to the reading skill, Valette and Disick (1972) delineate the stages of internal behaviors since reading in their view refers to the ability to perceive and comprehend the printed input. These stages of reading

behaviours are:

1. Mechanical Skills : Perception

Perception is the lowest stage requiring students to differentiate the spelling in the foreign language. Comprehension is not needed in this stage.

2. Knowledge : Recognition

This level requires students to comprehend what they have read. Student can match the pictures corresponding to the sentences they have read, for example.

3. Transfer : Reception

Reception or transfer requires students to comprehend recombinations of the vocabulary and structure they have learned. Students, for instance, can answer a variety of questions after reading several paragraphs.

4. Communication : Comprehension

At this level, students comprehend the global ideas from reading.

5. Criticism : Analysis

Analysis is the level which students understand the connotational or implicit meanings, point of view, and standard of language.

6. Criticism : Evaluation

This level calls upon students to make judgement on the basis of provided criteria.

To reach any levels in each taxonomy of thinking, students may use some strategies to gain comprehension (Levin:1986, Thomas:1986, Chamot and o'Malley:1987) since learning strategies are patterns of decision in the acquisition, retention, and utilization of information serving to meet the certain objectives (Bruner, Goodnow, and Austin :1956). Based on this study, a student-questioning technique is employed as an independent variable. Thus, the viewpoints on learning strategies are briefly presented.

II LEARNING STRATEGIES IN THE ACQUISITION OF READING SKILL

Dansereau (1978) proposed that a learning strategy be considered as a learner-based technique enabling the learner to function effectively when faced with a) the identification of important, unfamiliar, and difficult material; b) the application of techniques for comprehension and retention of circumstances; c) the efficient retrieval of information under appropriate circumstances; and d) the effective coping with the internal and external distractions. A similar view is held by Chamot and O'Malley (1987) who point out the learning

strategy instruction as a cognitive approach facilitating the comprehension, acquisition, and retention of new skills and concepts. Learning strategy instruction, as raised by Chamot and O'Malley,is based on four propositions:

> 1. Mentally active learners are better learners. Students who organize new information and consciously relate it to existing knowledge should have more cognitive linkages to assist comprehension and recall than do students who approach each new task as something to be memorized by rote learning.
>
> 2. Strategies can be taught. Students who are taught to use strategies and are provided with sufficient practice in using them will learn more effectively than students who have had no experience with learning strategies.
>
> 3. Learning strategies transfer to new tasks. Once students have become accustomed to using learning strategies, they will use them on new tasks that are similar to the learning activities on which they were initially trained.
>
> 4.Academic language learning is more effective with learning among strategies. Academic language learning among students of English as a second language is governed by some of the same principles that govern reading and problem solving among native English speakers.
>
> (Chamot and O'Malley, 1987:240)

With regard to an information-processing viewpoint, the nature of a strategy is that it enables a learner to form an organizational structure in which information can be stored and retrieved more efficiently (Brousfield :1953,

Miller :1956, Turving :1962, Mandler :1967, Bower :1970 : in Singer and Gerson :1979). According to Mandler (1967), Tulving (1968), and Bower (1970), this organization results from the strategies employed by the learner to construct groupings or relations among the learned inputs. These learned inputs infer that memory is a constructive and interactive process. In addition, the behavioral processes are directed by the implementation of associated strategies (Singer and Gerson :1979). Learning strategies, according to Singer and Gerson, may be categorized into two types : the instructor-imposed strategies which are external; and the internal student-generated strategies. The former may help the learner to acquire a skill or may facilitate transfer effectiveness or problem solving. The latter can only be achieved when the learner is capable of self-generating learning strategies. However, these types can facilitate both verbal learning (Gagne' : 1977) and motor learning (Roy and Diewert : 1975)

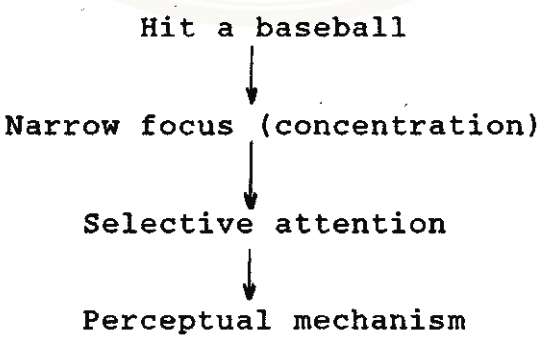
For a self-initiated strategy, the learner can determine the procedure compatible with personal cognitive capabilities and cognitive style for learning the task. The ultimate outcome is to instill in learners the ability to develop their own effective cognitive strategies without external guidance. Learners, thus, should acquire the ability to construct strategies suitable to the cognitive capabilities for learning the task since the learning

experience is governed by the use of strategies (Singer and Gerson : 1979). To activate conscious and subconscious processes in learning, Singer and Gerson exhibit the relationship among strategies, cognitive processes and mechanisms as follows :

1. A situation activates potential alternative strategies
2. A particular strategy influences a corresponding cognitive process
3. A particular cognitive process is associated with a corresponding mechanism.
4. Situation --> strategy --> process --> mechanism.

(Singer and Gerson, 1979: 231)

Concerning the illustration below, Singer and Gerson hypothesize that the situation activates the particular strategies, which influence the cognitive processed associated with particular mechanism as the following example relationship:



(Singer and Gerson, 1979: 232)

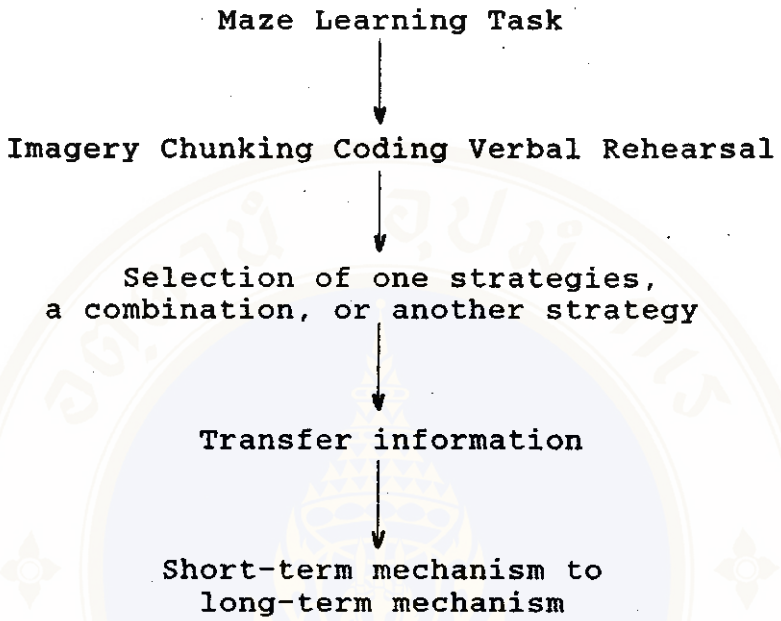
From the example, the situation of having to hit a

baseball activates a narrow focus of attention strategy. Then, concentration improves the cognitive process of selective attention which is associated with the perceptual mechanism.

According to Singer and Gerson (1979), the relationship between strategies and particular stages of processing should be identified. Furthermore, they remark that the relationship among mechanism, cognitions, and strategies can be elaborately delineated as the representation of the mental operations hypothesized to take place within any mechanism. Corresponding to the perceptual mechanism, for example, several strategies may be working when the learner filters the related stimuli from the incoming information. The learner may form strategies for anticipation, detection, and comparison of the related stimuli in order to aid in the selective attention processes. The learner can provide meaning to the input by invoking strategies for recognition, feature matching, identification, coding and classification (Craik and Lockhart: 1972, Craik and Tulving: 1975, cited in Singer and Gerson: 1979).

As mentioned by Singer and Gerson (1979), the learner may develop strategies to facilitate the function of the short-term storage system before generating information to long-term storage. The learner may apply the

organizational processes and rehearsal strategies as in the following figure:



(Singer and Gerson, 1979: 233)

According to Singer and Gerson, strategies are produced by the learner to facilitate a storage and retrieval of information, a comparison of incoming information with references previously stored, transformation of information, and decision making which will result in achieving the desired goal. The learner's appropriate use of strategies is a significant determinant of motor learning and performance. Because of this, training procedures should be designed, in three way. First, the appropriate learning strategies should be identified. Second, the methods for enhancing the self-

production of these strategies should be taught. Third, the relationship between strategies and classes of motor skills should be determined in order to enhance the acquisition, retention, and transfer of strategies and skills.

More specifically, a questioning strategy is conclusive in previously mentioned strategies. When the questioning strategy has been activated by the situation of reading, it influences a corresponding cognitive process. Then, a particular cognitive process is associated with a corresponding mechanism. Finally, comprehension occurs. The questioning strategy, thus, enriches reading comprehension (Hunkins: 1972; Tinsley: 1973; Singer: 1978). Therefore, the relationship between the questioning strategy, cognitive processes, and mechanisms in the situation of reading can be identified according to Singer and Gerson (1979).

III A Theory of Question Asking

Generally, questions are statements for which replies are expected (Kissock and Iyortsuun: 1982). According to Poehlmann (1902) and Giel (1977)cited in Flammer(1981), questions are able to enhance and lead to students' thinking since "question asking is a way of selecting information, and understanding question asking should help us to understand how people regulate their

interaction with their material, social, cultural, and mental world. Such understanding may in the end contribute to educational methods aiming at taking more mature responsibility" (Flammer, 1981: 408). Flammer further elucidates that questions are employed by the questioners to attain specific information helping them to plan suitable actions toward certain goals. In asking questions, the questioners need some information and also express that need explicitly.

Flammer (1981: 407-420) proposes the theoretical ground of question asking as the following set of postulates.

Postulate 1 : Questions concern potential knowledge that the questioner lacks.

For this concern, questions are mainly used for seeking explicit information necessary for the questioners.

Postulate 2 : Questions presuppose some available knowledge.

Questions asked in order to obtain certain information consist of good and bad types. The quality of questions, in other words, reveals the relevant knowledge the questioner already possesses.

However, the combination of the previous two postulates leads to a paradox that the questioners must

already gain some knowledge in order to be able to generate questions (Miyake and Norman, 1979: 357-364).

Postulate 3 : Questions are formulated in such a way, or expressed in context, so that the range of the acceptable answers is smaller than the range of all the statements the answerer is able to make.

The questioners are able to realize their missing knowledge and indicate the nature of this missing knowledge.

Postulate 4 : Knowledge needed in order to ask a question is, at least in part, knowledge about the knowledge to be acquired, i.e. it is specifically related to the knowledge sought.

To ask for specific information, the questioners have to gain knowledge needed in indicating the location of the information required.

Postulate 5 : The need to clear up contradictory knowledge refers to a special case of missing knowledge.

Questions may be asked because of a contradiction between pieces of information as well as the missing information. Contradictory information, however, is regarded as another case of missing information because the contradictory information can be dissolved and given the

correct additional information.

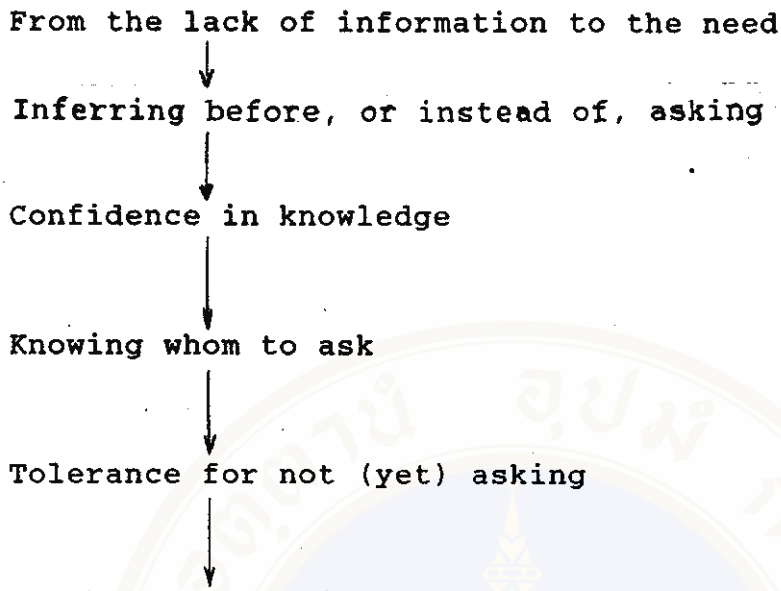
Postulate 6 : The class of missing knowledge, about which questions are asked, also includes knowledge at a low level of confidence.

In a particular situation, the questioners may not feel sufficiently confident about information to rely on it in further information processing. They may, therefore, ask for more information.

Generally, these postulates as a theory of question asking answer two questions : "What do people ask in what situation, and for whom?" and "Why do they sometimes ask and sometimes not?". For example, when a person loses the way, he may ask "How can I go to downtown?" in order to get information he lacks. However, any postulate of question asking that a person asks depends on a particular situation.

From the Question to the Asking : the Information-Professing and Decision-Making Chain of Question Asking.

Starting with the realization that some information is missing and proceeding to the oneset of actually asking for needed information, Flammer (1981:414-418) sequences the types of process chains from a latent question to question asking as follows:



Stage 1 : From the lack of information to the need for information

"Lack of information can lead to a question only if it is subjectively felt" (Flammer, 1981:145). Hence, the questioners must be aware what information they need. Normally, persons are pursuing goals and subgoals consciously or subconsciously. They reach goals by means of obtaining information that is missing. Moreover, the restriction to explicit information-seeking questions allows the characterizations of questions to reach subgoals. Persons gain information in order to plan an action for the superordinate goal, for instance. Hence, it is possible to predict what missing information the questions are to be aware that they need.

Stage 2 : Inferring before, or instead of, asking

When persons realize that they lack some specific information they need to obtain, they might try to find out by themselves first. When a persons fails to retrieve the desired information from memory, he can acquire that information by means of perception, or by inferential reasoning.

Stage 3 : Confidence in knowledge

"The lack of information can also correspond to the lack of confidence may not only vary with individual differences i.e. risk taking, anxiousness, locus control etc. but also depend on the importance of the information for further actions and current goals.

Stage 4 : Knowing whom to ask

The questions should know both information they need and the persons who are able and willing to answer.

Stage 5 : Tolerance for not (yet) asking

The questioners can wait to ask questions. However, questions can be understood in terms of the search for a balance between "costs and utility". Question asking originates costs such as time, the effort to ask, the effort to understand the answer, the shame of appearing ignorant. In contrast, the utility can be considerable or relatively

minor.

Flammer also adds that question asking consists of a complex decision-making, process. Several factors concerning achievement or personal development play important roles.

Stage 6 : Further alternatives to questions.

When the questioners cannot infer information, they can find it in books or perceive from nonsymbolic reality. However, certainly situational and individual differences factors should be taken into consideration.

The process of question asking addressed by Flammer(1981) is partially apt to be in accordance with Kissock and Iyortsuun (1982) presenting five steps in the questioning process. These are :

1. Recognize the need and purpose for asking a question.
2. Formulate a question that responds to the need.
3. Identify the opportunity and time for asking the question.
4. Determine the relationship of answer to the question-whether it answers the question or not.
5. Make use of the answer or determine a need for another

question and begin the process again.

(Kissock and Iyortsuun (1982:119)

To sum up, there are several stages concerning deep processes in question asking. Questions must engage these stages before questioning behaviors occur.

IV THE ROLE OF QUESTION AND THE STUDENT-QUESTIONING TECHNIQUE

With regards to the role of questions, two viewpoints will be outlined : the general role of question: and the specfic of the student-questioning technique, respectively.

"It is truism for educators that questions play an important role in the teaching"(Gall, 1970:707). This statement is widely accepted since the question, itself, is a vital instructional tool to stimulate student'thinking and facilitate the learning process (Hunkins : 1972, Tinsley : 1973, Ruddel : 1974,Pearson and Johnson :1978, Moore and Morley :1982, Balajthy :1983, Nuttall :1985).

Carin and Sund (1971:23-24) summarize the functions

of questions posed by teachers as follows:

1. To arouse interest and motivate students to participate actively.
2. To evaluate students preparation and check their comprehension.
3. To diagnose students strength or weakness.
4. To review or summarize what has been read.
5. To encourage discussion.
6. To direct students to new possibilities in problem-solving.
7. To stimulate students to search for additional date by themselves.
8. To build up positive self-concept in an individual.
9. To help students apply previously learned concepts in other situations.
10. To assess the achievement of the lesson.

Hunkins (1972) puts questions into four functions : centering, expansion, distribution, and ordering respectively. Centering is usually employed in the introductory stage of a lesson so as to get students to attend to the topic. In addition, it is used in the development of a lesson when students are required to collect information and to concentrate on particular aspects of information. Expansion, as the second function, stresses

divergent thinking. This function guides students not only to identify elements and relationships, but also to supply information in other situations. Third, The distribution function is a management function aimed at encouraging students to participate in the class session. However, this function triggers thinking rather than a correct response. The last function is ordering, which exists as part of the centering or expansion functions. Questions having this function ask students the rules of class investigation and rules of conduct such as "When can we work with a teammate?" or "What regulations are there regarding getting out of our seats?". Moreover, questions having this function can provide emotional support for students. This function orders the environment so as to have students be effective members of the learning situation.

Ruddel (1974) is an educator who favors questions as the fundamental tool of teaching-learning process. Questions, according to Ruddel, not only stimulate thinking and comprehension, but also cultivate the growth of students' intellect as they interact with the environment. Furthermore, questions force students to evaluate and develop their concept of thinking. Similarly, Pearson and Johnson (1978) advocate that questions are employed to evaluate reading comprehension in both formal and informal ways. Inappropriate use of questions not only hinders reading skills, but also leads to undesirable behaviors in

learners, however. Moor and Morley (1982) remark on the purpose of using two functions of questions : evaluation, and motivation. The former is used for evaluating what students learn while the latter is employed to motivate students' interest and in determine students'background knowledge. Unlike Moor and Morley, Balajthy (1983) favoring the use of questions as a tool for developing reading states that questions affect interaction among sections finally leading to the understanding of meaning.

Like Balajthy, Nuttall (1985) emphasizes the purposes of questioning in making students aware of using language in order to convey meaning and of the strategies they use for finding meaning. Questions, as viewed by Nuttall, are employed to teach rather than to test.

According to a number of educators (Hunkin:1972, Tinsley:1973, Ruddell:1974, Pearson and Johnson:1978, Moore and Morley:192, Balajthy:1983,Nuttall:1985), the teacher possesses the major role of questioner while students take the roles of passive responders. However, students should be equipped to be active readers who should possess the skill of asking questions. The use of questions as an instructional tool employed by the teacher, should be taught to students as a learning acquiring tool belonging students. As students learn how to ask the relevant, appropriate, and substantial questions, and to learn with questioning skills, they as independent readers can search for more and more

additional knowledge (Postman and Weingartner :1969, Kissock and Iyortsunn :1982a).

Marksberry (1979) raises five reasons for employing student-generated question techniques. First, inquiry and discovery techniques, and students asking questions are required aspects of curriculum planning since questions initiated by students facilitate the clarifying and setting of dimensions for solving problems and formulating and hypotheses, and assisting in controlling of premature inference in drawing conclusions. Marksberry's first reason seems to be in accordance with Kissock and Iyortsunn (1982a) who advocate that students' questions are concerned with gathering data, solving problems, forming conclusions, and developing opinions. Second, it is believed that having students ask questions and find answer arouses their interest and participation in self-directed learning. What is more, students are required to learn to direct their own learning in schools so as to realize continuous learning throughout life. The third reason originates from viewing schools as places for dispensing information especially for teaching students to think. To do this, schools need to concentrate on those kinds of learning which involve developing cognitive skills, providing experiences necessary to reach the expected competence, and developing concepts and principles essential for everyday life. Fourth, students accelerate, through question asking, their

perception and their ability to think and express ideas on many levels. Eventually, students should be independent to search for more knowledge by means of asking their own question.

Self-acquired knowledge is therefore emphasized. It is reasonable for students to acquire knowledge by themselves. To do this, students should generate their own questions since questions are tools for eliciting more information. This last reason seems to correspond to Singer's (1978:994) statements. As Singer cites:

> The objective of teaching comprehension is to have students learn to ask their own questions and guide their own thinking so that they can become independent in the process of reading and learning from text.
>
> (Singer, 1978:994)

In the questioning process posed by Singer, students not only select and retain information, but also set their purposes and interest with that information (Singer,1978). Finally, students become independent.(Singer:1978, Nolte and Singer:1985).

The effectiveness of self-questioning is well illustrated by Andre and Anderson (1978-79 : 605-623) who explain that self-questioning as the combination of metacognitive and cognitive characteristics forces students to " (a) pause frequently (b) deal with an understanding

question (c) determine whether or not comprehension has occurred and (d) decide what strategic action should be taken next " (p.620). What is more, this technique encourages setting the purposes of study, identifying and underlining the important segments of the materials, generating questions requiring the correct comprehension, and thinking of possible answers to those question (Andre and Anderson, (1978-79:620). Anderson (1979) and Brown (1979) advocate Andre and Anderson 'view that this strategy leads to an active monitoring while learning and achievement of learning. A similar view is held by Gavelek and Raphael (1985:103-106), question-asking represents the primary means by which students are capable of fostering their own comprehension. Furthermore, it is , during knowledge implementation, likely to be a powerful metacognitive activity by which students can monitor and regulate their comprehension.

Concerning the quality of questions, effective self-questioning may involve students in active comprehension (Singer:1978), and engage them in a deep processing of text material. This processing enhances recall of information (Craik and Lockhart, 1972:671-684). Furthermore, effective self-questioning may heighten self-awareness of students' comprehension adequacy, and familiarize them with the cognitive and linguistic demands of question answering (Davey and McBride, 1986:256-262). Davey and McBride

further clarify that knowledge of the linguistic form of acceptable question stems and of the relation between questions and acceptable responses is required in generating good think-type questions.

Similarly, Zaher(1987:36) advocates that question initiated by students reflect their perception, background knowledge , and cognitive development. Moreover, students can be viewed as a feedback device since they require a reply from the teacher (Knapczyk and Livingston, 1974:115). Furthermore, the teacher can ascertain from students' questions, their levels of comprehension so as to match the difficulty of instruction to their ability (Knapczyk and Livingston, 1974:115).

In a teaching-oriented situation, students'questions are particularly looked on as a specific component of reciprocal teaching, cognitive apprenticeship, and several artificial intelligence teaching systems. Besides, self-questioning helps students organize or rehearse knowledge. Furthermore, errors or failures typically occurring during implementation are usually corrected. This correction finally leads to growth of knowledge (Fishbein et al, 1990:163-170).

Such a view concerning the role of student questioning has been taken into consideration. To sum up, self-questioning techniques can primarily reflect both

curriculum planning level (Marksberry:1979) and learning-oriented level advocated by several educators (Singer:1978, Andre and Anderson:1978-79, Anderson:1979, Brown:1979, Nolte and Singer:1985, Gavelek and Raphael:1985, Davey and McBride:1986, Zaher:1987, Fishbein:1990).

At the learning-oriented level, self-questioning effectiveness appears to take the roles in prereading, during-reading, and postreading phases. For the prereading phase, self-questioning enables students to set purposes of study and select information. During reading, this technique helps students not only identify the important part of material, engage in a deep processing, organize or rehearse knowledge, and monitor and regulate comprehension, but also heighten self-awareness of comprehension adequacy and foster their own active comprehension. Besides, self-questioning resulting in post-reading effectiveness enables students to decide what strategic action should be taken next, enhance and retain recall of information, and ultimately become independent comprehenders.

For the teacher, self-questioning takes the role of feedback devices that let her ascertain students' level of perception, background knowledge, and cognitive development. However, the effectiveness of question generating can primarily be influenced by three factors : the extent to which questions reflect true comprehension failures, the

positive effects of clarifying comprehension failures, and the positive effect produced by active learners'involvement (Weinstein and Mayer, 1986:315-327).

IV LEVELS AND TYPES OF QUESTIONS

It is true that the role of questions is worthwhile for both the teacher and learners to employ. For this reason, it is necessary for questioners to discriminate a questions'category since each category indicates different levels of understanding. The levels of reading comprehension stated in the earlier section are related to the levels of questions.

Sanders (1966), Smith (1981), and Crouse, Everall and Henderson (1983) categorize reading comprehension questions into seven types which are :

1. Memory

Memory questions call upon students to recall or recognize information from the text.

2. Translation

In this level, students are required to transform ideas or information into different forms.

3. Interpretation

This level of questions calls upon students to make inference from the relationships of ideas in the text.

4. Application

Application questions require students to use their acquired knowledge to solve a problem in a unique situation.

5. Analysis

This level requires students to determine the parts of the whole idea.

6. Synthesis

Analysis questions involve the generalization of the inclusive idea from the several components.

7. Evaluation

Evaluation deals with making judgments in terms of the external evidence and the internal criteria.

Based on Bloom's et al (1956) category of comprehension, Carin and Sund (1971), and Hunkins (1972) classify questions into six levels as follows :

1. Knowledge

Students are asked to recall the text to which they have previously been exposed. Recall of knowledge involves specifics and universals, methods and processes, patterns, structures,or setting.

2. Comprehension

questions in this type are concentrated on student developing skills in putting the major ideas into their own ideas and words.

3. Application

Students are required to employ their knowledge and comprehension to solve problems in new or unique situations.

4. Analysis

Students are asked to reduce ideas into their component parts and to exhibit that they understand the relationship of the parts.

5. Sythesis

Sythesis requires students to put parts together to new patterns.

6. Evaluation

Evaluation blends knowledge, comprehension, application, analysis, and synthesis. Students are required to make judgements in terms of values and criteria.

Valette and Disick (1972) raise a taxonomy of subject-matter goals in foreign-language instruction. Each stage in a taxonomy includes two substages: internal and external behaviors as the following figure:

Stage	Internal Behavior	External Behavior
1. Mechanical Skills	Perception	Reproduction
2. Knowledge	Recognition	Recall

Stage	Internal Behavior	External Behavior
3. Transfer	Reception	Application
4. Communication	Comprehension	Self-Expression
5. Criticism	Analysis	Synthesis
	Evaluation	

(Valette and Disick, 1972: 32)

Regarding reading comprehension, the internal behaviors refer to the levels of comprehension stated earlier while the external ones involve speaking and writing. Questioning may be taken into account as part of speaking or writing. Therefore, questioning may be viewed as the external behaviors raised by Valette and Disick. These levels of the external behaviors are:

1. Reproduction

Students memorize information and copy sentences accurately.

2. Recall

Students produce facts by answering questions or making identification, etc.

3. Application

Students are required to apply their knowledge to

the new patterns.

4. Self-Expression

Students express their own ideas related to provided information.

5. Synthesis

Synthesis involves a conscious personal style that students can speak or write the language.

Tollefson (1989) develops a taxonomy of cognitive difficult of questions from Barrett's taxonomy of reading comprehension. Tollefson categorizes questions into five levels as follows:

1. Literal comprehension

Questions in this level require students to concentrate on ideas and information explicitly stated in the text. Literal comprehension questions involve the recognition and recall of the specific information such as details, main ideas, sequences, comparison, cause-effect relationships, character traits, and the author's organization.

2. Reorganization

Reorganization questions call upon students to analyze, synthesize, or organize information. This level involves classifying, outlining, summarizing, and synthesizing.

3. Inferential Comprehension

For this level, students are required to guess and form hypotheses from information explicitly stated in the text. Inferring concerns supporting detail, main idea, sequence, comparison, cause-effect relationships, character traits, the author's organization, predicting outcomes, and figurative language.

4. Evaluation

Evaluation questions deal with judgements of information including reality and fantasy; fact or opinion; adequacy and validity; appropriateness; and worth, desirability, and acceptability.

5. Appreciation

Questions at this level require students to respond to the text in a sense of feelings, identify characters or incidents, and react to the author's connotative and denotative use of language.

Questions are classified, based on levels of reading comprehension, into several types. For this experimental study, the investigator has decided to employ Tollefson's taxonomy of cognitive difficulty of questions because of the revelance between levels of questions in this taxonomy and the target situation of this study. For the target situation, the first year nursing students who are the subjects are required to attend the reading class set by the

English curriculum at Mahidol University. In the reading course, students are exposed to the authentic materials bases on language function. From those function-based texts, some language functions are selected so as to have students train to pose questions. Those language functions include definition, process, comparision, classification, cause and effect, function, and main idea. Thus, the language functions selected and Tollefson' taxonomy of questions are revelevant. Therefore, Tollefson's classification of questions are justifiably employed in this study .

V. SUGGESTION ON SELF-QUESTIONING TECHNIQUE EMPLOYED IN READING INSTRUCTION

IT IS BETTER TO ASK SOME OF THE QUESTIONS
THAN TO KNOW ALL THE ANSWERS.

James Thurber

Questions and questioning techniques are a crucial part of the instruction process. During the school day, teachers use questioning techniques in various ways to facilitate and assess comprehension. In order to comprehend the lessons, students should be active comprehenders who employ strategies to guide themselves while reading. Consequently, it is helpful to illustrate the questioning strategy used by teachers. Even though teacher questioning

is not the subject of this study, it can be used as a fundamental model. "To learn from examples is a natural way of life for people, including students" (Hyman, 1979:54). Hyman (1979:57-96) unambiguously exemplifies specific strategies which should not be considered as the rigid patterns. For classifying, the question may ask "What items (events, factors) go together? What do you call each of the various groups which you have formed?, For example.

However, the role of the question may substituted by students. That is to say, students can ask questions of any purpose according to the models. Regarding the student-generated question technique, a number of educators suggest several techniques for having students ask their own questions.

Manzo (1969) presents the strategy called "The Re Quest Procedure" aimed at improving reading comprehension and students asking behaviors. As Manzo states:

1. Students, as well as the teacher, read one sentence, one paragraph, or passage.

2. The teacher stimulates students to ask any question they predict the teacher will ask them. In this step, every book must be closed. The teacher will respond to students'question and will reinforce good question.

3. The teacher asks questions after students have completed asking questions. The teacher may re-word the inappropriate questions previously asked by students by

illustrating the correct form or function.

4. Students may be assigned to add more information, or to practice further.

Manzo's technique, however, is likely to concentrate more on memory as shown by evidence that students predict the teacher's questions without opening the book. They recall what they have read. It may be better if students have a chance to reread information before asking questions. The main purpose should concentrate on having students ask questions from information explicitly exhibited rather than from recognition since students have a chance to notice the clues of language to make sense of a text.

Regarding teaching students to formulate questions, several suggestions are provided for the teacher to improve students'questioning behaviors. The following recommendations were compiled by Carin and Sund (1971).

1. The teacher should encourage students to propose the questions.

2. All students'questions should be accepted without judgements no matter how far out those questions may be.

3. For responding to students'question, the teacher should first introduce them to the class such as "Can anyone answer Sidney's question ?.

4. If the student's questions are likely to be

irrelevant to the topic or too difficult for most students, the teacher can ask that student to discuss privately after class.

5. The teacher should praise and direct the good questions to the class for discussion. He may say, for example, "Excellent question, Jean, Let's see who is tuned in and can answer it" (p.43).

6. If the student's questions cannot immediately be answered, the teacher should assign students to further seek information so as to discuss it the following day.

Ortiz (1977) suggests some techniques which can provide students opportunities to become aware that they can generate questions as follows:

1. The teacher writes the first sentence of the text on board, then, asks students to write at least ten questions about that sentence.

2. The teacher selects a difficult passage, and has students ask questions for each sentence or for the first sentence of every paragraph.

3. The teacher tells a story aloud, stops in the middle of an explicit part. Then, students'responses are recorded.

4. An interesting story is chosen for students to read silently. The teacher observes whether they ask any questions, then has them put an "x" whenever they themselves ask questions, then has them discuss their experiences.

5. A comic strip without words is handed out to students. The teacher has them write the story, and ask them to report how they get that story . Students may find that they get the story from asking questions. For this reason, they can ask questions while reading printed materials.

6. Students are given a photograph or picture of any person. The teacher has them ask questions as they can about the person in that picture, and other pictures as well. For this technique, real people,places, or things can be used.

Singer (1978) illustrates the "Three-Stage Model" for enabling students to improve their question-asking skill leading to development of active comprehension; furthermore, students can eventually become independent readers. Singer states the three following steps:

1. Modeling behavior

It is requisite for the teacher to demonstrate students how to ask questions before having students ask questions on their own. Thus, a lesson should progress from teacher-posed to student-posed questions.

2. Phase-out/phase-in strategy

This step starts with teacher-posed questions, then the teacher goes through a lesson in which students are stimulated to formulate their own questions before, during, and after reading so as to complete the

intructional procedure. Finally, the teacher is phased out while students are phased in among asking questions.

3. Active comprehension

Having students learn to ask their own questions and guide their own thinking are the objectives of teaching reading comprehension so that they can become independent in the process of reading. This process involves formulating questions and searching for answers before, during, and after reading.

Singer appears to have identified an effective way of establishing student questions although the specific student-posed questions are not explicitly stated. Also, Singer does not specify how to stimulate students to ask questions. However, Singer's perspectives are worthwhile, as a theoretical model, for developing student questioning ability.

Marksberry (1979) also discusses the ways to improve students'questioning behavior on the basis of three main considerations: environment, modeling, and involvement.

Concerning the environment, students will work together on mundane problems in the appropriate learning environment leading to an opportunity to develop question asking. In addition, Marksberry remarks that a spilit of inquiry should be emphasized from the earliest years. Children, in other words, should be encouraged to ask

questions when they are very young.

For modeling, the teachers'behavior can be observed as a model to direct students'behavior. The teachers, hence, need to clarify the distinction between lower and higher order questions which should equally be employed in the class. Marksberry further points out that teachers should sequence the learning situations in several ways in which the question asked and the kinds of information are well related, provide instructions explicitly to students, and explain how certain questions solve the problem.

The last main consideration, involvement , Marksberry delivers that students learn to ask questions by asking questions. They must be involved in the actual question-asking procedure. The teacher can teach students to ask the various kinds of questions and he should formulate the criteria for judging students'questions considered as a way to improve theirs. Good questions, as suggested by Marksberry, should :

- deal with the problem
- be asked before calling students.
- be unambiguously worded
- be stated in that the purpose of asking is served
- advance the particular characteristics of the problems.
- direct students to understand the problems

clearly.

Furthermore, it is suggested that teachers should make the new point to students, answer students'questions when possible, realize whether it is clear enough, and discourage students'general answers such as " I don't know", or " I don't get it".

Fraenkel (1980:160-161) suggests some techniques for having students ask questions. As Fraenkel point out:

1. The teacher presents the answers, such as name, concept, generalization, relationship, etc: to students ; then asks them to ask questions related to those answers.

2. The teacher encourages students to ask themselves what they need to know before they begin reading or working on any activities.

3. The game of "Twenty Questions" can be employed for students to ask while the teacher responds only replies of "yes" or "no". This means that the teacher has an answer in mind and has students ask questions concerned with that answer.

4. The teacher presents the patterns or sequences of question stressed on the learning topic so that students may perceive the various kinds of replies and thinking that different questions call for.

Since the aspects of metacognition can improve

reading comprehension, Sanacore (1984) recommend two classroom approaches concerning the student-questioning technique.

1. Teach students to generate questions while reading and studying expository text. Students can be taught to recognize the main ideas of a passage , then develop questions about the main ideas to the new examples. Sanacore also stresses that this technique should indeed be transmitted to especially low and average verbal ability students since this technique can help them to be more aware in reading.

2. Teach students to initiate story-specific questions from schema-general questions during reading the complex narrative text. That is, students learn to convert story-general questions to story-specific questions, then they answer their own questions.

Henry (1984:29) who sees the "reader-generated question" as a tool for improving reading comprehension suggests four techniques used for having students ask questions as follows:

1. The first-Sentence Stimulus

The first sentence of a passage is written on the board. Then, students are taught to pose ten questions about that sentence.

2. The Thematic Stimulus

The teacher writes the theme of the text on the

board and students are asked to pose questions related to that theme.

3. The Picture Stimulus

From the picture, students ask what they want to know about those pictures.

4. The Reading Stimulus

Students generate the interspesed questions as they read a fairly large portion of reading. During reading,they can ask questions about what they have read or predict what they will read.

As originated by Henry, these techniques are still suggested by some educators (Mckay:1987, Willamson:1988)

Without specifying the concentrated technique, Miyake and Norman (1979:357-364), and Davey and McBride similarly raise the fundamental awareness that students should gain enough knowledge stored in their perception so as to ask questions relating to what they do not know.

From the various techniques of student-generated questions, Singer's (1978) "Three-Stage Model" is prominent in a sense of a theoretical model. The "Three-Stage Model", namely modeling behavior, phase out /phase in strategy, and active comprehension is viewed as the guidelines for the teacher to transmit the questioning skill to students. The teacher should exemplify asking questions before having them initiate their own questions. Therefore, Singer's "Three-

Stage Model" is employed as theoretical guidelines leading to practice in this study. The investigator illustrates asking different types of question, then, encourage students to generate questions by themselves.

VI. RESEARCH STUDIES IN SELF-QUESTIONING INSTRUCTION: THEORY AND PRACTICE

In this section, three ongoing and cyclical steps concerning self-questioning instruction are delineated : stages of reading activities, theoretical perspectives based on those stages, and research studies related to those theoretical perspectives.

A. Stages of Reading Instruction

Throughout much of the reading instruction, three stages of reading activitives are widely used prereading, during reading, and postreading activities (Weischbach:1987). Anderson (1979) argues that prereading, during, and post-reading activitives involved in the process of studying. Anderson emphasizes student-directed studying more than teacher oriented instruction.

Stage I : Prereading activities

According to Anderson, prereading activities consist of two substages : clarifying the criteria and objectives of

studying, and surveying, for the first substage, students determine what the topics will be from the course outlines and objectives. In surveying, students use three levels of information gathering in the process of studying. The first level of information is the salient, information-rich, nonsentence parts of the text. Students attend to these parts including the title, subtitles, marked words, highlighted sections, pictures, charts etc. After attending these parts, they answer :

1. How much do I already know about this topic and text ?.
2. How interested am I in this topic and text ?.
3. How difficult or time-consuming will it be for me to learn what I need to know from the text ?.

The second level of activity involves the information-rich portions which include the introductory and summary paragraph, the first and last paragraph in the subsections, and the first sentence of any paragraph. This level requires students to engage 10-15 minutes. In the third level during the survey substage, students engage in selective reading of larger parts of the text. They may reread most of a subsection, for example.

Stage II : <u>During-reading activities</u>

As soon as the pre-reading activities are completed,

extended reading of the text can begin. In the stage of during-reading activities, students involve a sequence of instructional episodes including four components: information gathering, student responding, response judging and feedback, and making decisions concerning what to do next. For this stage, information gathering begins when students start reading to extract meaning from sentences and paragraphs. Then, students stop gathering information and engage in response-demanded events . After some responses have been noted, students make a decision regarding the appropriateness of the response. Then, decisions concerning what to do next must be made.

For during-reading activities, Anderson also lists the consequence of a logical analysis based on interview data of the actions students take when they fail to comprehend. Those consequences are :

1. If a reader reads something that is understood, some immediate action may occur or the information may be stored in memory as a pending question

2. If the reader stores it as a pending question, a possible meaning (usually one) may be formulated, which is then stored as a tentative hypothesis.

3. If the reader forms a pending question, reading continues.

4. If a triggering event (i.e, too many pending questions, or repetition of the same pending question) occurs after the reader forms the pending question, some

additional strategic actions may be taken. By agreeing to take some strategic actions, the reader may:

a. Reread some portions of the text in order to collect more information that will either answer a pending question or form a tentative hypothesis that is related to a pending question.

b. Jump ahead in the text to see whether there are headings or paragraphs that refer to the pending question that might answer it.

c. Consult an outside source (e.g.dictionary, glossary, encyclopedia, expert) for an answer to a pending question.

d. Make a written record of a pending question.

e. Think-reflect about the pending question and relate it to information that is in memory.

f. Quit reading the text.

5. The reader may continue to form the point at which comprehension failure was last encountered, whether the strategic action is successful or not.

(Anderson, 1979:91-92)

Stage III : Postreading activities

At this stage, students employ activities to enrich the learning which has already occurred, to increase the probability of retention, and to generate alternate texts such as notes or outlines (Anderson:1979). Students should engage in activities of organization (Outline,innemonics), translation (paraphrase, generate question), or repetition

(recitation, rehearsal). These activities can help students return what they have learned.

Regarding these three stage of reading activities, it is apparent that studying is an interactive process involving students'prior knowledge, or study guides. In a process of studying, students'comprehension of a topic is expanded, sharpened, and made more relevant. In brief, the process of studying, as concluded by Anderson, is a criteria-related, self-directed form of reading text.

B. Theoretical Perspectives in Self-Questioning Instructional Research

Generally, students' background knowledge related to schema theory influences reading comprehension at a pre-reading stage since students may use their past experience to interpret what will be read. While reading, active processing is useful for active readers who always ask their own questions about the text. Finally, students monitor themselves whether they understand what has been read at a post-reading stage. To sum up, the prereading, during-reading, and postreading activities can be seen parallel with the theoretical perspectives of schema theory, active processing, and metacognitive theory, respectively.

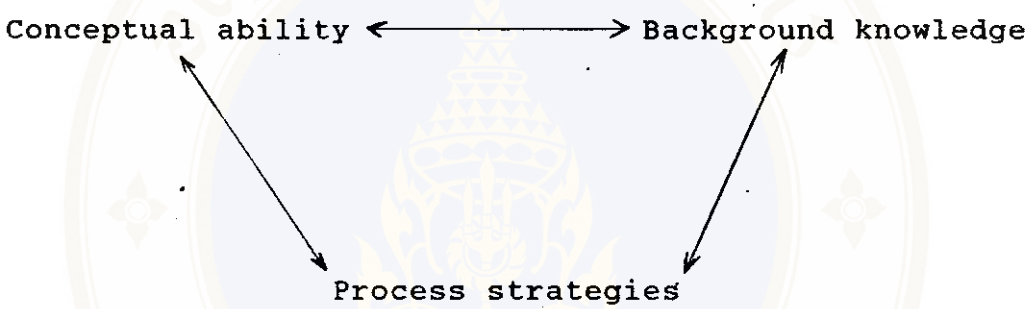
i. Schema Theory

In the prereading stage of reading, schema theory takes the salient role. Basically, schema theory is a theory about knowledge (Rumel-hart: 1980). This theory concerns "how knowledge is represented and how that representation facilitates the use of the knowledge in particular ways" (p. 34). However, a schema theory of reading emphasizes how readers'prior knowledge influences their understanding of a text. Also, this emphasis of schema theory takes on a crucial role in reading.

According to a number of educators (Russell: 1961, Dechant: 1964, Widdowson: 1979, and Carrell and Eisterhold: 1988), background knowledge influences reading comprehension. Unless readers have background knowledge, they face difficulty in understanding the new information. Consequently, to teach reading, it is necessary for the teacher to include background knowledge as the vital element for understanding. According to Goodman (1967), reading is described as a "psycholinguistic guessing game" in which readers reconstruct a message that the writer has encoded as graphic symbols. The construction of meaning, as viewed by Goodman, acts as a continual-cyclical process of sampling the text, predicting, testing, and confirming or revising those prediction, and further sampling of the text. Readers, in this model, need to predict information

correctly rather than to use the textual cues(Goodman, 1973b: 164).

Concerning Goodman's psycholinguistic model of reading, Coady (1979) further suggests a model in which readers' background knowledge interacts with conceptual abilities and process strategies so as to comprehend the text as in the following figure:



Coady's (1979) model of the ESL reader

According to Coady, efficient reading depends on the interaction of these three factors. Conceptual ability is general intellectual ability such as the ability to analyze, synthesize, and infer. Process strategies are defined as the abilities and skills to reconstruct the meaning of the text through sampling based on the knowledge of several components (grapheme-morpho-phoneme correspondences, syllable-morpheme information, syntactic information, lexical meaning, contextual meaning, and cognitive strategies). For background knowledge, Coady states that:

> .....background knowledge becomes an important variable when we notice, as many have, that students with a Western background of some kind learn English faster, on the average, than those without such a background.
>
> (Coady, 1979: 7 in Carrell et al, 1988: 75)

Moreover, Coady suggests that students' interest and background knowledge can enable them to comprehend the text even though they face syntactic difficulty. That is background knowledge compensates for difficulties encountered. According to Coady, students understand a text through the intersection of these three important factors.

The schema theory model

Concerning schema theory, Carrell and Eisterhold (1988) state that understanding a text is an interactive process between readers background knowledge and the text. The ability to relate textual material to one's own knowledge is required for efficient comprehension. Regarding this ability, two basic models of information processing can be taken into consideration : bottom-up, and top-down processing.

For bottom-up processing, Goodman (1967) described this model as "The common sense notion" in which it is assumed that readers move their eyes from left to right

through the page by taking the letters, combining these letters to form words, and combining the words to form the larger features, respectively. The bottom-up processing starts with the printed input and works its processing up to the higher level. Schemata in this processing are hierarchically organized from the most general data to the most specific knowledge (Carrell and Eisterhold, 1988). Therefore, this processing is called "data-driven" (Carrell and Eisterhold, 1988: 77).

In top-down processing, on the other hand, higher-level processes interact with lower-level processes. That is, the top-down processing starts with hypotheses and predictions based on general schema, then tries to prove them by working down to the printed input (Stanovich: 1980). Thus, this processing is called "conceptually driven" (Carrell and Eisterhold, 1988: 77).

However, both models have some shortcomings (Stanovich: 1980). Stanovich argues that the bottom-up processing is incomplete in the sense that it is difficult to account for sentence-context and the role of background knowledge as facilitating variables in word recognition and comprehension because there is no mechanism to provide for processing stages. Concerning the top-down model, Stanovich points out the problems that readers have little knowledge of a topic and they cannot make hypotheses or predictions.

Moreover, skilled readers need to recognize words rather than to generate predictions because of time-restrictions. In other words, although the top-down model may be able to explain beginning reading reading employing slow rate of word recognition, it fails to describe skilled reading behavior. It may not be suitable for skilled readers.

Regarding these shortcomings of the bottom-up and top-down processing, Stanovich presents a new model to compensate for their limitations. He terms this new model an interactive-compensatory model whose key concept is "a process at any level can compensate for deficiencies at any other level" (p. 36). Stanovich states his reasons for setting an interactive-compensatory model as follow:

> Interactive models of reading appear to provide a more accurate conceptualization of reading performance than do strictly top-down or bottom-up models. When combined with an assumption of compensatory processing (that a deficit in any particular process will result in a greater reliance on other knowledge sources, regardless of their level in the processing hierarchy), interactive models provide a better account of the existing data on the use of orthographic structure and sentence context by good and poor readers.
>
> (Stanovich, 1980:32)

For poor readers, Stanovich points out that the top-down processing may facilitate comprehension to poor readers who have background knowledge in spite of inaccuracy at word

recognition. In contrast, the bottom-up processing promotes skilled readers to comprehend the text by recognizing the words although they lack background knowledge. This model, thus, is interactive at any stage without considering the position in the system, and it is compensatory in a sense that any readers can be helped from several sources of knowledge.

Research Studies on Self Questioning Related to Schema Theory

From a theoretical perspective of schema theory, instructing students to generate questions which will activate relevant prior knowledge to enrich students' prose processing is a central importance.

Singer and Donlan (1982) were interested in inducing the generation of story-specific questions and whether direct instruction in the generation of specific questions about story content would enhance students'comprehension of a complex story. Their point is that when students are faced with a complex story, they need to construct particular questions about the story so as to activate their prior knowledge. Otherwise, they would be unable to employ this knowledge while reading a complex story.

In their experiment, thirty eleventh-grade students as the subjects were randomly assigned to two instructional

groups. However, subjects who missed two or more consecutive days of instruction were eliminated from the groups. There were, then, fourteen and thirteen subjects in each group. Both groups received special instruction for three weeks. The format of the six lessons was identical for the schema group meeting on Mondays and Wednesdays,and for the traditional group meeting on Tuesdays and Thursday. Both groups were provided background information and vocabulary explanations for each story immediately before reading. All subjects received a copy of the story. The schema group then was taught one story element per day, and to generate story-specific questions on it by using story-general questions provided by the investigators. The traditional group, on the other hand, received story-specific questions generated by the investigators, and wrote 50-60-word essays to respond the teacher's questions. Then, both groups answered 6 identical-daily quizzes of 10 multiple-choice items.

The results of the experiment showed a significant difference between the two groups. The schema group surpassed the traditional group in the quizzes. The results indicate that students can be taught to generate story-specific questions related to story content. Moreover, Singer and Donlan emphasize that their instruction on generating specific questions of a story promoted students to activate their prior knowledge and to apply that

knowledge to their reading of complex stories with desirable outcomes. In other words, students would not have been able to extend their background knowledge to facilitate complex stories unless they had been trained to generate story-specific questions.

Similarly, Finn (1986) investigated the effects of two questioning strategies on comprehension of narrative texts. Nine students drawn from third, fifth and seventh grade students as subjects were randomly assigned to three instructional treatments in the quasi-experimental study. In the first treatment, based on Singer and Donlan(1982), three schema-general questions were asked by the teacher so as to generate subjects'own schema-specific questions. Subjects in the second treatment group were trained to form questions from one part of the text. The third group or the control treatment received only the pre- and post- tests. It was hypothesized that the questioning strategies would facilitate reading comprehension. It was expected that the schema-specific questioning would surpass the general comprehension questioning approach. Furthermore, it was predicted that an interaction between treatment and grade level would exist.

Briefly, the results indicated that:

1. The use of questioning strategies promoted reading comprehension.

2. The schema-specific questioning was superior to the general comprehension questioning approach.

3. A significant interaction between grade level and treatment was found.

4. There was no significant difference between the two experimental groups for third grade.

5. The schema-general/ story-specific questions had significantly higher means than the general comprehension group at the seventh grade.

6. A second post-test administered two weeks after the procedure exhibited a lasting effect for the experimental groups.

7. A significant difference between the means of the experimental groups was not found.

According to Singer and Donlan (1982), and Finn (1986), their results are slightly different although they draw the same assumption concerning the importance of the schema theory. Unlike Singer and Donlan's study, Finn deals with three different grade subjects who are younger than those who are in the same grade level in Singer and Donlan's study. Thus, these differences may lead to different results. Furthermore, it is possible that the third, fifth, and seventh grade students in Finn's study have stored less prior knowledge than do the eleventh grade students in Singer and Donlan's study. Because of this, younger subjects who lack prior knowledge may not gain

comprehension from the schema-specific questioning. Based on schema assumption, there is still a need for more research studies to explore its effectiveness, however.

Schema-specific questioning has a crucial role in the prereading stage. Next, the theoretical perspective on student questioning concerning the during reading stage is examined.

ii. Active Processing

With regard to during-reading activities, students employ active processing to aid their comprehension (Anderson: 1979). Students have to generate questions that shape, focus,and guide their thinking while reading so as to be active comprehenders and independent readers (Hunkins: 1972, Tinsley: 1973, Singer: 1978). Regarding this assumption, reading is viewed as an active process requiring readers to be active comprehenders (Smith: 1973) by means of thinking, feeling, and imagining (Strang: 1967). In addition, readers can interact with the text by answering questions they have constructed so as to interpret and comprehend that text (Smith: 1982; cited in Dubin et al: 1985). Moreover, active, attentive, selective readers are required in reading comprehension (Schmidt: 1987). The term "comprehension" refers to a process, product, or potential according to Singer (1978). A process is "the act or action

of grasping with the intellect"; a product is "knowledge gained by comprehending"; and a potential refers to "the capacity of understanding" (Singer, 1978: 991).

Apart from Singer's view, Cook and Mayer's (1983) ideas may be taken into consideration of active processing. Cook and Mayer describe the encoding processes of specific reading strategies deployed by readers the encoding processes listed by them are selection, acquisition, construction, and integration. Selection is "the process of selective attention". Acquisition refers to the process of information transferred from attention to long-term memory. Construction is the information connections which are established among ideas learned from the text. Integration refers to "locating relevant existing knowledge and building external connections between that knowledge and ideas acquired from the passage. This process involves both accessing existing knowledge and mapping new ideas onto that knowledge" (p. 90). Students' reading strategies, as stated by Cook and Mayer, include underlining, summarizing, and question-answering.

From a theoretical perspective, the centrality of self-questioning as an active process is an assumption that for students to be active comprehenders and independent thinkers, they must initiate questions shaping, focusing, and guiding their thinking in reading (Hunkins: 1972,

Tinsley: 1973, and Singer: 1978).

Self-Questioning Research Studies on Active Processing

Concerning the nature of the active processing, the related studies are grouped as the student-quantitative-qualitative questions; student questioning with self response; student questioning concerned with types of materials, and a comparison between teacher-and student-posed questions.

For the first group, Sadker and Cooper's (1974) study is important because the quality of student-generated questions and the nature of the questions generated after training were emphasized. Sadker and Cooper successfully induced in the generation of five types of higher order questions including evaluation, comparison, problem-solving, cause-and-effect, and divergent questions. For the lower order questions, Sadker and Cooper defined them as the questions requiring students to recall from memory. Eight fifth-grade-heterogeneous students were selected as the subjects of the study. Four of them were randomly selected, as experimental subjects, for after-class training in the asking of higher-order questions consisting of two skills: a) student-initiated, content-related question asking; and b) student-initiated, content-related, higher-order-question asking. The subjects in the experimental group read the

description of each skill and its importance. Then they watched a videotape of students demonstrating the generation of the two types of question. Subsequently, they were taught to ask these two types of questions in a series of 10-minute lessons which were videotaped to provide useful feedback and a basis for discussion of their performance. After four microteaching session, the subjects' question generation was considered to reach criterion. Token reinforcement was used to motivate self-questioning behavior when training was finished. The experiment was designed in five phases: baseline, microteaching, reinforcement I, return to baseline, and reinforcement II.

Regarding the outcome, the trained students mean higher order questioning rate during baseline, microteaching, and return to baseline was .07 while their mean higher order question-asking rate was .62 per five minute interval during the reinforcement periods. The untrained (control) students' rate of higher order question generation was between 0 to .15 in all phases of the study. Concerning frequency of types of questions asked by the trained students, cause-and-effect, problem-solving, evaluation, comprehensive, and divergent questions were asked 109, 49, 16, 9, and 3 times, respectively.

Concerning quantitative and qualitative questions generated by students, Frase and Schwartz (1975) reported

two experiments. In their first experiment, 48 high school students read a 1218-word-biographical passage which was divided into 3 sections of approximately 400 words each. Subjects were assigned to 24 tutorial pairs and received instructions to ask their partner questions on one third of the test, answer their partners' questions on another third, and study the other third on their own. a 90-item short-answer post test was provided to all subjects. The questions generated by students were compared to post test items which were categorized as"targeted" (similar to student questions), "non-targeted" (different from student questions), and "control" (material students read without questions). The resulting mean total recall for answering, questioning, and studying conditions was 54.1, 52.4, and 46.8 percent, respectively. The result did not support the hypothesis that students would learn more from generating questions than answering them.

In their second experiment, Frase and Schwartz emphasized the quantitative and qualitative effects of student-generated questions. Sixty-four college freshmen read the same passage and took the same test as in the first experiment, except that only the first two sections instead of three and the first 60 items instead of 90 items of the test were used. The subjects were required to read one text section and pose questions about that section, then to study the second section without questions. For the second

experiment, the results were as follow:

- The mean proportion correct on the posttest for the question-generation and the studying-only condition were significant at the .005 level.

- The mean of the targeted, non-targeted, and control items were .72, .55, and .53 respectively with a difference which is significant at the .001 level.

Evidently, posttest scores on test items related to student-generated questions were higher than those unrelated to student questions.

Apart from stressing students ' questions Yopp (1987) studied active comprehension in student-generated questions and answers to those questions. In Yopp's study, 61 fifth-grade students were randomly divided into three treatment groups. The Question Only group, was taught to generate questions throughout reading. The second group, the Question-Answer group, was taught, besides generating questions, to answer their own question. The last or control group received reading instruction. Yopp hypothesized that students who were taught to ask questions would outperform students who participated in the traditional reading instruction. In addition it was hypothesized that students who were taught to answer their own questions would outperform students who were taught only

asking questions and those who received traditional instruction. This study was designated for four weeks. Then, an immediate and delayed criterion test were provided for transfer and maintenance of the instructional effects. The results revealed that Question Only and Question-Answer students outperformed Control group students on the immediate and delayed criterion tests. However, there was no difference between the Question Only and Question-Answer groups. As indicated from these results, student-generated questions throughout reading improves their reading ability. Answering their own questions, in contrast, did not further accelerate their reading ability.

Concerning types of materials, Valentin and Josefina (1986) investigated the effectiveness of the acquisition and maintenance of self-questioning technique based on Bloom' s taxonomy in the reading comprehension of science materials by poor students selected from the seventh grade. The study consisted of four phases: baseline, intervention 1, intervention 2, and maintenance. During the four phases, students were asked to read passages and answer questions, and to generate questions. They were instructed to model the question types and practice making those after teacher' s instruction. During phase four, maintenance, students read and answered questions independently. The result indicated that training in question generation increases the level of reading comprehension. In addition, the results

indicate that an increase in the level of comprehension was maintained over the short period of time.

While many others investigated the effectiveness of questions generated among groups of students, Kay (1983) compared teacher-posed and student-generated questions as a means of facilitating college students' comprehension of short stories. Fifteen students of the first experimental group read short stories and generated their own questions about the stories they read. The second experimental group, sixteen students read short stories with the help of teacher-posed questions. The control group consisting of thirteen students read short stories with instructions for improving their writing skill. after six 15-items multiple-choice tests had been administratered to students, the results were as follows:

1. Instruction in reading short stories with student-generated questions did not significantly improve students' comprehension.

2. Instruction in reading short stories with the help of teacher-posed questions did significantly improve students' comprehension.

3. Teaching students the element theme of stories as well as the instruction designed to improve students ' writing skill did not significantly improve their reading comprehension.

As a result, teacher-posed questions surpassed, based on this study, student-generated questions. This result was not surprising because the teachers had long been the professional question makers while students were unsophisticated question generators.

In 1985, Nolte and Singer unvestigated whether instructing fourth and fifth graders in active comprehension would result in comprehension superior to that of a typical control group for passages on which students were trained. Subjects were assigned to either a control group or an experimental group.The control group answered the questions posed by a teacher while the experimental group was trained to generate their own questions. The result exhibits that the experimental group outperformed the control group significantly at <.01 level.

Based on these mentioned studies, the researchers need to explore the different viewpoints. Sadker and Cooper (1974) aimed to determine the difference between trained and untrained subjects in asking questions. Undoubtedly, trained subjects outperform the untrained subjects in asking questions. Sadker and Cooper' study is important since it concentrates on the quality of student-generated questions. However, they ignored to measure the effects of student-generated questions on student achievement. In addition, they provided token reinforcement to motivate self-

questioning behaviors. Token reinforcement may bring about extraneous variables.

Regarding Frase and Schwartz' (1975) study, they emphasize the quantitative and qualitative effects of student-generated questions. As a result, posttest scores on test items related to questions posed by students were higher than those unrelated to the questions. However, they did not examine types of questions students constructed.

According to Yopp (1987), three conditions are compared: the question only group , the question-answer group, and the traditional instruction group. Not surprisingly, the first two groups surpassed the last condition on the criterion tests. However, there was no difference between the first two groups. Although Yopp failed to determine the effectiveness of the question-answer condition, the result of student-generated question was satisfactory as they were compared to the traditional condition.

Interestingly, Valentin and Josefina (1986) considered helping poor students gain and retain more comprehension. Self-questioning may benefit poor students rather than good students since good students may already know how to gain more comprehension. They may employ self-questioning techniques automatically or they may comprehend language leading to content comprehension. For poor

students, instruction on self-monitoring appears relevant because they seem to be unaware of their deficiency in reading comprehension (Whimbey and Whimbey: 1975). Thus, as they are suggested to use the questioning technique or any techniques aiding their reading comprehension, they become aware of their levels of comprehension. They may be more active by asking themselves..." Is there anything I don't understand in this paragraph ?", for example. Consequently, poor students may gain more benefit from the questioning technique.

Concerning teacher-and student-posed questions, this area is still controversial. Kay (1983) found that the teacher-posed questions surpassed student-posed questions while Nolte and Singer (1985) pointed out that students trained to ask questions outperformed those who practiced through questions generated by a teacher. According to the contradictory finding, both Kay's and Nolte and Singer's finding needs to be confirmed.

Because of these different emphasizes on student-generated questions, the results of these studies are also varying. In general, the effectiveness of student-generated questions on reading achievement appears to be satisfactory. Besides influencing the during-reading stage, self questioning can also be used in the postreading stage. Questions in the third stage of reading concern

metacognitive theory.

iii. Metacognitive Theory

In the postreading stage, students employ activities to enrich what they have already learned, to augment retention of the learned materials, and to construct alternate forms of the text (Anderson: 1979). Furthermore, one of several activities questions, students employ metacognitive knowledge concerning memory (Flavell:1981).

Flavell(1976) defines metacognition as one's awareness of one's own cognitive process and products, and self-regulation. Readers have to use particular strategies to be aware of the importance of these strategies, and to assess them (McNeil: 1984), to be aware whether they have understood what they have read , and to comprehend the significance of the strategy. However, McNeil says that the ways of helping readers become aware of whether they have understood are important because they will know when they can continue to assimulate further information or when they should reread to clarify information before going on the following step.

The importance of metacognition is evident. However, readers are rarely aware of their self-regulation. Brown (1980) states the difficulty readers always face. These difficulties are:

1. recognizing that problem difficulty has increased and that therefore there is a need for strategic intervention(Brown,1975);

2. using inferential reasoning to assess the probability that an assumption is true, given the information they already have(Brown, 1978);

3. predicting the outcome of their attempts at strategy utilization both before and after the fact (Brown and Lawton, 1977);

4. predicting the task difficulty in a varity of memory and problem-solving situations(Brown, 1978; Tenny, 1975);

5. planning ahead in terms of strategic study-time apportionment (Brown and Campione, 1977; Brown and Smiley, 1978);

6. monitoring the success of attempt to learn that termination of such activities can be made when they are successful (and no longer necessary) or unsuccessful, so that new activities can be tried (Brown and Barclay, 1976: Brown, Campione, and Barclay, 1978).

(Brown, 1980: 457)

According to Brown, readers are insufficient in awareness. They just follow instructions aimlessly. Consequently, Brown points out the basic aspects of thinking efficiently and effective reading including predicting, checking, monitoring, reality testing, and coordination and control of deliberate attempts to study, learn, or solve problems (p. 454). Good readers demonstrate all these skills in their reading and studying. They plan and use strategies, and awareness of task demands and what strategy they employ to meet those demands (Brown: 1980).

Unfortunately, the reason readers face those difficulties previously stated by Brown results from inadequate self-questioning skills (p. 457). Thus self-questioning techniques can be employed so as to enable readers to determine their weaknesses Brown: 1980). For poor readers, Whimbey and Whimbey (1975) point out that instruction on self-monitoring questioning is particularly relevant since they are always unaware of their lack of comprehension.

However, metacognitive theory in the sense of self-questioning strategy, according to McNeil, can be applied in two broad senses. First, regarding the strategy of self-instruction stated by McNeil (1984: 87), it is possible to teach students to be aware of important parts of the text by asking about the theme of the text . Second, according to McNeil (1984: 85) on process of self-knowledge, it is possible to teach students to monitor their state of understanding. They may, for example, ask the question "Is there anything I don't understand from this story?"

Self-Questioning Research Studies Concerned with Metacognitive Theory

Concerning metacognitive theory, it is predicted that students' prose/discourse processing will increase when they are trained to be sensitive to the important part of the text and to monitor their comprehension of these parts.

This prediction is supported by Andre and Anderson (1978-79) who demonstrated two findings:

1. Students can be trained to identify parts of the text which contain important points and construct questions about them.

2. The self-questioning process enhances students' learning material.

Andre and Anderson did two experiments. The first experiment was designed to determine whether the treatment was effective while the second experiment was conducted to replicate the first finding and to compare the achievement of students who were trained to generate questions to those who were told to use the self-questioning technique.

In Experiment I, twenty-nine seniors of a high school were divided into two groups: trained, and untrained groups. The trained group received self-questioning training in the following procedures. First, students were instructed to locate the main ideas in each paragraph of a three-paragraph passage. Second, they generated questions about the main ideas by asking for new example of each. For the untrained group, students read and reread the same materials as the trained group. There were two sessions in the Experiment I. In the first session, a verbal ability test (Wide Range Vocabulary Test) was administered to all subjects; in addition, two groups studied in the different

conditions of trained and untrained subjects. For the second session, both groups were required to read two passages and take a 20-item criterion test. Half of the items assessed main ideas and half assessed detail in the passage. The results showed that:

1. The mean of trained students with low verbal ability, and that of untrained students with low verbal ability were 13.66 and 8.26 respectively.

2. The mean of trained students with high verbal ability, and that of untrained students with high verbal were 18.67 and 20.88 respectively.

The results indicated that students with low and average verbal abilities benefited more from the self-questioning training than students with high verbal ability.

In Experiment II, eighty-one juniors and seniors from a high school were classified into groups with high, middle, and low verbal ability; questioning-with-training, questioning-without-training, and rereading. The questioning-with-training, and the read and reread control groups received the same experimental procedures as those employed in Experiment I. Students in the questioning-without-training group were asked to generate four questions in each passage. The questions were those students expected the teacher would ask. A 24-item criterion test was

administered to all groups at the last session.

The means of the questioning-with-training, questioning-without-training, and rereading groups were 14.79, 13.70, and 11.42 respectively. The results indicated that the two questioning groups did not differ significantly on the criterion test. In addition, it failed to replicate the Treatment X Verbal Ability interaction in Experiment I since it was obvious that the middle ability group had consistently larger standard deviations than the approximately equal standard deviations of the high and low ability groups. The results further indicated that the questioning-with-training group generated more good comprehension questions than the questioning-without-training group.

Concerning the effectiveness of the questioning-generation training, Andre and Anderson suggest that students can be trained to generate the main-point questions. In training procedure is effective to enhance students' ability to generate good questions. The investigators advised that training procedure facilitates low and middle verbal ability students rather than high verbal ability subjects since high ability students already know how to construct good questions.

Similarly, Hyman (1981) investigated the effectiveness of self-generated questions on reading

comprehension. Forty-two junior college students were classified into question cueing, and no question-cueing groups. The between subject factors were low and average ability based on the college's placement exam. There were three phases in the experimental procedure. During phase one, the question-cueing group was told to ask question, then students were provided a 20 minute training session on how to ask questions during phase two. During phase three, they were reminded to ask questions. Then, a comprehension test was administered. There was no significant difference between the comprehension test scores of the question-cueing students while reading and the non question-cueing students. Neither low nor average ability students gained more from generating questions. Furthermore, the correlation between performance on a main thought paragraph test and the proportion of self-generated questions about the thoughts of paragraphs was low. For the quality of questions, the proportion of good questions generated by the average ability students did significantly correlate with the performance on the comprehension test while that of low ability students did not significantly correlate with the performance on the comprehension test.

Hyman suggested that, based on his study, questioning is likely to be "a rote activity" for low ability students.

With regard to the importance of developing problem solving skills, Jay (1981) identified a relationship between questions based on Bloom's taxonomy level and functions, and problem solving.

Seventeen graduate education majors registered for summer school were required to ask self-generated questions so as to gain information for solving a set of six problems. All procedures of solving the six problems were tape recorded. Besides participating in the problem-solving activities, subjects took the Watson-Glaser Critical Thinking Appraisal. Students' scores on this standardized test provided a measure of their ability in solving the problems.

The results indicated that there was no significant difference in the types of questions asked by subjects who obtained high, middle, or low scores on the Watson-Glaser test. For the problem formats, there were three significantly different types of questions: questions requesting information about the system, incorrect conclusions about the system, and incorrect conclusions about specific symbols. For problem solving ability, the occurrence of self-generated questions related to the overall structure of questions was the primary indicator.

Concerning the relationship of training of self-

generated questions with passage difficulty and the extent of retention, Balajthy (1982) determined whether covert-construction of interspersed prequestions affected recall of a science-oriented passage. Sixty college freshmen were classified into three groups. Group 1 received five hours of practice generating questions. Group 2 received one hour for training while group 3 were allowed no training. All subjects, then, received a final test consisting of two science passages. Subjects were instructed to read. The treatment groups (group 1 and group 2) were additionally required to construct questions. Each passage of the final test was immediately followed by a multiple choice and a fill-in test so as to determine availability of knowledge and these two criterion tests of each passage were again administered, one week later, to determine accessibility of knowledge.

There are five major findings as follows:

1. There was no overall effect on subjects who received training in generating questions.

2. Subjects who were trained to generate questions scored higher on the difficult passage and lower on the easier one than the control subjects who received no training. In this findings, subjects in group 1 who received five hours for training scored highest and lowest on the difficult and easier passage, respectively.

3. Subjects who spent five hours for training

scored highest, and lowest on delayed, and immediate measures, respectively.

4. There was no significant difference between the two training groups.

5. There was no between-group difference resulting from the two types of criterion posttest.

The results indicated that student-generated question promotes the improvement of retention on difficult material for college students, and facilitates delayed recall.

In the same year, Olson et al (1982) were interested in developing a process model that would be found in reading skills. To examine the assumption that questioning and answering is an integral part of the process of reading comprehension, Olson et al had one group of subjects read each sentence of a story, and think aloud whatever questions the sentence responded. The number of questions asked per sentence was counted. This procedure was repeated on four stories. A second group of subjects read the sentence on a computer terminal. They were told to write a five-sentence summary of the story at the end. They were also asked to recall the stories. A third group of subjects read each story and deleted 50% of words, phrases, or sentences they considered trivial. The relative importance of each story was measured by the proportion of remaining words. Olson et

al found that the first group of subjects outperformed the others. Finally, they summarized that sentences that elicited questions would be important in reading processes.

According to Thistlethwaite (1983), college students face a major problem with comprehension since they are inactively involved in the material while reading. Thus, Thistlethwaite investigated two techniques for involving students in reading the text: self-questioning, and using text structure.

Thistlethwaite posed five research questions as follows:

1. Do students view self-questioning and using text structure as useful study strategies?

2. What is the relationship between students evaluations of self-questioning and text structure strategies and the independent use of these strategies?

3. Do students using self-questioning or text structure strategies (which have been taught) to study text evidence greater comprehension and recall than those who do not?

4. Do students who use different strategies remember information from different levels of text structure?

5. Do directions to respond rather than simply recall affect the recall of factual information from the

text?

The subjects were 135 college students who registered in a reading improvement course. They were taught to study a passage with two strategies. A 48-hour delayed recall, was then used to assess comprehension of a 2000-word passage.

Regarding the findings, the major conclusions were:

1. The self-questioning and the text structure strategies were positively evaluated by subjects at the end of teaching.

2. There was little transfer to an independent learning situation.

3. The subjects who were taught the text structure strategy while studying did not recall a greater number of idea units than did students who did not employ the strategy.

4. Subjects who used the text structure strategy recalled a significantly greater number of idea units from the superordinate level of text structure although subjects who used no strategy recalled the greatest number of idea units.

In addition to student-generated questions, Knapezyk and Livingston (1974) considered student questions' promptness. The purpose of their study was to investigate a

teacher-implemented prompting procedure for training students to ask questions. Two mentally retarded students from grades 8 and 9 who asked no question were selected as subjects. For the experimental procedure, subject 1 was assigned reading material in the baseline 1 phase, instructed to ask questions which were promptly answered by the teacher and aide in the phase of training 1. In baseline 2, the teacher's response was entirely withdrawn but promptly responded in training 2. In contrast, subject 2 was instructed to ask questions while reading. All questions asked were immediately answered throughout this condition. As a result, the two EMR subjects' questioning behaviour increased. The results indicated that prompting was effectively employed to initiate question-asking.

A study conducted by Wittmann (1985) involved the construction and evaluation of a cognitive self-instructional training program aimed at enhancing metacognitive awareness and control in the area of reading comprehension. This program was compared to a cognitive strategy training program and a program of traditional comprehension instruction on the basis of improving reading comprehension performance.

Sixty-three students in grades five and six were randomly assigned to three groups: a metacognitive training group, a cognitive strategy training group, and a tradition

instruction group. All groups were administered a pretest, then they received three sessions of training in either metacognitive processing, selected cognitive strategies, or traditional instruction, finally, they were retested both immediately after training and at a five-week follow-up.

The results indicated that there were no significant differences among the three groups on the reading comprehension measures. The findings failed to support the hypothesis that there was a direct causal relation between metacognitive functioning and comprehension performance.

In 1986, Davey and McBride explore the effects of training in question generation on comprehension question performance, on quality and form of generated questions, and on accuracy of predicted comprehension. The subjects who were 125 sixth-grade students were assigned to five groups: question training, no question control, question-generation practice, inference question practice, and literal question practice. These five groups met for five 40-minute lessons over a 2 week period.

Regarding procedures, the inference question practice and literal question practice groups read three 250-word passage and answered four free-response question of each passage per session. The inference-practice group responded only to inferential questions while the literal practice group responded only to literal questions. The

question-training group was trained to generate the questions linking information across sentences and those tapping the most important information. The question-generation practice group read the passage and was instructed to generate two good think type questions. The no-question control group read the same passages but completed a vocabulary activity instead of generating or answering questions. As a result, all tests were conducted at the .05 level of significance. That is, the findings point out overall positive effects of training in question generation on the nature of the generated questions, on the accuracy of comprehension question responses, and on the accuracy between actual and predicted comprehension question performance.

Regarding to the quality of the questions generated, MacDonald (1986) examines the difference between trained and untrained subjects on comprehension and recall after both were told to construct questions while reading text passage. The subjects were 52 seventh-and eighth-graders. The control group received instruction and practice from their regular reading teacher in using a dictionary, a thesaurus, and in writing book reports. However, the subjects did not receive direct instruction in generating good questions though they were encouraged to do. In contrast, the experimental group was told to a) identify the main idea in each paragraph, b) find out the most important idea after

reading all paragraphs, c) make up questions about what they need to find out this main idea, and d) read further to see whether they can answer the questions the treatment lasted a total of 7.5 hours.

The results exhibit that the experimental group produced a significant enhancing effect on question quality, but only for subjects with above average ability (75%) on the pretest. The researcher interprets that poor subjects lacked the vocabulary skill to understand the training. He also recommends that poor comprehenders should be trained to ask questions to improve their recall of text.

Like the previous theoretical perspectives, some controversies still occur because of different emphases. According to Andre and Anderson (1978-1979), students can be trained to construct the main-point questions. Moreover, low verbal ability students get advantages from self-questioning technique. In contrast, Hyman(1981) fails to train students to generate questions although his subjects are junior college students. However, it is difficult to mention any limitation leading to failure since his data is presented in a form of abstract dissertation. He did not elaborate any data i.e. duration of training. Interestingly, Olson et al (1982) successfully train students to generate questions responded to statements provided. They also claim that this method works well in

reading comprehension.

Regarding levels of subjects, Thistlethwaite (1983) dealing with college students and Wittman (1985) whose subjects are fifth-and sixth grade students get unsatisfactory results.

Two interesting points, one is Knapezyk and Livingston (1974) results indicated that prompting was effectively employed to initiate question-asking. The other is Balajthy's (1982) study involving passage difficulty and the extent of retention. According to Balajthy, subjects who are trained to generate questions get more benefit on the difficult passage and on delayed measures.

According to these three theoretical perspectives: schema theory; active processing; and metacognitive theory, there are some controversies among educators exploring the effectiveness of student-generated questions. The results are still inconclusive. Andre and Anderson claim that low verbal ability students can be trained to construct questions promoting comprehension while Hyman argues strongly that training students to initiate is in vain, for instance. Thus, further investigation especially a study dealing with Thai students needs to be undertaken.

A student-generated question technique has never been conducted in English reading class for Thai students at any level of English instruction. This experimental study,

consequently, determined the effectiveness of student-questioning technique on reading comprehension of tertiary students. It is expected that the outcomes of this study can guide tertiary students and other-level students to employ the questioning technique so as to enrich their reading comprehension. Finally, the use of this technique may direct students to become independent readers. That is, they can acquire more and more additional knowledge by themselves.

CHAPTER THREE

THE RESEARCH METHODOLOGY

This study was conducted to determine the effectiveness of the student-generated question technique on students' reading achievement at the tertiary level. The study included two groups: the control, and experimental groups. The former was taught with the traditional reading instruction. The latter was instructed using a student-generated question technique. Prior to the experiment, both groups were measured in their reading ability by a pre-reading test. After the experiment was conducted, a post-reading test was given to all subjects. Then, the data obtained were analyzed to find out whether the two groups were significantly different on the basis of the progress on reading achievement.

This chapter explains how this study was conducted. The procedures used in this study included the following components:

I. The subjects
   - A. The sample characteristics
   - B. The sampling procedure

II. The method
   - A. The research design
   - B. Instruments

i. An English Reading Achievement Test

ii. Lesson Plans

iii. Teaching Materials

iv. A Student-Generated Question Test

v. A Questionnaire

C. Procedure

III. Descriptive Statistics

I. THE SUBJECTS

A. THE SAMPLE CHARACTERISTICS

Sixty first year nursing students at Mahidol University, Bangkok were the subjects of this study. The actual number of students in each group is 48. Thirty students were selected from each group. They were comparable by means of their pretest scores. All students participated the first course of English instruction.

B. THE SAMPLING PROCEDURE

The sampling procedure was carried out as the following steps:

1. Two groups were randomly selected from 6 groups of first year nursing students.

2. Prior to the experiment, both groups took an English Reading Achievement test' constructed by the investigator so as to discriminate students' English reading

ability.

3. Both randomly selected groups were comparable on the basis of English reading ability exhibited in the following table:

Pretest Scores (Total = 40)

Group 1		Group 2	
No.	Scores	No.	Scores
1.	29	1.	29
2.	27	2.	27
3.	27	3.	27
4.	26	4.	26
5.	26	5.	26
6.	26	6.	26
7.	25	7.	25
8.	25	8.	25
9.	25	9.	25
10.	25	10.	24
11.	24	11.	24
12.	24	12.	24
13.	24	13.	24
14.	24	14.	23
15.	23	15.	23
16.	23	16.	22
17.	22	17.	22
18.	22	18.	21
19.	22	19.	21

Pretest Scores (Total = 40)

(Cont.)

Group 1		Group 2	
No.	Scores	No.	Scores
20.	21	20.	21
21.	21	21.	20
22.	20	22.	20
23.	20	23.	20
24.	20	24.	19
25.	19	25.	19
26.	19	26.	19
27.	18	27.	18
28.	17	28.	17
29.	16	29.	16
30.	16	30.	16
$\bar{x}$	22.50000		22.30000
S.D	3.411441		3.445636

4. Both groups were parallel in three ability levels: good, average, and weak according to their pretest scores on an English Reading Achievement Tests as the criteria illustrated in the following figure:

Ability Levels	Criteria
Good	26 - 29
Average	20 - 25
Weak	16 - 19

5. In both groups, six, eighteen, and six students were randomly selected from the good, average, and weak students respectively.

6. The students were randomly assigned to be in either the control group consisting of thirty students or the experimental group consisting of thirty students as shown in the following figure:

Ability Levels	Control Group (Group 1)	Experimental group (Group 2)
Good	6	6
Average	18	18
Weak	6	6
total	30	30

II. THE METHOD

A. THE RESEARCH DESIGN

Both control and experimental groups were instructed by the investigator in the normal class of the first semeter. Furthermore, they were provided the same materials including the reading passage in the regularly used textbook, and the supplementary reading passages showing the identical language functions as in that textbook. The method of teaching was different, however. The control group was traditionally taught by being asked questions concerning the reading passages. Whereas, the experimental group was instructed by means of the student-generated question technique, that is to say, the subjects in the experimental groups were trained to ask their own questions. Since the investigator intended to determine the effectiveness of the student-generated question technique, the questionnaires concerning students' attitude towards the student-generated question technique were adminstered to the experimental group at the end of the course. The research design can be illustrated as follows:

Group	Teacher	Teaching Technique	Attitude towards teaching technique
The control group	The investigator	Traditional reading instruction	-
The experimental group	The investigator	A student-generated question technique	A rating-scale

B. INSTRUMENTS

i. An English Reading Achievement Test

An English reading achievement test constructed by the investigator was employed as a pre-test and post-test for both groups of subjects.

The English reading achievement test was composed of a multiple-choice, true or false, and short answer item. Regarding the reason for employing the various types of test items was that students dealt with materials concerning language functions. Thus, they should be evaluated by an English reading achievement test that includes the same language functions they have practiced. Therefore, types of test items depended upon language functions. The multiple-choice type was employed in the language functions of definition, cause and effect, and function while a classification-chart completion was used in classification. In addition, arranging orders or sequences, true or false, and short completion were employed in the language functions of process, comparison, function and cause-effect relationship, respectively.

Test construction and a pilot study

Regarding the construction of the test, two textbooks were used as guidelines:

- Testing English as a second language by Harris (1969)
- Language testing workshop by Bachman (1985)

Reading texts consisting of 6 language functions in which the difficulty and subject matter were appropriate to the first year nursing students were selected by the following procedures:

1. Five reading texts were selected on the basis of language functions as follows:

Text 1 : "Batting insomnia with good habits" consisting of language functions showing definition, cause and effect, and function, extracted from Bangkok Post daily newspaper (May 5, 1987)

Text 2 : "Knowing more about medicine for youngsters" consisting of language functions showing function, and cause and effect, extracted from Bangkok Post daily newspaper (December 22, 1987)

Text 3 : "Pandas" consisting of a language function showing comparison, extracted from Foundation English Reading Text I constructed by the staff of Chulalongkorn University Language

Institute (1985)

Text 4 : "Where do drugs come from ?" consisting of a language function showing classification, extracted from Themes For Thinking: Nursing and The world constructed by the staff of Foreign Language Department of Faculty of Science, Mahidol University (1988).

Text 5 : "Conditioning" consisting of a language function showing process, extracted from Communicate in Writing written by Keith Johnson (1981)

All reading texts containing 200-500 words each were appropriately adapted on the basis of length and types of test suitable for each language function.

2. To administer the pilot study, the test was constructed as exhibited in the following table:

Test	Language Functions						Total	Type of Tests
			CL & DE					
	PR	CE	CL	DE	CE	FU		
1				3	5	2	10	mutiple choice
2					4	5	9	short completion
3		7					7	true / false
4			6				6	a classification chart completion
5	8						8	arrange orders
Total	8	7	9		9	7	40	

PR: Process DE: Definition

CO: Comparison CE: Cause and Effect

CL: Classification FU: Function

3. The contents and items of the constructed test were refined and the language was corrected by Assist. Prof. Prapa Vittayarungrangsri and Mr. Robert Burgess, English instructors at Mahidol University.

4. A pilot study was conducted with 50 mathayomsuksa-six- student at Watpradoonaisongthum School. Based on the data obtained from the pilot study, an item analysis was carried out. The ITEMANL PROGRAM used with IBM 4361 CAI 9Computer for Assisting Instruction) was employed to examine the level of difficulty (F), and the discrimination power (r) by means of an item facility and the point-biserial correlation coefficient suggested by Associate Professor Dr. Boonreang Khachonsin, the lecturer on Educational Measurement and evaluation, Kasetrasart University. The criteria considered for selecting the appropriate test items noted by Nuttall and Skurnik (1969), and Khachonsin (1987) were as follows:

- the level of difficulty (F) was between 20-80%
- the discrimination power (r) was equal or more than 0.2

Any inappropriate test items were revised to be acceptable ones.

5. Kuder Richardson Formula 20 (KR-20) was employed to compute the reliability coefficient of the test (Ebel: 1972). Its reliability also calculated by the ITEMANL

PROGRAM was 0.728. It is acceptable to be the test constructed by a teacher since, mentioned by Harris (1969) and Harrison (1983), a reliability of at least 0.70 is satisfactory.

ii. Lesson Plans

Both control and experimental groups studied the regular course materials. Since the investigator intended to deal with a reading strategy: the reading passages in the learned textbook, and the supplementary materials constructed by the investigator were planned in order to provide to both groups.

To plan the lesson, the investigator employed the following books as guidelines:

- Read and Think by Munby (1968)
- Teaching Foreign-Language skills by Rivers (1968)
- Study Skill and Learning Strategies" in cognitive and Affective Learning Strategies, edited by O'Neil (1979)
- A Teacher Training Course by Hill and Dobbyn (1979)
- Reading in the Language Classroom by Williams (1984)

All contents in the lesson plans were arranged into

9 units based on the sequence in the Nursing Science textbook used in the reading course. All units were in Functions for The Future by the staff of foreign language department at faculty of Science, Mahidol University (1988). Some supplementary materials were adapted from SRA Reading for Understanding 2 & 3; and some authentic material from English newspapers. The units were sequenced as follows:

Unit 1: Process
2: Shape
3: Location
4: Structure
5: Measurment
6: Comparison
7: Classification and Definition
8: Cause and Effect
9: Function

Since this experiment aimed to determine the effectiveness of the student-generated question technique, each unit of lesson plans for the experimental group was classified into 2 sessions: the teacher's model and practice. The teacher illustrated how to generate questions as a model in the first session while the last session enabled students to practice asking their own question. The teacher-modeled session included three stages: prereading, during-reading, and postreading, respectively.

Stage 1: Pre-reading activities

Prereading stage was aimed:

- to introduce and arouse interest in the topic

Stage 2: During-reading activities

The aims of this stage were:

- to help understanding of the text structure or language functions.
- to clarify the reading content.
- to help understanding of the author's purpose.

In this stage, students engaged in sequences of instructional episodes including four activities:

1. Information gathering

Information gathering referred to the stage in which students gained information from silent reading practice. They could extract meaning from sentences and paragraphs in a more or less sequential order.

2. Student responding

After gathering information, students were required to engage in a response-demand event by asking their own questions in written forms. The questions asked by students, main idea of a topic, the author's purpose, and

their judgement and emotional response to that topic.

3. Response Judging and Feedback

When students posed questions, they were required to make decisions whether their questions were appropriate. The criteria for making judgements emphasized the correctness of meaning they needed to convey and of question forms.

4. Decision about what to do next

As students posed and judged their questions, they might still fail to comprehend. To solve this problem, they might reread, form a pending question, or consult outside sources such as a teacher or classmates for an answer to that pending question.

Stage 3: Postreading activities

The aims of a posreading stage were:

- To enrich what has been read.
- To retain what has already been read.
- To relate the text to the readers' own knowledge.

Regarding the control group, all activies were entirely identical as those in the experimental group except that the control group was neither encouraged nor trained to ask their own questions.

iii. Teaching Materials

Since the concentration of this study is reading, reading passage were extracted from the learned textbook namely Functions For The Future. These passages consisted of ten language functions: process, shapes location, structure, measurement, comparison, classification, definition, cause & effect and function. Apart from these passages, others were selected from SRA Reading For Understanding 2 & 3 and from the articles of authentic texts such as Bangkok post daily newspaper.

These function-based materials were included for use with nursing students. Language functions were taken into consideration. That is, the teaching materials used in this study were valid in terms of curricular and concurrent validity.

IV. A Student-Generated Question Test

Some function-based issues extracted from the reading passages employed in a reading achievement test were posed as answer provided while the questionstems of these answers were missing. This test comprised 6 four-items functions: process, comparison, definition, classification, cause and effect, and function. The direstion of this test was explained in Thai and example was illustrated so that the subjects in a control group who were neither encouraged

to ask their own questions nor given instruction in constructing questions could understand how to deal with this test.

V. A Questionnaire

A rating-scale questionnaire was developed to determine the effectiveness of a student-generated question technique using in reading instruction on the basis of students' opinion.

In construction and development of the questionnaire, the procedures were listed as follows:

1. Compile the issues concerning self-questioning technique especially the strength of this technique.
2. Study the form of a questionnaire as well as the type of statistic devices corresponding to that form of the questionnaire.
3. Construct the questionnaire based on the issues compiled from self-questioning theory.
4. Consult with a thesis advisor.
5. Check any ambiguous wording with an educational expert.
6. Revise the questionnaire.

The questionnaire consisted of three main parts. The first part consisted of six items, concerned

students'personal data and attitude towards reading skill, and the way they were taught reading skills in the previous duration. The second part was composed of strength, limittation, and suggestion of thirteen, seven and six items respectively. This part was aimed at eliciting students' attitudes toward the self-questioning technique. Five-point Likert scales used for rating their attitudes were as follows:

5 4 3 2 1

5: strongly agree

4: agree

3: undecided

2: disagree

1: strongly disagree

The third part of the questionnaire concerned students understanding of each reading passage in each teaching unit. Students were required to self-evaluate their extent of comprehension in each unit. The data obtained were taken into consideration whether the questioning technique was appropriate to any language functions, or whether some limitations should be revised. The rating scale used in part III is the following criteria:

5 4 3 2 1

5: Totally understand

4: Mostly understand

3: Moderately understand

2: Slightly understand

1: Do not understand

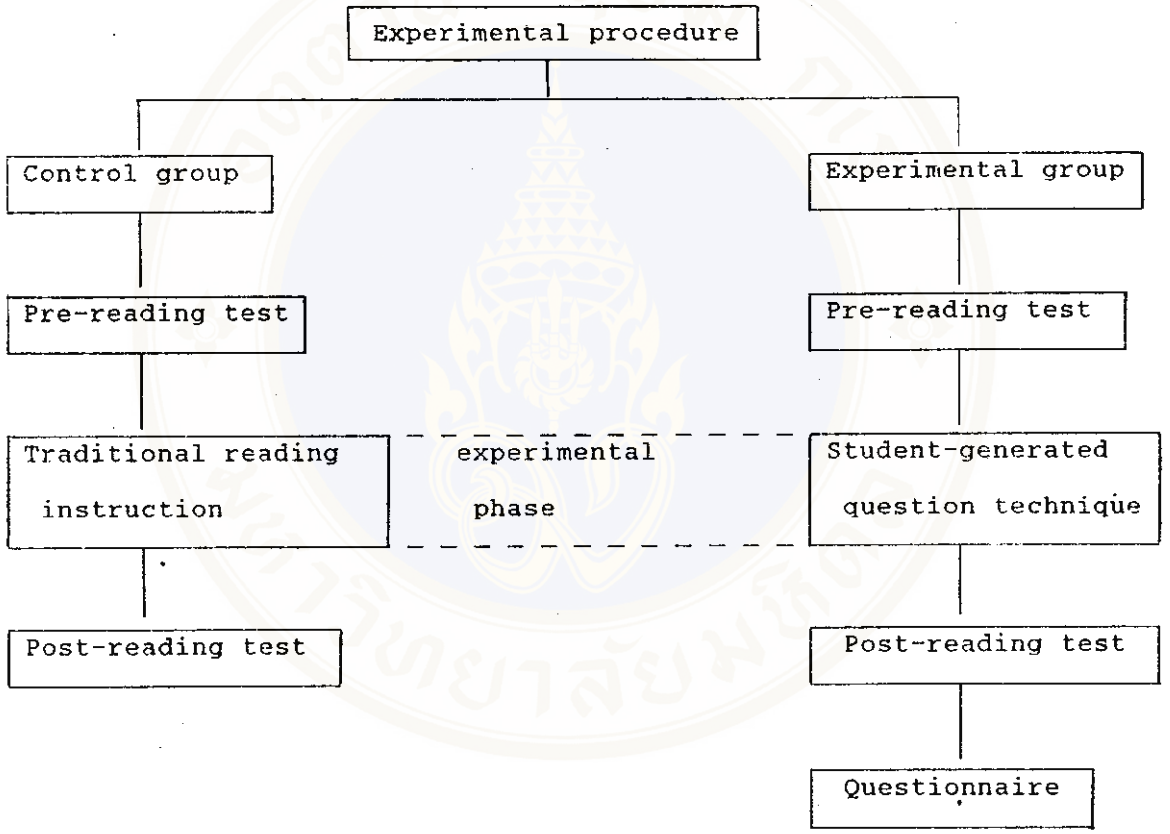
In rating attitudes, all students in the experimental group were taken into consideration since they were viewed as students receiving training of the self-questioning technique. Some of them were missing, so 43 students elicited their attitudes toward this technique. Students were not required to write their names on a questionnaire so that they could respond honestly. This made the data obtained reliable. Since this study was mainly dealt with the self-questioning technique, thus the questionnaire was administered to only the experimental group at the end of the study.

Reliability of the Questionnaire

The reliability of the questionnaire was checked, using Cronbach'method namely Coefficient Alpha suggested by Katsing (1989: 116-119). The data obtained from an administration were computed by Prime computer 9955II at Kasertsart University Computer Center. The value of reliability calculated was 0.715, which was acceptable (Cronbach: 1960).

C. PROCEDURES.

The experimental procedure was carried out as follows:



1. Prior to the experimental phase, a pre-reading test was adminstered to both groups in discriminating students English reading ability.

2. During the experimental phase, both groups were taught by the investigator. The control group studied in the traditional reading class while the experimental group was trained to ask their own questions. After being taught, both groups received a self-generated question test in order to examine whether trained and untrained students could generate questions by themselves.

3. At the end of an experiment, a post-reading test was provided to both groups so as to determine students' progress on English reading ability.

4. A questionnaire was administered to the experimental group at the end of the course so as to determine students attitude towards using a questioning technique in reading .

All questionnaires obtained from this group were considered to be data of a whole class. The investigator did not select only the subjects of the experiment since students were not required to write their names in questionnaires so that they could respond to items honestly.

III. DESCRIPTIVE STATISTICS

The descriptive statistics used in this study were:

1. Coefficient Alpha

Coefficient Alpha of Cronbach method was used to examine the reliability of questionnaires as well as the extent of students' attitude towards the student-generated question technique.

2. Item analysis

An item analysis was employed to examine the level of difficulty (F) and dicrimination power (r) of an English reading achievement test constructed by the investigator.

3. KR-20

The KR-20 formula was employed to determine the reliability of the English reading achievement test.

4. Arithmetic means

The arthmetic means were used to provide the average levels of English reading scores of the control and the experimental groups; and the average extent of students attitude towards the student-generated question technique.

5. T-Test

The T -Test was employed to determine whether the

mean of the English reading achievement test of the control group and that of the experimental group were significantly different.

6. Frequency count and Percentage

Frequency count and Percentage were used to determine the data obtained from the questionnaire concerning students' attitude towards a self-questioning technique and self-evaluation of reading comprehension.

CHAPTER IV

FINDINGS

This chapter presents the findings of the study. These findings are derived from the results computed and analyzed from the data obtained from students' pretest and posttest scores on an English reading achievement test, a self-generated question test, and a questionnaire eliciting students' attitudes toward the self-questioning technique. The purposes of the study indicated in Chapter One serve to organize the presentation of the findings.

The findings of the study are revealed in six parts as follows:

1. The English reading achievement of students not receiving instruction of the self-questioning technique.

2. The English reading achievement of students receiving instruction of the self-questioning technique.

3. A comparison between the English reading achievement of students receiving conventional techniques and that of students receiving instruction in the self-questioning technique.

4. A comparison of the English reading achievement among students of different English reading ability -- good, average, and weak -- in both groups after treatment.

5. A comparison between scores derived from a self-question test of students untrained to ask questions and those of students trained to generate their own questions after treatment.

6. Students' attitudes toward using the self-generated question technique in reading.

1. The English reading achievement of students not receiving instruction of the self-questioning technique.

The subjects participating in a control group were given with an English reading achievement test twice: pretest and posttest in order to determine whether the subjects made any progress in reading after being untrained in the self-generated question technique. The scores obtained from these tests were calculated and analyzed by means of the t-value as exhibited in TABLE 1.

TABLE 1

A COMPARISON OF THE CONTROL GROUP'S

SCORES GAINED FROM THE PRETEST AND POSTTEST

Tests	MEAN	S.D.	T Value	Two-tail Prob.
Pretest	22.5333	3.411		
			-7.85	<0.05
Posttest	27.4667	2.688		

N = 30

As a result, there was a statistically significant difference at the .05 level between the mean score obtained from the pretest and that obtained from the posttest of the control group.

Finding One

The data presented in TABLE 1 indicate that the mean score of the posttest is higher than that of the pretest. It indicated that there was significantly reading achievement in the subjects in the control group. This suggests that the subjects can develop their English reading achievement after practice in the conventional technique. Therefore, it might be concluded that the questions posed by the teacher have an important role for enhancing students'

reading improvement.

2. The English reading achievement of students receiving instruction in the self-questioning technique.

In order to determine whether students improve their English reading after practice in the self-questioning technique, an English reading achievement test was given to the subjects in an experimental group twice, pretest and posttest. The scores from the pretest and posttest were computed to find out the development of students' English reading achievement as illustrated in TABLE 2.

TABLE 2

A COMPARISON OF THE EXPERIMENTAL GROUP'S SCORES GAINED FROM THE PRETEST AND POSTTEST

Tests	MEAN	S.D	T Value	Two-tail Prob.
Pretest	22.3000	3.446		
			-11.87	<0.001
Posttest	30.4667	2.700		

N = 30

The data in TABLE 2 indicate that, there was a significant difference between the mean score of the pretest

and posttest at a 0.001 level.

Finding Two

From the data presented in TABLE 2, the mean score of the posttest is significantly higher than that of the pretest at 0.001 level. This indicates that students improved their English reading achievement greatly after they were trained to generate their own questions on their own.

3. A comparison between the English reading achievement of students receiving conventional techniques and that of students receiving instruction in the self-questioning technique.

In order to determine which of the two techniques, a conventional technique and a self-questioning technique, resulted in superiority of English reading achievement, the difference of mean scores (posttest scores - pretest scores) obtained from the pretest and posttest of both groups were compared by means of a t-test. The results are exhibited in TABLE 3.

TABLE 3

A COMPARISON OF THE ENGLISH ACHIEVEMENT OF THE CONTROL AND THE EXPERIMENTAL GROUPS

Groups	MEAN	S.D.	T Value	Two-tail Prob.
Control	4.9333	3.443	6.50	<0.001
Experimental	8.1667	3.770		

N = 30 (in each group)

The data in TABLE 3 indicate that there was a statistically significant difference between the mean scores of the control group and that of the experimental group at a 0.001 level of significance.

Finding Three

Regarding the analyzed data in TABLE 3, the mean scores of the experimental and the control groups were significantly different at a 0.001 level. The subjects in the experimental group did score significantly higher than those in the control group. It can be concluded that the subjects trained to initiate their own questions did outperform those participating in a traditional reading technique.

4. A comparison of the English reading achievement among students of different reading ability -- good, average and weak -- in both groups after learning.

In order to find out whether the subjects with different reading ability in the experimental group improved their English reading achievement differently from those in the control group, a t-test was conducted to each pair of mean scores. The results are revealed in TABLE 4.

TABLE 4

A COMPARISON OF THE ENGLISH READING ACHIEVEMENT OF THE STUDENTS OF DIFFERENT ENGLISH READING ABILITY IN BOTH GROUPS AFTER LEARNING

Reading	Control		Experimental		T	Two-tail
Ability	MEAN	S.D.	MEAN	S.D.	Value	Prob.
Good	3.1667	0.983	5.8333	2.639	2.17	>0.05
Average	4.3333	3.464	7.5556	3.671	4.96	<0.05
Weak	8.5000	2.588	12.3333	1.506	3.46	<0.05

N = 6, 18, 6 (for good, average, weak reading ability)

The data in TABLE 4 reveal that although good students in the experimental group scored higher than those in the control group, the difference between the mean scores

of those two groups was not significant ($p > 0.05$). The average students in the experimental group outperformed those in the control group significantly at 0.05 level of significance. Regarding weak students, those in the experimental group gained a significantly higher mean score than those in the control group ($p < 0.05$).

Finding Four

Based on the data from TABLE 4, the improvement of good students in both groups exhibited no significant difference in achievement scores from each other. Yet, average students in the experimental group were significantly superior to those in the control group. Similarly, weak students in the experimental group also had significantly higher scores than those in the control group.

It can be concluded that the student-generated question technique benefits weak and average students to improve their English reading achievement much better than a traditional technique. On the other hand, good students in the experimental group showed no significant difference in English reading achievement from those in the control group though the former gained higher scores than the latter. That is, good students trained to initiate their own questions were not different in English reading improvement from those unguided the self-questioning technique.

5. A comparison between self questioning scores of students untrained to ask questions and that of students trained to generate their own questions after treatment.

To explore whether the students trained and untrained in the self-questioning technique can generate their own questions independently, a self-generated question test was administered to students in both groups at the end of the experimental phase. Frequency count and percentage were used to analyze the data obtained from the test. Questions based on language functions generated by students in both groups are presented in TABLE 5.

TABLE 5

PERCENTAGE OF QUESTIONS GENERATED BY STUDENTS IN BOTH GROUPS

Questions Generated by Students	Percentage	
	Control Group	Experimental Group
PROCESS	44.91	57.41
COMPARISON	11.11	44.44
CLASSIFICATION	29.63	61.57
DEFINITION	91.20	97.69
CAUSE & EFFECT	28.70	66.66
FUNCTION	69.63	75.93

N = 27 (in each group)

In addition, the mean scores gained from both groups were compared by a t-test. The consequences are illustrated in TABLE 6.

TABLE 6

A COMPARISON BETWEEN SELF-QUESTIONING SCORES OF TRAINED AND UNTRAINED STUDENTS AFTER TREATMENT

Groups	MEAN	S.D.	T-Value	Two-tail Prob.
Control	11.7778	3.083		
			4.94	<0.001
Experimental	16.4444	4.417		

N = 27 (in each group)

The data presented in TABLE 6 indicate that the students in the experimental group gained a significantly higher mean scores than those in the control group. There was a statistically significant difference at the 0.001 level.

Finding Five

With regard to the data presented in TABLE 5 and TABLE 6, it was found that the mean scores of generating questions between the control group and the experimental group were significantly different ($p<0.001$). The students

in the experimental group gained a significantly higher mean scores than those in the control group. Questions based on process, comparison, classification, definition, cause and effect, and function generated by students in the experimental group were 57.23%, 44.44%, 61.57%, 97.69%, 66.66%, and 75.93% respectively. For the same language functions, questions generated by students in the control group were 44.91%, 11.11%, 29.63%, 91.20%, 28.70%, and 69.63%, respectively. The results indicate that trained students outperformed untrained students in generating their own questions.

6. Students' attitudes toward using the self-generated question technique in reading.

To elicit students' attitudes toward the the self-questioning technique, a questionnaire was administered to the students in the experimental group at the end of the experiment. The reliability of students' response conducted by Cronbach's (1960) alpha coefficient was 0.715. What is more, frequency count and percentage were employed to analyze the data. The questionnaire consisted of three parts: students' personal data, attitudes toward self-questioning technique, and self evaluation of reading passages they had studied. Each part is revealed separately except the first part which served as personal data is

omitted (see in the appendix).

In the second part, students were required to express their opinion by using the following criteria:

5 : strongly agree

4 : agree

3 : undecided

2 : disagree

1 : strongly disagree

The results are presented in TABLE 7.

TABLE 7

PERCENTAGE OF STUDENTS' RESPONSE TO THE SELF-QUESTIONING TECHNIQUE

Item No.	SA 5	A 4	U 3	D 2	SD 1	NA
1	11.6	62.8	25.6			
2	27.9	58.1	14.0			
3	18.6	53.5	20.9	7.0		
4	14.0	79.1	7.0			
5	25.6	53.5	18.6	2.3		
6	27.9	58.1	14.0			
7	25.6	51.2	20.9	2.3		
8	37.2	46.5	14.0	2.3		
9	34.9	53.5	11.6			
10	27.9	62.8	9.3			
11	20.9	53.5	25.6			
12	14.0	37.2	46.5	2.3		
13		16.3	27.9	44.2	9.3	2.3
14	2.3	30.2	20.9	34.9	11.6	
15		11.6	32.6	48.8	7.0	
16		14.0	20.9	48.8	14.0	2.3
17			20.9	62.8	16.3	
18	4.7	34.9	23.3	34.9	2.3	
19	44.2	51.2	2.3	2.3		
20	18.6	51.2	11.6	18.6		

TABLE 7

PERCENTAGE OF STUDENTS' RESPONSE TO

THE SELF-QUESTIONING TECHNIQUE (Cont.)

Item No.	SA 5	A 4	U 3	D 2	SD 1	NA
21	18.6	44.2	16.3	20.9		
22	30.2	58.1	9.3	2.3		
23	41.9	44.2	4.7	9.3		

N = 43
SA : Strongly agree, A : Agree, U : Undecided, D : Disagree
SD : Strongly disagree, NA : No answer

The items in the second part are listed as follows:

A student-generated technique enables students to __

1. be satisfied after learning.
2. think before going on details.
3. predict what a teacher will ask in testing.
4. concentrate on what is being read.
5. clarify any dubious issues.
6. get the theme of reading.
7. memorize details more precisely.
8. review grammar usage.
9. participate in learning and teaching.
10. comprehend the content
11. be active in reading.
12. be confident while reading.

Limitation

The self-questioning technique ___

13. a time consuming.
14. is an unusual activity since students are familiar with a teacher's questions.
15. is unpractical.
16. creates unsmooth reading.
17. makes students forget what has been read.
18. does not make students skillful in asking questions since students don't know what/ when questions will be asked.

Suggestion

In self-questioning practice, there should be___

19. more practice by themselves.
20. more training by a teacher.
21. more practice in pair work or group work
22. more practice a variety of contents
23. greater duration for practice

In addition, the mean scores of students' response for each item were interpreted using the following criteria:

4.6 - 5.0 : strongly agree
3.6 - 4.5 : agree
2.6 - 3.5 : undecided
1.6 - 2.5 : disagree
0.06 - 1.5 : strongly disagree

(Teo: 1986; cited in Hongritipun: 1980)

The results are presented in TABLE 8.

TABLE 8

MEAN SCORES OF STUDENTS' ATTITUDES TOWARD THE SELF-QUESTIONING TECHNIQUE

Item No.	MEAN	S.D.
1.	3.860	0.601
2.	4.140	0.639
3.	3.837	0.814
4.	4.070	0.457
5.	4.023	0.740
6.	4.140	0.639
7.	4.000	0.756
8.	4.163	0.843
9.	4.233	0.649
10.	4.186	0.588
11.	3.593	0.688
12	3.628	0.757
13.	2.674	1.322
14.	2.767	1.088
15.	2.488	0.798
16.	2.512	1.352
17.	2.047	0.615
18.	3.047	0.999
19.	4.372	0.655
20.	3.698	0.989
21.	3.605	1.027
22.	4.163	0.688
23.	4.186	0.906

N = 43

According to data in TABLE 8, students generally responded positive attitudes toward the self-questioning study technique.

Part III

Students were required to self-evaluate their level of reading comprehension after practice a self-questioning technique by using the following criteria:

5 : totally understand

4 : mostly understand

3 : moderately understand

2 : slightly understand

1 : do not understand

Frequency count and percentage were conducted to analyze the data gained from students' assessment. The results are illustrated in TABLE 9.

TABLE 9

PERCENTAGE OF STUDENTS' EVALUATION OF THEIR COMPREHENSION

Item No.	TU 5	MU 4	ModU 3	SU 2	DU 1	NA
1.	4.7	53.5	39.5	2.3		
2.	7.0	58.1	23.3	11.6		
3.	11.6	51.2	32.6	4.7		
4.	2.3	48.8	39.5	9.3		
5.	4.7	32.6	46.5	14.0		2.3
6.	2.3	30.2	48.8	18.6		
7.	7.0	27.9	51.2	11.6	2.3	
8.	11.6	23.3	41.9	18.6	4.7	
9.	18.6	48.8	23.3	7.0	2.3	

N = 43
TU : Totally understand, MU : Mostly understand,
ModU : Moderately understand, SU : Slightly understand,
DU : Do not understand, NA : No answer

The items in Part III concerning the subject matter students learned are listed below:

1. PROCESS : How Tea Is Grown and Processed
2. SHAPE : Shape of Trichomonas Vaginalis
3. LOCATION : The Location of the Stomach
4. STRUCTURE : The Structure of the Mouth Cavity
5. MEASUREMENT : Volcanic Eruptions and Their Power
6. COMPARISON : Types of Contraceptive Use in Thailand
7. CLASSIFICATION & DEFINITION : Categories of Drugs
8. CAUSE & EFFECT : Types of Diseases by Cause
9. FUNCTION : Vitamins and Their Functions

Besides, the mean scores of students' response for each item were analyzed by using the following criteria:

4.6 - 5.0	:	totally understand
3.6 - 4.5	:	mostly understand
2.6 - 3.5	:	moderately understand
1.6 - 2.5	:	slightly understand
0.06 - 1.5	:	do not understand

The results interpreted are revealed in TABLE 10.

TABLE 10

MEAN SCORES OF STUDENTS' EVALUATION OF READING PASSAGES TAUGHT BY SELF QUESTIONING TECHNIQUE

Item No.	MEAN	S.D.
1.	3.605	0.623
2.	3.605	0.791
3.	3.698	0.741
4.	3.442	0.700
5.	3.419	1.159
6.	3.163	0.754
7.	3.256	0.848
8.	3.186	1.029
9.	3.744	0.928

N = 43

The data revealed in TABLE 10 indicate that the level of students' comprehension was satisfactory.

Finding Six

From the data revealed in TABLE 7 a self-questioning technique was considered to please students after learning (62.8%). In terms of self-awareness, this technique activates students'thinking before going on details (58.1%). Students can predict what a teacher will ask in testing (53.5%). Most of them (79.1%) stated that this technique enables them to concentrate on what is being read, and to clarify something doubtful (58.5%). Some said that the self-questioning technique can help them to get the theme of

reading (58.1%) and to memorize details more precisely (51.2%). Furthermore, this technique enables students not only to review grammatical usage (46.5%) and to participate in learning-teaching activities (53.5%), but also to comprehend the text (62.8%) and to be active in reading (53.5%). Concerning self-confidence, some agreed that this technique helps them to read with confidence.

Regarding limitations, 44.2% disagreed that the self-questioning technique takes time, they did not state that it is an unusual activity (34.9%). On the other hand, they agreed that it is practical in nature (48.8%). Furthermore, they disagreed that this technique causes unsmooth reading unsmooth (48.8%) and makes students forget the previously read content (62.8%). Some (34.9%) agreed that they do not know what/when questions will be asked while others (34.9%) did not. In brief, the self-questioning technique is not regarded as having limitations. According to students'response, it is not time consuming and unpractical. Concerning the continuance of reading, it does not slow down reading and make readers forget the content. Generally, this technique is not viewed as a fruitless one.

With regard to recommendations, students agreed that they should either practice more by themselves (51.2%) or be trained more by a teacher (51.2%). Some (44.2%) said they

should practice more in pair work or group work. They further recommended that a variety of contents (58.1%) and the duration for practice (44.2%) should be provided more.

For self-evaluation indicated in TABLE 9 on each language function, 53.5%, 58.1%, 51.2% and 48.8% stated they mostly understand PROCESS, SHAPE,LOCATION,and STRUCTURE respectively. Some moderately understand MEASUREMENT (46.5%), COMPARISON (48.8%), CLASSIFICATION & DEFINITION (51.2%), and CAUSE & EFFECT (41.9%). For FUNCTION, 48.8% said they mostly understand.

In conclusion, students had good attitudes toward the self-questioning technique. That is, this technique is generally viewed to be beneficial. Furthermore, most of them comprehend the text moderately and mostly.

Summary of the Findings

This study is designed to determine six findings concerning a self-generated question technique. These findings analyzed and interpreted from the gained data were as follows :

1. These was a statistically significant difference between the pretest and posttest of students in the control group at the 0.05 level. This finding implies that

students'reading improvement could be enhanced through being taught by a teacher's question.

2. A statistically significant difference between the pretest and posttest of students in the experimental group was found at the 0.001 level. It can therefore be inferred that practice in the self-questioning technique enables students to improve their English reading achievement greatly.

3. The mean scores of the experimental group was significantly different from that of the control group at a confidence level of 0.001. The students in the experimental group did improve higher mean scores than those in the control group. That is, students trained to generate their own questions gained more improvement than those trained by a teacher's questions. It can reasonably be implied that the self-questioning technique is superior to a teacher's questions.

4. There was no statistically significant difference of English reading achievement test between good students in the experimental group and those in the control group ($p > 0.05$) though the former's mean scores was higher than the latter's. Average and weak students in the experimental group, on the other hand, gained significantly greater improvement than those in the control group ($p < 0.05$). This infers that the self-questioning technique was

benefitial for average and weak students rather than good students.

5. The mean scores of generating questions between trained students in the experimental group and untrained students in the control group were found to be significantly different ($p < 0.001$). Trained students obtained a significantly higher mean scores than untrained students. This implies that trained students were superior to untrained students in asking their own questions.

6. For students' attitudes toward the self-questioning technique, most students responded with favorable attitudes toward this technique. Moreover, they self- evaluated to understand the lessons at the satisfactory level.

CHAPTER V

SUMMARY, DISCUSSION, IMPLICATION AND RECOMMENDATIONS FOR FURTHER STUDIES

Chapter Five presents a summary of the study and a discussion of the findings, as well as implications for teaching and learning. Recommendations for further studies are also stated

Summary of the Study

Several research studies conducted to examine Thai Students'English reading ability report that English reading ability of students at any levels is unsatisfactory. This may be due to the reason that students are so directed that they rarely think by themselves. For this reason, many educators have suggested that students be trained to develop strategies that allowed them to think independently. A strategy widely advocated is a student-generated question technique. This technique has a crucial role in reading. Nolte and Singer (1985) advocate that a process of question asking throughout reading is active comprehension, for instance. Student questioning is a tool for acquiring knowledge not only in prereading and during reading phases, but also in postreading activities. Concerning prereading activities, this technique helps students set purposes of

reading and select information (Singer : 1978). In addition, this technique enables students to identify the important part of materials (Andre and Anderson :1978), to engage in a deep processing (Singer : 1978), to organize or rehearse knowledge, to monitor and regulate comprehension, to highten self-awareness of comprehension adequacy (Anderson :1979, Brown : 1979), and to foster their own active comprehension (Gavelek and Raphael :1985) in during reading phase.

Furthermore, the role of self-questioning in postreading effectiveness helps students decide the strategic action will be continued next (Andre and Anderson : 1978-79), increase recall and retention of information and become independent finally (Singer : 1978). What is more, this technique also helps a teacher to know students' level of perception, background knowledge and cognitive development.

A number of research studies concerning self-questioning have been conducted to determine the efficacy of questions generated by students. The beneficial results of the student - initiated question technique were found. Andre and Anderson (1978-79), for example, claim that the self-generated question technique leads to greater effects on English reading comprehension than does the traditional technique. Andre and Anderson also stress that low and

average reading ability students benefit greatly from this technique. A research study conducted by Nolte and Singer (1985) also advocates that self-questioning enables students to perform better in English reading activity.

Though a number of research studies have been extensively conducted to examine the effectiveness of self-questioning, so far relatively few research efforts have been directed in this area in English reading classes for Thai students. As stated by Sangakit (1990: 108), students have rarely been trained to generate their own questions in the reading class. Therefore, this experimental study was designed to determine the effects of self-generated questions on English reading comprehension in the Thai context.

The sample comprised 60 first year nursing students at Mahidol University. They participated in this study in their regular English class. The subjects were randomly assigned to either a control group or an experimental group. The design of this study involved 2 between-subject factors and 1 within-subject factor. The between-subject factors were two study techniques (student-generated question, and teacher-posed question techniques) and reading ability (good, average, and weak). The within-subject factor was an English reading achievement test given as pretest and post test. Prior to the experimental phase, both groups were

administered a pretest so as to assess their English reading ability. The subjects in the experimental group were trained to generate their own questions while those in the control group were required to answer questions posed by a teacher. Both group, however, were instructed by the researcher.

The treatment was provided to both groups throughout one semester. Then, a self-generated question test was contributed to them in order to examine whether trained and untrained subjects could generate questions by themselves. At the end of the experimental phase, a post test was administered to both groups; moreover, a questionnaire eliciting students' attitudes toward self questioning was provided to only the subjects in the experimental group. The findings were as follows:

1. Students in the control group increased their English reading achievement through the practice of the traditional technique.

2. Students in the experimental group enhanced their English reading achievement after practice in the self-questioning technique.

3. Students in the questioning-with-training group performed English reading achievement better than did students in the untrained questioning group.

4. Average and weak students in the experimental group generated a significantly greater mean score on English reading achievement than did those in the control group. Good students, in contrast, in both groups showed no significant difference in English reading improvement.

5. Trained students could generate more questions than untrained students.

6. Students in the questioning-with-training group expressed favorable attitudes toward self-questioning. They also self-evaluated their reading comprehension opening that they understood the texts moderately and mostly.

Discussion of the Findings

1. From Finding One, it was found that students in the control group enhance their English reading achievement significantly through the practice of answering teacher-posed questions. This supports Tinsley (1973) who remarks that "through the use of effective questions and questioning by teacher, students can participate in active involvement of their own learning " (p.710). The reason for this might be due to the effective questions asked by a teacher since the teacher as a professional question maker knows what important points s/he should ask Guiding the main point , an investigator asked questions concerning content-related

language functions. Thus, this may be concluded that students'English reading improvement results from the pertinent questions posed by the investigator.

2. According to Finding Two, the data reveal that students' English reading achievement could greatly be improved after practice in the student-generated question technique, through the experimental phase, students were trained to generate their own questions concerning language functions exhibited in the theme of reading passages. Whenever each language function is presented in sentences, students were required to pose questions corresponding to the perused statements. Before generating questions, students had to understand the statement clearly. This enables them to retain information (Singer : 1978). This finding is in accordance with the study of Olson et al 1982) conducted to examine the assumption that questioning and answering is an integral part of the process of reading comprehension. Olson et al (1982) found that the sentences that elicited many questions would particularly be salient to reading processing. Olson et al recommended that one way to conceptualize reading processes is to consider each sentence in the text to generate certain questions and simultaneously to answer questions posed by previous sentences. This is so since each question may reflect a mental operation that the readers must carry out for the particular sentence as part of understanding it. Moreover,

Olson et al also stress that as each sentence is understood and added to a growing representation of the story, the information being needed to have the developing story make sense. This information needs to interact with what is presented in the next sentence to generate a new set of informational needs -- or if you will, a new set of questions -- that guide the reader's comprehension through the succeeding parts of the text (Olson et al, 1982: 8).

Supporting Olson et al ' view, Kissock and Iyortsuun (1982a) advocate that "learning is enhanced when pupils learn to ask their own questions" (p.118).

For these reasons, it can be concluded that students in the experimental group benefit from practice generating their own questions. Therefore, this technique is at value in teaching reading comprehension.

3. The results in Finding Three show that students trained to initiate questions by themselves outperformed those required to answer teacher-posed question. This finding, appears to be in accordance with the study of Nolte and Singer (1985) conducted with fourth and fifth graders. This result also supports Nolte and Singer'finding that student -generated questions surpassed teacher-posed questions. Some reasons concerning this finding can be elaborated to explain this finding one reason might be due to the process of question asking that facilitates transfer

of information gained from the text into long-term memory (Craik and Lockhart : 1972, Singer : 1979). Thus, students are more apt to memorize and use the information obtained from the text. And this rewards them for their question generating.

Another reason could be the effectiveness of self-questioning itself. This is so since self-questioning not only arouses students'interest and participation in self-directed learning (Marksberry : 1979) and expedites their perception and ability to think and express ideas on several levels (Singer : 1978, Marksberry :1979) but also monitors, regulates, and hightens self-awareness of their comprehension (Nolte and Singer :1985, Gavelek and Raphael :1985, Davey and McBride :1986). Furthermore, this technique familiarizes students with the cognitive and linguistic demands of question answering (Davey and Mcbride :1986). That is, while practicing generating questions, students were exposed to linguistic forms and functions of the question words. When they faced the test items, they could understand the purpose of those test items and respond pertinently and correctly. This might lead them to gain more English reading improvement. Moreover, as students asked their own questions while reading the text, their questioning helps them organize and rehearse knowledge enabling them to comprehend the text and achieve the test items finally (Fishbein et al 1990). Based on the

effectiveness of the self-questioning study technique, it may be concluded that the use of self-questioning does enrich students'comprehension. This finding, thus, is evidence to support a greater use of the self-questioning study technique.

Apart from the use of self-questioning itself, the reason for this finding could be the learning atmosphere. That is to say, self-questioning is a new activity for students in the experimental group. Thus, they were interested in learning through this technique, as far as the investigator was concerned. They had opportunities to participate in learning-teaching activities. Instead of answering questions passively, they were alert and activated to ask questions themselves. Moreover, they were motivated to remedy the inappropriate questions they posed. In other words, they were required to revise their mistakes until the correct ones were acceptable. This did not make them feel embarrassed when any errors occurred. It could be concluded that the new teaching technique as well as learning atmosphere was affective rather than formidable. Consequently, this may be one of the reasons that explain why students in the experimental group improved better in English reading achievement.

Students in the control group, in contrast, did not have any opportunities of exposure to the self-questioning

technique. They could not monitor their awareness in order to hasten perception. They just answered a teacher's questions rather than asked questions curiously. Concerning learning atmosphere, students attended a traditional way of teaching reading. That is, a teacher asked questions which students answered unavoidably. So, students'perception was restricted by the teacher's questions. In other words, what they would know was what the teacher asked. They might not create thinking other than teacher-asked questions. Moreover, when they were asked to read in order to answer questions, they might have created tension. They might have been worried about hesitant or unknown answers.

To sum up, the reasons why students in the experimental group significantly surpassed those in the control group might be due to the process of question asking, the use of self-questioning itself, and the learning atmosphere.

4. students trained to ask themselves questions were superior to those answering a teacher's questions. Concerning Finding Four, it was found that low and average students in the experimental group achieved a significantly higher mean scores than than those in the control group. On the other hand, no statistically significant difference between good students of both groups was found. This finding was also identified by Andre and Anderson (1978-

1979) who affirm that students with low and middle verbal ability benefited more from self-questioning training than those with high verbal ability. There may be some possible explanations for the beneficial effects of the self-questioning study technique. One explanation could concern the combinations of metacognitive and cognitive characteristics. According to Anderson (1979), the self-generated question technique may be an effective reading strategy because students were coerced to pause frequently, deal with understanding questions, determine whether comprehension has occurred, and decide what strategic action should be taken next. Thus, this technique fosters students to set purposes for study, identify and underline important part of material, generate questions requiring answers, and think of possible answers to the questions.

These metacognitive and cognitive characteristics and their effectiveness may enable poor and average students to improve their achievement of learning since prior to possessing the self-questioning technique, they normally tend to be unaware of their lack of reading comprehension (Whimbey and Whimbey : 1975). That is, they do not self-monitor their state of reading comprehension. Moreover, poor readers with their passive learning style seem to be unaware of task demands and low deficient self-questioning skills (Brown : 1980). Thus, when they were equipped to use this technique, they possessed metacognitive and cognitive

characteristics enabling them to set purposes of reading in mind, underline the main points of reading, ask themselves questions, and create the possible answers. Eventually, this technique leads poor readers to an active monitoring of the learning activity and to the engagement of strategic action to achieve reading comprehension (Anderson :1979, Brown : 1979). This seems to be a plausible reason why poor readers profited from this technique.

However, the self-questioning study technique did not alter the performance of high verbal ability students. The reasons for this may be due to two reasons. On the one hand, good readers already spontaneously monitor their own state of reading comprehension (Brown : 1980). They could understand the linguistic patterns leading to understanding in contents. Thus, they might slightly profit from this technique. On the other hand, high verbal ability students might already have the component skills included in the self-questioning technique. Therefore, when they were trained to use this technique, it was redundant for them. For instance, when they were told to pause frequently in order to deal with understanding questions, they might have felt it tiresome because they already possess this technique automatically. Instead of hastening their thinking, this technique retards their process of reading. They, therefore,were not affected by the use of this technique.

Regarding another explanation, poor and good students in the experimental group might react to the generation of questions differently. As far as the investigator observed, poor students always wrote down some important things when their questions were revised, i.e. forms or functions of questions.

This repeated manner may engage them in deep processing and retain information more and more. This may help poor and average students in the experimental group gain more reading achievement than those in the control group. Unlike poor readers, good readers in the experimental group who already have competency in question forms and functions were apt to ignore noting anything . So they may not engage in deep reading processing. As a result, good students in the experimental group achieved approximately the same level of English reading achievement as those in the control group. This implies that the self-questioning study technique may benefit low and middle verbal ability students rather them high verbal ability students.

5. The results in Finding Five reveal that students in the experimental group could generate a significantly higher number of questions than did those in the control group ($p.<0.001$). This indicates that trained students could ask more questions than did untrained students. Like

Finding Three, this finding agrees with Olson et al (1982). This probably results from the self-questioning training itself. Throughout the practice, trained students were required to generate questions corresponding to the sentences provided. Again,they had to make sense of stimulated sentences before converting them into questions. This enriches skills in generating correct questions. Untrained students, on the other hand, were told to answer questions posed by a teacher. They were neither instructed nor encouraged to initiate questions. Consequently, they could generate less questions than those trained to ask themselves questions.

6. The results revealed in Finding Six indicate that trained students generally responded favorable attitudes toward the self-questioning study technique. This finding is consistent with Thistlethwaite (1983). He found that the self-questioning strategy was evaluated positively by the subjects at the end of the teaching unit. Concerning this finding, students expressed that this technique was beneficial for them. It activated them to think before reading other details. Most of them concorded that this technique enabled them to concentrate on reading passages, acquire the main points of reading, clarify any ambiguous contents, and participate in learning activities . Regarding grammar usage, students had an opportunity to review forms and functions of questions. Moreover, they

could memorize the previously learned passages. Most said they felt enthusiastic and confident in reading and finally they could comprehend the text.

Concerning limitations, the self-questioning study technique is not regarded as a useless one. It did not consume much class time. It neither retarded reading nor made readers disregard the content. In short, it was viewed as a practical technique. Furthermore, students recommended that they should either practice more by themselves or be trained more by a teacher. Moreover, pair work and group work activities were demanded for practice. Apparently, they needed more time for practice in a variety of contents.

Therefore, this finding serves as an indication that the self-questioning study technique is regarded as an auspicious technique assisting students in comprehending the text. This also provides evidence to support several attempts that unanimously affirm that this technique is a vital tool for acquiring knowledge (Singer : 1978, Marksberry :1979, Andre and Anderson: 1978-79, Gavelek and Raphael: 1985, Nolte and Singer: 1985, Davey and McBride : 1986, Zaher: 1987, Fishbein et al : 1990).

Supporting the evidence of having positive attitudes toward self questioning, students evaluated themselves that they understood the lessons well. That is to say, they

pointed out that they mostly understood PROCESS, SHAPE, LOCATION, and FUNCTION. Concerning STRUCTURE, MEASUREMENT, COMPARISON, CLASSIFICATION & DEFINITION, and CAUSE & EFFECT, they indicated that they comprehend those moderately. Generally, their level of understanding the lessons was satisfactory. In conclusion, students' response to the self-questioning study technique as well as their assessment of comprehension is a testimony supporting a greater use of self-questioning.

Implication for Teaching and Learning

This study was designed to compare two different questioning techniques for the teaching of English reading, viz student-generated question, and teacher-posed question techniques. Taken together, the findings from this study point to overall positive effects of training in the self-questioning study technique. Consequently, it is likely to be worthwhile to unite this technique and the teaching of English reading together. In the light of the findings of this study and other related studies, the investigator would propose the following suggestions.

1. Based on the findings, it can be concluded that the self-generated question technique activating students' thinking and enhancing students' retention of information is more effective for teaching English reading than a

traditional technique leading students to answer inactively. In recognition of this fact, teachers of English reading should equip students to be independent readers. That is, teachers should train students to generate their own questions while reading. Basically, teachers should instruct students to be sensitive to important parts of the text by asking questions such as "What is the theme of this passage?". Moreover, they should also guide students to monitor their state of reading comprehension by asking questions such as "Is there anything I don't understand in this passage?". Such self questioning assists student highten their self awareness when they encounter a difficulty in reading.

2. As indicated in Part II on a questionnaire, most respondents requested more practice in self-questioning by themselves. Some indicated that they should have been trained more by a teacher. Moreover, they needed two activities for practice, viz. pair work and group work. It could be inferred that the durability of training should be provided in order to have students maintain and transfer reading skills from this technique.

3. The findings in this study indicate that weak and average students greatly benefited from the self-questioning study technique. They most improved the level of English reading achievement offer practice to pose their

questions. This was also supported by Andre and Anderson (1978-79) who point out that low verbal ability students profit most from question generation. Hence, it is worthwhile to train poor and average students to monitor themselves by asking their own questions enabling them to be aware of their state of reading comprehension.

4. Several educators suggest that students should ask their own questions in reading activities since questions assist them to comprehend the text and retain information. Finally, they can be independent readers (Singer: 1978, Noltle and Singer: 1982, Singer and Donlan: 1982). For this reason, questions enabling students to be independent readers may be useful for English teachers who always assign students some external reading activities. That is to say, in reading courses, students are usually assigned to read a great deal of outside reading. Thus, independent readers can effectively deal with outside reading activities because they know how to monitor their comprehension and retain the target information. That is, they ask their own questions before reading in order to predict what will happen in the text. Moreover, they can generate questions while reading in order to activate their thinking. They, in the same way, pose their own questions after reading so as to review the content or monitor their level of reading comprehension. In conclusion, the self-questioning technique may be beneficial for both English

teachers assigning external reading activities and students provided with large number of those activities.

5. Marksberry (1979) raises three ways to improve questioning behavior : environment, modeling and involvement. With regard to environment, students should be assigned to work together on ordinary problems. This will lead them to develop question asking. Moreover, students should be trained to ask questions when they are very young. This is so because in childhood it is easy to cultivate any behavior including self-questioning. Apart from environment, modeling is also emphasized. Teachers should instruct students to generate questions explicitly. They should illustrate how to ask pertinent questions before having students ask their own questions since teachers' behavior can be directed to students' behavior. For involvement, teachers should encourage students involve in self questioning. They may ask the question eliciting students' questions such as "what do you want to know about this topic?". They may have students anticipate what will be the questions in test items. Teachers may sometimes exclude themselves from classroom activities. That is, they may assign students to act as a teacher and ask their friends questions. Then other students take over the role. This activity exposes students to self questioning. Gradually, they will automatically ask their own questions.

Recommendations for Further Study

1. The findings indicate that self-questioning technique affected the low and middle ability students more than high ability students Other research studies should be replicated to determine whether this result can be generalized for any Thai students.

2. Replication with students of other levels should be done to examine whether practice through the self-questioning technique benefits other educational levels.

3. This study dealt with nursing students who are all female. Replication of this study should be conducted with other groups of the tertiary level that consist of male and female in order to see whether sex affects the results of self- questioning training.

4. Since this study concerned training students to generate questions in terms of language functions : process, shape, location, structure, measurement, comparison, classification and definition, cause and effect, and function. Further study needs to be repeated with other types of questions such as questions based on behavioral objectives__to explore whether students can be trained to generate other types of questions. For example, secondary school students are required to study the English lesson

based on the behavioral objectives and may be trained to pose questions concerning these objectives. In such a lesson where students learn about the quality of things, they may be trained to ask "How many kilograms of vegetables did Dang buy from the market?.

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APPENDIX A

An English Reading Achievement Test

AN ENGLISH READING ACHIEVEMENT TEST

Text A

Direction : Read the following information. Then answer the questions by choosing the best alternative. Write X on the letter a, b, c, or d on your answer sheet.

Battling insomnia with good habits

INSOMNIA drives its victims to curse the night and frequently sends them to a doctor. It is the third most common reason people seek medical help--- behind colds and head aches.

Most experts agree that people who experience frequent bouts of insomnia could be helped by maintaining a strict regimen of sleep hygiene, that is, avoiding bad habits such as napping, or drinking alcohol or caffeine too close to bedtime, for example. A daily routine gives the body cues about how sleepy or awake it should feel at certain times in the day.

Insomnia is not a disease but rather a symptom of an underlying problem, such as a cough may be a symptom of a cold or an allergy. The cause of insomnia may be physical or psychological.

Insomnia is defined as the inability to get the sleep necessary to function well during the day. This amount varies from person to person. Some individuals feel refreshed on six hours of sleep, while others do not feel right unless they sleep nine hours a night. Insomnia is rarely a string of nights in which the individual gets absolutely no sleep. The problem usually appears as difficulty falling asleep--tossing and turning more than 30 minutes after retiring - difficulty staying asleep, or waking up too early.

Insomnia is labelled according to its duration and cause:

Transient insomnia is the type of occasional sleep problem most of us experience, especially the night before entering a new school, say, or embarking on a vacation trip.

It may also be triggered by the discomforts of a passing illness, such as a cold. Other causes of transient insomnia include jet travel across several time zones and hospitalisation for surgery. This type of insomnia lasts from one to three nights.

Short-term insomnia endures up to three weeks. It may stem from illness or personal problems such as the death of a loved one or the loss of a job. This type of insomnia usually disappears with the end of stress.

Long-term insomnia persists more than three weeks and may be linked to unusual work schedules, chronic illness, depression or other psychiatric problems, a sleep related respiratory or movement disorder, alcohol or caffeine abuse, and even anciety about sleep, and poor sleep habits.

Some sleep experts believe that almost half of sleep problems stem from excessive efforts to fall asleep and association of sleeplessness with the bedroom environment.

Another one-third of sleep problems are linked to psychological or psychiatric disorders such as anxiety or depression.

People with interrupted sleep may suffer from one of three problems, sleep apnea nocturanal myocolnus and restless leg syndrome.

Sleep apnea, which has several forms involves pauses in breathing that last 10 seconds or more and occasionally exceed three minutes. The pauses may occur hundreds of time a night and are followed by snorts or gasps for breath, during which the victim partially awakens.

Restless leg syndrome is a creeping sensation under the skin of the legs. Those who suffer from restless leg syndrome usually get these feelings before bedtime or when they lie down. The sensations prevent the individuals from relaxing.

Many who have restless leg syndrome also have nocturnal myoclonus, a disorder that causes leg muscles to twitch and legs to kick during sleep. All of this thrashing disrupts sleep, but like the victims of sleep apnea, those with nocturnal myoclonus may not realize they have awakened hundreds of times a night, because the arousals are very brief.

The elderly are often plagued by poor sleep. Despite beliefs to the contrary, older individuals appear to need just about as much sleep as they needed throughout their adult lives, but the ability to sleep seems to lessen. This may be, in part, because their body clock mechanisms became less precise in determining when to sleep and when to wake.

The older person may compensate for the nightly sleep loss by napping during the daytime--a habit that may aggravate insomnia.

1. What does insomnia mean?
   a. The diseases of sleeplessness.
   b. The state of sleeplessness during the night.
   c. The physical function of sleeplessness.
   d. The symptom of psychological illness.

2. What may be the cause of interupted sleep?
   a. The pauses in breathing several times a night.
   b. The feeling of depression before sleeping.
   c. Coffee drinking before bedtime.
   d. Anxiety before working.

3. How many kinds of insomnia are classified on the basis of duration and cause?
   a. Three kinds : sleep apnea, noctural myocolnus, and restless leg syndrome.
   b. Three kinds : transient, short-term, and long-term insomnia.
   c. Two kinds : temporary and permanent insomnia.
   d. Two kinds : physical and psychological insomnia.

4. According to the information in the text, who has the problem of insomnia?
   a. A nurse cannot sleep because she must take care her patients.
   b. A 60-year-old-woman cannot sleep because she always takes a nap during the day.
   c. Dang is ill for three weeks because of alcoholism.
   d. Dum has just had an operation and now he cannot sleep because of pain.

5. Who has sleep hygiene?
   a. Boomma always gets up during the night.
   b. Suchat takes a nap after working.
   c. Anong likes drinking coffee before bedtime.
   d. Suda spends only six hours per night sleeping.

6. Which is the case of insomnia?

   a. Anna cannot sleep for four weeks.

   b. Jimmy cannot sleep because of the noise from airplanes.

   c. Susan suffers from sleeplessness and feel depressed.

   d. Tom does not fall asleep because of an infection.

7. What would the consequence be if you could not fall asleep because of working at the new company?

   a. Transient insomnia

   b. Short-term insomnia

   c. Long-term insomnia

   d. All above are correct.

8. What is the function of the body clock mechanisms?

   a. They lessen the time of sleep in old ages.

   b. They monitor the time to sleep during the night.

   c. They determine when to sleep and wake.

   d. They precise the time to do any activities after working.

9. What is the main idea of this passage?

   a. The functions of good sleep.

   b. The effects of serious sleeplessness.

   c. The causes of serious sleeplessness.

   d. The causes of sleeplessness and recommendation for good sleep.

10. In your opinion, what is the author's purpose?

   a. To warn against using some pills in order to fall sleep.

   b. To persuade readers to have good habits in sleeping.

   c. To suggest ways to solve the problem of sleeplessness.

   d. To evaluate some bad habits in sleeping.

TEXT B

Instructions : Read the following passage carefully.

CONDITIONING

When animals (including man) eat it is normal for the mouth to water. This is called salivation. It is a natural reflex, and was studied by the Russian physiologist Paylov whose famous experiments on the salivation of dogs are important in the history of modern psychology.

Though salivation is natural, Pavlov noticed that a dog would salivate not just when it was eating, but also when it saw the man who usually fed it. In Pavlov's early experiments he simply showed the dog some bread, which he then allowed it to eat. After a while the sight of the experimenter was enough to make the dog salivate. We cannot call this a natural reflex because a dog does not normally salivate at the sight of man. It is what psychologists call a 'conditioned response'. The dog has been taught, or "conditioned", to salivate when he sees the man.

Having decided to study this, Pavlov developed scientific methods for doing so. In order to make sure the experimenter did not disturb the dog, the dog and experimenter were put in separate rooms. Pavlov even put the dog in a kind of frame to make it stand still. He invented a system of tubes for giving the dog food, and watched what happened from outside the room. He found that he could condition the dog to salivate at almost any event-when a bell rang or a light flashed, for example-as long as this event was followed by food.

The American psychologist Skinner developed this idea of conditioning. He found he could condition animals to do quite complicated things by using a technique he called "shaping". He could teach pigeons, for example, to play table tennis. At first he gave them a reward for knocking the ball a short distance in the right direction. Slowly he increased the distance they must knock the ball before getting the reward, and eventually they received it only when they knocked the ball past their 'opponent'.

Directions : Arrange the following events, based on the text. Write the number (1, 2, 3,.....) in front of each item on the answer sheet.

Pavlov's experiment

_____ 11. The experimenter rang the bell.

_____ 12. The experimenter gave food to the dog.

_____ 13. The dog salivated.

_____ 14. The experimenter put the dog in a room alone.

_____ 15. The experimenter put the dog in a frame.

Skinner's experiment

_____ 16. The experimenter gave pigeons a reward for knocking the ball past their opponent.

_____ 17. The experimenter gave pigeons a reward for knocking the ball in the right direction.

_____ 18. The experimenter increased the distance that pigeons must knock the ball.

TEXT C

Directions : Read the passage below. Then, complete the sentences based on the information from the text, using the choices given. Write only the letter (A, B, C, ...) of your choice on the answer sheet.

Knowing more about medicine for youngsters

THAILAND, like many other developing countries, is fast becoming a drug-dependent society.

Drugs are being used unnecessarily and carelessly, and unavoidably, this practice sometimes leads to death.

Concern by authorities for drug abuse among adults is less intense than that concerning misuse among children will not take drugs unless told to do so by parents or other adults.

Since adults generally know more about drugs they'll be taking themselves than about those they're giving to their children. The Co-ordinating Committee for Primary Health Care of Thai Non-Governmental Organizations has recently published booklet on drugs which are not suitable for children.

The small handbook lists the names and compositions of many such drugs, arranged into the eight categories, fever-reducing medicines, cold medication, cough preparations, antibiotic, diarrhorea medication, gas, and indigestion medicine to treat open sores.

The fever-reducing preparations most favoured by those in the low-income sector of public are generally in powder form. They can include powdered paracetamol, aspirin plus caffeine, and liquid paracetamol.

Liquid drugs, popular with a large part of the public, generally contain Dipyrone.

According to the booklet, Dipyrone is normally used when other fever-reducing drugs fail to work, but Dipyrone produces side effect in the form of agranulocytosis, or lowered white blood cell count, which can occur immediately and can cause death.

Furthermore, it can cause other blood diseases such as thrombocytopenic purpura and haemolytic anaemia.

Result of the study of the International Agranulocytisis and Aplastic Anaemia Study showed that Dipyrone is the major cause of agranulocytosis.

For aspirin plus caffeine, the booklet points out that fixed-dose combination with caffeine does not increase paracetamol's or aspirin's effectiveness.

Powdered aspirin is sold without warning consumers that children under the age of one or children suffering from flu, asthma, stomach ulcer, haemmoragic fever or chicken pox should not use it.

Paracetamol in powdered form is difficult to measure, and most of the time children do not get the right dosage. In liquid form it usually contains more than two percent alcohol. Children's drugs should not contain more than two per cent of alcohol.

For antibiotic drugs, many Thais are still using Chloramphenicol and Tetracycline.

Chloramphenicol is an antibiotic which infects the production of blood cells and to overuse it on prerature infants can cause Grey's Syndrome.

Tetracycline can accumulate in milk teeth or permanent teeth causing them to change colour and reducing mineralization. To use Tetracycline on children under eight can disrupt bone growth.

For cold treatment drugs, the booklet has pointed out that the anticholinergic qualities of antihistamines can be harmful to patients suffering from asthma or bronchitis.

Orally administered nasal decongestants may produce effects on the circulatory system, speeding up the heart beat and causing high blood pressure.

Trade names of all the drugs in each catagory which should either be entirely avoided in treating children or should be used with caution have been printed in the booklet.

- A function of Dipyrone is ..... 19. _____
- Side effects of Dipyrone are ..... 20. _____
21. _____
22. _____
- Caution should be taken in using powdered aspirin because ..... 23. _____
- A side effect of Chloramphenicol is ..... 24. _____

- The accumulation of Tetracycline in teeth are ..... 25. _____

26. _____

- Caution should be taken in using antihistamines because ..... 27. _____

A. thrombocytopenic purpura.

B. the infection of the production of blood cells.

C. patients suffering from bronchitis should not use it.

D. the lowering of the white blood cell count.

E. to cause a change of teeth colour and reduction of mineralisation.

F. Grey's Syndrome.

G. to reduce fever.

H. supports teeth growth.

I. children suffering from flu should not use it.

J. to disrupt bone growth.

K. haemolytic anaemia.

L. to reduce blood diseases.

TEXT D

Instructions : Read the following passage carefully.

WHERE DO DRUGS COME FROM ?

Drugs can be either man-made or have natural origins. The man-made or chemical drugs are far fewer, the most common ones being barbiturates, amphetamines, solvents (inhalants) and LSD. These are all chemically manufactured. By contrast, the drugs from natural sources are numerous, the most common of all being alcohol, which can be made by fermenting any starchy food matter, especially grain and fruit. There are mild drugs such as nicotine which is contained in tobacco, and caffeine which is present in the coffee bean and the tea leaf. Less mild are marijuana and hashish, which are respectively the leaves and the resin of the cannabis plant. More potent are cocaine, from the coca leaf of South America, and the derivatives of the opium poppy, namely opium itself, morphine and heroin. This poppy is grown in an arc extending all the way from Turkey to Laos. Lastly, two less well-known but extremely potent natural drugs are mescaline from the mescal cactus of Mexico and psilocybin from the so-called 'magic mushroom' which grows wild in many parts of the world.

Directions : Complete the table below, using the information from the text.

Write the answers on your answer sheet.

	ORIGIN	DRUG
MAN-MADE	28.	barbiturates amphetamines solvents (inhalants) LSD
NATURAL	starch	alcohol
	29.	nicotine
	coffee bean	caffeine
	tea leaf	caffeine
	cannabis	30.
	31.	cocaine
	opium poppy	opium, morphine, heroine
	32.	mescaline
	magic mushroom	33.

TEXT E

Directions : Read the information below. Write T if the item is true and F if that item is false on your answer sheet.

PANDAS

Panda is the name of two kinds of Asian animals. They are quite unlike each other in appearance. The giant panda is a large, bearlike animal. The red panda, also called the lesser panda, is much smaller. Both kinds live on upper mountain slopes of southwestern China and eastern Tibet. But the red panda is also found in Nepal, Sikkim, and northern Burma.

The giant panda has a white, chubby body with black legs and a broad band across the shoulders. It has a large, round head; small, black ears; and a white face with black patches around each eye. This panda grows from 3½ to 5 feet long and has a short tail. Most weigh from 200 to 300 pounds. Giant pandas resemble bears in shape and size and in their slow clumsy movement. Like bears, they can stand upright on their hind legs. The giant panda eats chiefly bamboo shoots, though it eats other plants as well. It occasionally feeds on fish and small rodents.

The red panda has reddish brown fur and a long bushy tail with rings like that of a raccoon. This panda weighs from 6 to 12 pounds and grows about 2 feet long, not including the tail. It has a pale face with a rusty-red streak that curves downward from each eye. Its size, reddish fur, and pointed ears and nose give this animal a foxy look, In fact, some people call it the fire fox. Other people think it looks more like a raccoon because of its masked face and ringed tail. Like the giant panda, the red panda feeds on bamboo shoots. It also eats acorns and roots and sometimes fish, insects, and mice. The red panda easily climbs trees where it sleeps most of the day. It searches for food at dawn and dusk.

Both species of pandas can grasp objects between their fingers and a so-called "extra thumb". This thumb, which is a bone covered by a fleshy pad, grows from the wrist of each forepaw. Pandas use their true thumbs as fingers. The red panda's "extra thumb" is not so fully developed as the giant panda's. Both animals have strong jaws and teeth to help them chew.

_____ 34. The giant panda has reddish brown fur while the red panda has a red body.

_____ 35. Both the giant panda and the red panda have strong jaws and extra thumbs.

_____ 36. Both the giant panda and the red panda look like a large bear.

_____ 37. Both the giant panda and the red panda eat mainly bamboo shoots.

_____ 38. The giant panda has black patches around each eye while the red panda has a rusty-red steak which curves downward from each eye.

_____ 39. The giant panda is smaller than the red panda.

_____ 40. Fish is the panda's favorite food.

Answer sheet

Text A

1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d
6. a b c d
7. a b c d
8. a b c d
9. a b c d
10. a b c d

Text B

Pavlov's experiment.

11. _____
12. _____
13. _____
14. _____
15. _____

Skinner's experiment

16. _____
17. _____
18. _____

Text C

19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____

26. _____
27. _____

Text D

28. _____
29. _____
30. _____
31. _____
32. _____
33. _____

Text E

34. _____
35. _____
36. _____
37. _____
38. _____
39. _____
40. _____

APPENDIX B

A Self-Generated Question Test

แบบทดสอบการตั้งคำถาม

คำสั่ง ให้นักศึกษาอ่านประโยคคำตอบในแต่ละข้อ แล้วตั้งคำถามสำหรับคำตอบในส่วนที่ขีดเส้นใต้ตามตัวอย่าง

ตัวอย่าง Question : _____ ?

Answer : Students study at school.

จากคำตอบที่ขีดเส้นใต้ คือ at school สามารถตั้งคำถามได้ว่า

Where do students study?

Name _____ Group _____

Text A: Battling insomnia with good habits.

1. _____

Insomnia is the inability to sleep neccessary to function well during the day.

2. _____

The interruption of sleep in people may be caused by sleep apnea.

3. _____

There are three kinds of insomnia: transient, short term, and long term insomnia.

4. _____

The function of the body's clock mechanism is to determine when to sleep and when to wake.

Text B: Conditioning

1. _____

A conditioned response is a reflex action as a result of conditioning.

2. _____

In Pavlov's experiment, the dog salivated at the event which was followed by food.

3. _____

After Pavlov put the dog in a room alone, he rang the bell.

4. _____

Before giving pigeons a reward for knocking the ball past their opponent, Skinner increased the distance that pigeons must knock the ball.

5. _____

Pavlov was the first experimenter in animal conditioning.

Text C: Knowing more about medicine for youngsters.

1. _____

The function of Dipyrone is to reduce fever.

2. _____

Dipyrone can cause a lowered white blood cell count and other blood diseases such as thrombocytopenic purpura and haemolytic anaemia.

3. _____

Agranulocytosis is a lowered white blood cell count.

4. _____

An antibiotic inhibits the growth of micro organisms which cause infections.

5. _____

Grey's Syndrome is caused by an overdose of Chloramphenicol.

6. _____

Chloramphenicol is an antibiotic which is effective against a variety of gram-positive and gram-negative organisms such as Mycoplasma and Rickettsia.

7. _____

A change in the colour of teeth results from an accumulation of Tetracycline.

8. _____

Antihistamines can be used for treating cold.

9. _____

The function of paracetamol is to reduce fever.

Text D: Where do drugs come from?

1. _____

Drugs can be classified into two types: man-made and natural drugs.

2. _____

Mild drugs include nicotine and caffeine.

3. _____

The examples of stronger drugs are marijuana and hashish.

Text E: Pandas

1. _____

In terms of habitat, the giant panda is similar to the red panda in that both kinds live on upper mountain slopes of Southwestern China and Eastern Tibet.

2. _____

In term of food, the giant panda differs from the red panda in that the former eats chiefly bamboo shoots and other plants while the latter eats bamboo shoots, acorns and roots, fish, insects, and mice.

3. _____

The giant panda is bigger than the red panda.

4. _____

The giant panda is similar to the red panda in that both have strong jaws and teeth.

APPENDIX C

A Questionnaire (Thai/ English)

แบบสอบถาม

ตอนที่ 1 ให้นักศึกษาตอบข้อความต่อไปนี้ตามความเป็นจริง โดยทำเครื่องหมาย x หน้าข้อความที่ตรงกับข้อมูลของนักศึกษา

1. นักศึกษาเริ่มเรียนภาษาอังกฤษตั้งแต่ระดับชั้น
   - ☐ อนุบาล
   - ☐ ประถมศึกษาตอนต้น
   - ☐ ประถมศึกษาตอนปลาย
   - ☐ มัธยมศึกษา

2. นักศึกษาคิดว่าทักษะการอ่านภาษาอังกฤษของนักศึกษาอยู่ในระดับ
   - ☐ ต้องปรับปรุง
   - ☐ ปานกลาง
   - ☐ ดี
   - ☐ ดีมาก

3. นักศึกษาคิดว่าทักษะการอ่านภาษาอังกฤษ มีความสำคัญ ในระดับ
   - ☐ น้อย
   - ☐ ปานกลาง
   - ☐ มาก
   - ☐ มากที่สุด

4. ในการเรียนภาษาอังกฤษที่ผ่านมา เมื่อถึงชั่วโมงการอ่านภาษาอังกฤษ ครูจะสอนการอ่านภาษาอังกฤษด้วยวิธี
   - ☐ ครูตั้งคำถาม เพื่อให้นักศึกษาตอบคำถาม
   - ☐ ให้นักศึกษาตั้งคำถาม เพื่อถามเพื่อนร่วมชั้น
   - ☐ ให้นักศึกษาตั้งคำถามเพื่อถามตัวเองก่อนอ่าน เพื่อเดาเนื้อหาคร่าว ๆ
   - ☐ ให้นักศึกษาตั้งคำถามเพื่อถามตัวเองขณะอ่าน เพื่อหารายละเอียด
   - ☐ ให้นักศึกษาตั้งคำถามเพื่อถามตัวเองหลังการอ่าน เพื่อช่วยให้จดจำเนื้อหาที่สำคัญ

5. ขณะที่นักศึกษาได้รับการฝึกทักษะการอ่าน ด้วยวิธีการตั้งคำถามเพื่อถามตัวเองในภาคการศึกษานี้ นักศึกษาเข้าใจวัตถุประสงค์ของการฝึกตั้งคำถาม หรือไม่
   - ☐ ไม่เข้าใจ
   - ☐ เข้าใจ

6. นักศึกษาคิดว่าเทคนิคการอ่านด้วยวิธีการตั้งคำถามด้วยตัวเอง ช่วยให้นักศึกษาเข้าใจวัตถุประสงค์ของการเรียนการสอนเกี่ยวกับเนื้อหาใน Reading Passage หรือไม่
   - ☐ ไม่เข้าใจ
   - ☐ เข้าใจ

ตอนที่ 2 หัวข้อต่อไปนี้เป็นคำถามที่เกี่ยวกับความคิดเห็น ประสบการณ์ และข้อเสนอแนะที่มีต่อเทคนิคการอ่านภาษาอังกฤษด้วยวิธีการตั้งคำถามเป็นภาษาอังกฤษด้วยตัวผู้เรียนเอง ให้นักศึกษาแสดงความคิดเห็นจากประสบการณ์ที่ได้รับจากการฝึกตามความเป็นจริงโดยทำเครื่องหมาย x ลงในช่องที่ตรงกับความคิดเห็นของนักศึกษาโดยใช้เกณฑ์ต่อไปนี้

5 หมายถึง เห็นด้วยอย่างยิ่ง
4 " เห็นด้วย
3 " ไม่แน่ใจ
2 " ไม่เห็นด้วย
1 " ไม่เห็นด้วยอย่างยิ่ง

ความคิดเห็นของนักศึกษา วิธีการฝึกทักษะการอ่านภาษาอังกฤษโดยการตั้งคำถามด้วยตัวผู้เรียนเอง เป็นวิธีที่...

หัวข้อที่ประเมิน	5	4	3	2	1
1. นักศึกษาเรียนแล้วรู้สึกชอบ					
2. กระตุ้นให้เกิดการคิดก่อนอ่านเพื่อหารายละเอียดต่าง ๆ					
3. ช่วยให้ทราบแนวคำถามของครูในการสอบ					
4. ทำให้มุ่งความสนใจในสิ่งที่กำลังอ่าน					
5. ช่วยให้กระจ่างในสิ่งที่สงสัยหรือข้องใจ					
6. ทำให้ทราบประเด็นที่สำคัญของเรื่องที่กำลังอ่าน					
7. ทำให้จำเนื้อหาได้แม่นยำขึ้น					
8. ช่วยให้มีโอกาสทบทวน ทำความเข้าใจไวยากรณ์มากขึ้น					
9. ทำให้มีส่วนร่วมในการเรียนการสอน					
10. ทำให้มีโอกาสและทำความเข้าใจเนื้อหามากขึ้น					
11. ทำให้มีความกระตือรือร้นในการอ่านมากขึ้น					
12. ช่วยให้เกิดความเชื่อมั่นในตัวเองขณะที่อ่าน					
13. อื่น ๆ (โปรดระบุ)					

หัวข้อที่ประเมิน	5	4	3	2	1
<u>ข้อจำกัด</u>					
14. ทำให้เสียเวลา					
15. ไม่ใช่สิ่งที่ทำเป็นปกติวิสัย เพราะคุ้นเคยกับการที่มีครูตั้งคำถาม					
16. ยากต่อการนำไปปฏิบัติด้วยตนเอง					
17. ทำให้การอ่านหยุดชะงักไม่ต่อเนื่อง					
18. ทำให้ลืมเนื้อหาในส่วนที่อ่านมาแล้ว					
19. ไม่ทราบว่าจะตั้งเป็นคำถามที่จุดไหน					
20. อื่น ๆ (โปรดระบุ)					
<u>ข้อเสนอแนะ</u>					
21. ควรฝึกด้วยตัวเองให้มากขึ้น					
22. ควรให้ครูเป็นผู้ฝึกหัดให้ตั้งคำถามให้มากขึ้น					
23. ควรให้ฝึกเป็นคู่ หรือกลุ่มย่อยในกลุ่มเพื่อนให้มากขึ้น					
24. ควรมีเนื้อเรื่องในการฝึกให้หลากหลายยิ่งขึ้น					
25. ควรเพิ่มระยะเวลาในการฝึกโดยใช้เทคนิคนี้มากขึ้น					
26. อื่น ๆ (โปรดระบุ)					

ตอนที่ 3 จงประเมินความเข้าใจของนักศึกษาจากการอ่าน Reading Passages ในหนังสือ Functions For The Future ที่นักศึกษาได้เรียนในภาคเรียนที่ 1 โดยใช้เกณฑ์ดังต่อไปนี้

5 หมายถึง เข้าใจทั้งหมด
4 " เข้าใจโดยส่วนใหญ่
3 " เข้าใจพอประมาณ
2 " เข้าใจเล็กน้อย
1 " ไม่เข้าใจเลย

TOPICS	5	4	3	2	1
1.PROCESS:How Tea Is Grown and Processed					
2.SHAPE:The Shape of Trichomonas Vaginalis					
3.LOCATION:The Location of The Stomach					
4.STRUTURE:The Structure of The Mouth Cavity					
5.MEASURMENT:Volcanic Eruptions and Their Power					
6.COMPARISON:Types of Contraceptive Use in Thailand					
7.CLASSIFICATION & DEFINITION :Categories of Drugs					
8.CAUSE & EFFECT: Types of Diseases by Cause					
9.FUNCTION:Vitamins and Their Functions					

APPENDIX C

QUESTIONNAIRE

Part I instructions : Indicate your opinion towards the following items by puttion x in front of the data that most represent your opinion.

1 At what level did you start learning English?

[ ] elementary [ ] lower primary

[ ] upper primary [ ] secondary

2 what do you think of your own reading ability?

[ ] weak [ ] average

[ ] good [ ] very good

3 In your opinion, to what extent is the reading skill important?

[ ] little [ ] fairly

[ ] much [ ] most

4 In your previous English reading learning classes, teachers would teach reading by using the technique that...

[ ] The teachers asked questions while students answered them.

[ ] Students asked their classmates questions.

[ ] Students asked their own questions before reading in order to predict contents.

[ ] Students asked their own questions while reading in order to get details

[ ] Students asked their own qustions after reading in order to memorize the details

5 While being trained to generate your own questions in this semester, do you understand the purpose of generating questions?

[ ] not understand [ ] understand

6 Do you think whether or not the self-generated question technique helps you understand the content in the reading passage ?

[ ] not understand [ ] understand

Part II Instructions : Indicate the extent of your agreement or disagreement. Put X in the space corresponding to your opinion by using the following criteria :

5 refers to strongly agree
4 " agree
3 " undecided
2 " disagree
1 " strongly disagree

In your opinion, the student-generated question technique enables students to------

Aspects to be evaluated	5	4	3	2	1
1 be satisfied after learning.					
2 think before going on details.					
3 predict what a teacher will ask in testing.					
4 concentrate on what is being read.					
5 clarify any dubious issues.					

Aspects to be evaluated	5	4	3	2	1
6 get the theme of reading.					
7 memorize details more precisely.					
8 review grammar usage.					
9 participate in learning and teaching.					
10 comprehend the content.					
11 be enthusiastic in reading.					
12 be confident while reading.					
Limitation					
The self-questioning technique-----					
13 is time consuming					
14 is an unusual activity since students are familiar with a teacher's questions.					
15 is unpractical.					
16 creates unsmooth reading.					
17 makes students forget what has been read.					
18 does not make students skillful in asking questions since students do not know what/when questions will be asked.					
Suggestion					
In self-questioning practice,					
19 Students should practice more by themselves.					

Aspects to be evaluated	5	4	3	2	1
20 Students should be trained more by a teacher.					
21 Students should practice more in pair work or group work.					
22 Students should practice a variety of contents more.					
23 The duration for practice should be increased more.					

Part III Instructions : Indicate your level of reading comprehension towards each unit taught with the self-generated question technique by using the following criteria :

5 refers to totally understand
4 " mostly understand
3 " moderately understand
2 " slightly understand
1 " do not understand

TOPICS	5	4	3	2	1
1 PROCESS : How Tea Is Grown and Processed					
2 SHAPE : The Shape of Trichomonas Vaginalis					
3 LOCATION : The Location of the Stomach					
4 STRUCTURE : The Structure of the Mouth Cavity					
5 MEASUREMENT : Volcanic Eruptions and Their Power					
6 COMPARISON : Types of Contraceptive Use in Thailand					
7 CLASSIFICATION & DEFINITION : Categories of Drugs					
8 CAUSE & EFFECT : Types of Diseases by Cause					
9 FUNCTION : Vitamins and Their Functions					

APPENDIX D

A Sample of Materials Used for Practice

Comparison : Practice 1

Directions :1. Read the passage carefully.

2. Conplete the passage by choosing the best alternative.

3. Generate questions concerning theme and language function of comparison.

1. One reason that the intelligent worker is more valuable than the unintelligent one is that the intelligent person is less wasteful of materials. In some manufacturing processes, the cost of the material used is many times the amount paid in wages. In such cases, a very little difference in worker's ability to comprehend and to follow instructions may make a great difference in the

A stability of employment. C wages of the worker.

B use of complicated machinery D net profit to the owner.

Ans:-

Questions Answers

1. The value of the intelligent worker and that of the unintelligent worker are conpared.

2. The intelligent worker is more valuable than the unintelligent one.

3. The unintelligent worker is less valuable than the intelligent one because the former is more wastful of materials.
4. The main idea is the reason why the intelligent worker is more valuable than the unintelligent one.

2. To the Hindu, the cow is a sacred animal whose life must not be taken, Although India has more cattle than any other country in the world, these cattle bring little economic return, for they are

A never killed. C a valuable natural resource.
B a source of food D slaughtered in times of famine.

Ans:-

Questions Answers

1. Cattle in India and thoose in other countries are compared.
2. There are more cattle in India than other countries.
3. It is about Hindu'belief concerning cow.

3. The amount of food that one farmer can produce is much more than it used to be. Mechanical inventions and scientific agriculture have made it possible for farmers to produce enough food to feed many peopole.

C

Some countries that used to have food shortages can now

A export foods.

B build dams.

C Import foods

D control their climate.

Ans:-

Questions

Answers

1. The amount of food produced by one farmer at present and that in the past.
2. The amount of food produced by one farmer at present is more than that in past.
3. One farmer can produce more food because of mechanical inventions.

4. Brass is an alloy made chiefly of copper and zinc. Bronze is a similar alloy consisting primarily of copper and tin. The Bible refers to brass, but the alloy was probably bronze, as was the brass referred to in other ancient writings. These two alloys, almost identical in appearance, were often called by the same name until a chemist made a distinction between

A copper and zinc.

B zinc and tin.

C copper and tin.

D alloys and metals.

Questions

Answers

1. Brass and bronze are compared.

2. Both bronze and brass consist of copper and they are almost identical in appearance.
3. Brass consists of zinc while bronz is composed of tin.

5. The possession of a high degree of intelligence is lss important than the judicious application of the intelligence that one does possess. The more brilliant an individual is, the more catastrophic is the ruin resulting from the mischannelling of these abilities. Those who plod slowly down the righ road are likely to go further ultimately than are those who

A always travel rapidly.

B misdirect others while following the right road.

C follow shortcuts to the right goal.

D run rapidly in the wrong direction.

Ans:-

Questions Answers

1. The possession of intelligence and the judicious application of the intelligence are compared.
2. The judicions application is more important than the mere possession of a high degree of intelligence.

3. The author emphasizes the judicious application of the intelligence one possesses.

6. Ideas can sometimes be communicated better by gestures than by words. It is much less effective to tell a person to leave the room than to

A ask him to go. C point to the door.

B say nothing at all. D get up and go out.

Questions Answers

1. Ideas communicated by gestures and those communicated by words are compared.
2. Idea can be more effectively communicated by gestures than by words.
3. The main idea is that ideas can sometimes be better communicated by gestures than by words.

Copmparison: Practice 1: Questions

I
1. What are compared in this passage?
2. How are those two things compared?
3. Hhy is the unintelligent worker considered in that way?

II
1. what two things are compared?
2. How are these compared?
3. What is the main idea?

III
1. What is compared in this passage?
2. How is the amount of food at present different from that in the past?
3. What is the main idea?

IV
1. What two things are compared?
2. How is Bronze similar to Brass?
3. How is Bronze different from Brass?

V
1. What is compared in this passage?
2. How are they compared?
3. What is the author's purpose?

VI
1. What is compared in this passage?
2. In what way are the two things compared?
3. What is the main idea?

APPENDIX E

A List of Subjects' Name in Both Groups

Subjects in the control group

Name	Scores	
	Pretest	Posttest
Niwan Nantasukasem	29	31
Siriluck Horasit	27	31
Saichon Hempratchayakul	27	29
Saichon Sritrakoon	26	30
Nitaya Pitak-udompaisarn	26	29
Thitiporn Sirisuwaluck	26	30
Vira Boonriw	25	30
Nidawan Junlawan	25	28
Amphorn Thongon	25	32
Nisarat Ratana	25	27
Thitima Jumnongleat	24	24
Sawarot Meekuson	24	26
Chutima Piboonbun	24	24
Anchalee Piyapanyawong	23	28
Anchalee Patanathanorn	23	26
Nongluck Sateaw	24	27
Somsakul Boon-Amnuy	22	25
Dolladee Thanasarnchai	22	24
Sopida Siboonnum	22	28
Supatra Tantisrikrisang	21	23
Apiradee Natnitivitaya	21	29
Dararut Srithamapinit	20	26

Name	Scores	
	Pretest	Posttest
Narumon Saithong	20	34
Sunanta Tantikanokporn	20	29
Aranya Vareecharion	19	23
Chutitham Nitkhamhan	19	28
Sareeha Sa-a	18	28
Dungrat Wareecharit	17	24
Suntaree Onseabsai	16	26
Nuchanat Snguanchai	16	20

Subjects in the experimental group

	Name	Scores	
		Pretest	Posttest
1	Anchalee Chatkitisarn	29	33
2	Suthasinee Ropyan	27	34
3	Sugallaya Charconsri	27	34
4	Siriwan Sasiaw	26	29
5	Siriporn Endoo	26	35
6	Cheerawan Exkasut	26	30
7	Amphon Seedakhum	25	31
8	Kanitha Keitsirivimon	25	29
9	Jariya Moung-Ngam	25	35
10	Kwanhatai Leowaikulawat	24	29
11	Vipaporn Duangsomkid	24	30
12	Chaveewan Vannadee	24	31
13	Supaporn Nawbhut	24	27
14	Supap Hamjaree	23	30
15	Chaweewan Boonchai	23	25
16	Kulab Plabpla	22	27
17	Uraiwan Mukatan	22	30
18	Chunlanit Janchompoo	21	26
19	Vasunan Chumchua	21	31
20	Sineenart Pongsuwan	21	25
21	Kanjana Benjasmith	21	29

Name	Scores	
	Pretest	Posttest
Apiradee Suriyachan	20	32
Supaporn Gulwarottama	20	32
Charunee Teabphoti	20	35
Kanokwan Chuchatthai	19	31
Siriporn Nasomjai	19	30
Sriprapa Threerasumthronpon	18	29
Chamaiporn Vejsuwanmanee	17	30
Chontida Keadcheu	16	28
Sunate Tasanasorn	16	31