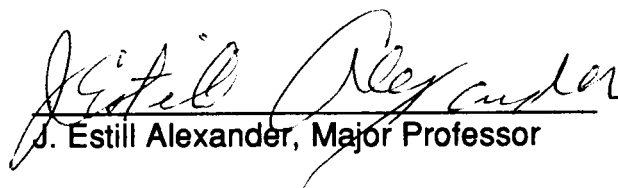
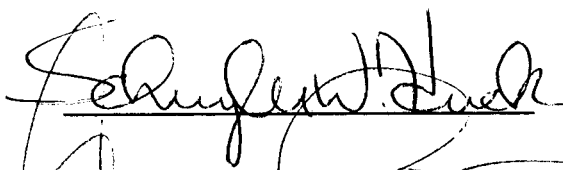
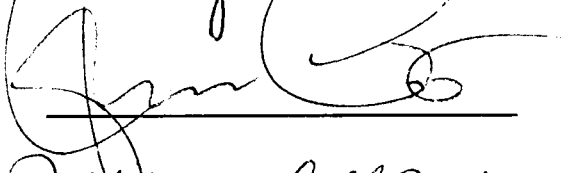


To the Graduate Council:

I am submitting herewith a dissertation by Elizabeth M. Schroeder entitled "The Effectiveness and Independent Use of a Generative Strategy to Improve Reading Comprehension by Adults Enrolled in College Developmental Reading." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Education.


J. Estill Alexander, Major Professor

We have read this dissertation
and recommend its acceptance:


Accepted for the Council:


Associate Vice Chancellor and
Dean of the Graduate School

**The Effectiveness and Independent Use of a
Generative Strategy to Improve Reading Comprehension
by Adults Enrolled in College Developmental Reading**

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Elizabeth McKamy Schroeder

August 1996

DEDICATION

This dissertation is dedicated to my husband
Erik C. Schroeder
who has been supportive throughout this doctoral process
and
John and Evelyn McKamy
who have given me backbone and drive for success in life.

ACKNOWLEDGEMENTS

Throughout the planning and delivery of this research, several people have stood out for their helpfulness, knowledge, and faith. My fellow graduate students in the College of Education have encouraged me with their own successes and ever present personal support. I am grateful to the members of my Dissertation Committee, J. Estill Alexander, Mike Johnson, John Peters, and Schuyler Huck for their fine examples of scholarship and guidance. Without these peers and mentors, I may never have seen the conclusion of my doctoral work.

I am thankful to Pellissippi State Technical Community College for permission to use their facilities, students, and faculty for this research. Those who also cannot go unmentioned for their effort and encouragement are Pam Smith and Ruthie McIntyre. Pam Smith, specifically, has been outstanding in her advocacy and assistance in seeing that this research at Pellissippi State was possible. I cannot find the words to adequately describe the sense of indebtedness I have to Pam.

In addition, I would like to thank Sue Yamin her professional assistance and advice in the preparation of the comprehension tests and Donna McKamy for this as well as her friendly criticism and support. Their guidance and feedback was immeasurably helpful.

ABSTRACT

College readers, identified as "developmental" in ability, were taught to generate visual representations and verbal associations for written text to determine if such a strategy improved reading comprehension and if it was used independently. Other strategies, such as SQ4R are thought to appear formal and complex and, therefore, are unlikely to be used by this population, who typically has poor study skills and is accustomed to failure. On the contrary, the generation of representations and associations while reading (the generative model of learning), as proposed by Merlin Wittrock, could be used quite flexibly, depending on the reading task and the reader's learning style and preference. The strategy also addresses the influence of well accepted factors affecting reading comprehension such as text structure, the role of schema, and metacognition. Participants consisted of students enrolled in several sections of a developmental reading course. A control group made up of 33 students was tested on three occasions. An experimental group of 67 students was tested in the same manner but was also instructed and encouraged in the generation of representations and associations while reading college assignments. Researcher-made reading comprehension tests were used and the researcher provided instruction over six weeks.

Research questions were as follows:

1. Is there a significant difference between the means of the control group and the experimental group on the pre, post, and follow-up reading comprehension tests?
2. Due to the nature of both the method of instruction and the generative reading strategy, will participants use the strategy independently?
3. Will themes such as "usefulness," "ease of application," or "individualization" of the generative reading strategy be referred to by participants as reasons for choosing to use part or all of the generative reading strategy?

Analysis of the reading comprehension tests found no treatment effects demonstrating improvement in the experimental group or changes occurring between experimental and control groups during the course of the study. This indicates that improvement in reading comprehension is independent of strategy instruction as provided in this study. Analysis of

questionnaires failed to yield data that would strongly support conclusions concerning participants' strategy use. Few dramatic differences were demonstrated between experimental and control groups' responses at the time of any questionnaire administration. Modest improvements in experimental participants' descriptions of their strategy use were evident, but were not considered to be significant by the researcher.

The researcher has concluded that further study concerning the teaching of reading comprehension strategies to developmental college readers and their decisions to use these strategies is much needed. Issues concerning the instruction of strategies and questionnaire administration should be considered prior to initiating another study. This population of students is difficult to influence, yet doing so should improve students' college learning experiences and higher education's attrition rates.

TABLE OF CONTENTS

<u>CHAPTER</u>	<u>PAGE</u>
I. INTRODUCTION	1
Statement of Problem	2
Questions	3
Justification for the Study	3
Definitions	4
Assumptions of the Study	5
Limitations of the Study	5
Overview of the Procedures	7
Organization of the Study	7
II. LITERATURE REVIEW	8
Why Remedial Instruction?	8
Reading Comprehension and Comprehension Instruction	10
Factors Effecting Reading Comprehension	10
Text Structure	10
Schema Theory	12
Metacognition	13
Task Demands	14
Published Strategies	14
The Importance of Strategy Flexibility	16
Generative Model of Learning	16
Effective Strategy Instruction	18
Summary	19
III. METHODOLOGY	20
The Location of the Study	20
Participant Selection and Description	20

<u>CHAPTER</u>	<u>PAGE</u>
The Treatment	21
The Experimental Group	22
The Control Group	22
Data Collection	22
Quantitative Measures	23
Qualitative Measures	24
Protecting Participants' Interests	25
Use of Codes	25
Adherence to Published Human Subjects Guidelines	26
Statistical Analysis of the Test Data	26
Analyzing the Questionnaire Data	27
Transcending the Merely Descriptive	27
Summary	28
 IV. RESULTS	 29
Descriptive Data	30
Participants	30
The Intervention	30
Quantitative Data	31
Qualitative Data	34
Participants' Reports of Reading Comprehension Strategy Use	34
Knowledge of Appropriateness of Reading Comprehension Strategies	50
Summary	52
 V. FURTHER ANALYSIS OF QUESTIONNAIRE DATA	 53
Misunderstandings Concerning the Term "Strategy"	53
Connections Between Treatment Content and Reported Strategy Use	55
Changes in Reports of Strategy Use Over Time	56

<u>CHAPTER</u>	<u>PAGE</u>
CHAPTER VI. SUMMARY, IMPLICATIONS, RECOMMENDATIONS	57
Summary of the Study	57
Summary of Results	58
Reading Comprehension	58
The Use of Strategies	58
Links to Developmental Reading Literature	60
Developmental College Readers	60
Reading Comprehension Assessment	61
The Generative Model of Learning	62
Suggestions for Further Study	62
Conducting the Pilot Study	63
Preparing All Individuals Involved in Carrying Out the Study	64
Planning and Executing Strategy Instruction	65
Improving Motivation / Interest	67
Choosing a Reading Comprehension Strategy for Instruction	68
LIST OF REFERENCES	70
APPENDIXES	77
A. Reading Comprehension Tests	79
B. Questionnaire 1	103
C. Questionnaire 2	105
VITA	106

CHAPTER I

INTRODUCTION

The topic of this study, the effectiveness and independent use of the generative reading strategy, is introduced in this chapter. This chapter contains statements of the problem, research questions, purpose, definitions, assumptions and limitations of this study and outlines the procedures used and the organization of the study.

As colleges and universities find themselves serving increasingly diverse populations of students, many are also finding that a number of students are lacking in essential academic skills. Community colleges, in particular, find this to be true, as a large number of their students are "non-traditional:" first generation, older than the traditional college student, and married and/or having children. These characteristics often manifest themselves in sporadic enrollment patterns and high rates of attrition. To assist students in their preparation for the demands of college, institutions have established remedial and developmental programs. The purpose of remedial and developmental reading courses is to introduce and/or improve reading skills essential for college reading.

An essential component of any reading activity is comprehension. Without it, information can not be understood, retained, or put to use. It appears that little actual instruction is provided in reading comprehension in early grades. Instead, teachers provide practice in the form of passages to read with questions that follow. Participating in just any sort of comprehension activity, however, is unlikely to foster metacognition or strategy use.

Although research of reading comprehension strategies generally suggests a benefit for primary and secondary students, these findings cannot easily be generalized to college students. Since community college faculty are rarely encouraged to engage in research, and the comprehension needs of poor college age readers have seldom been the subject of scientific inquiry, little information is available. The questions yet exist for the practitioner: what comprehension strategies are helpful and what, according to their users, makes them so?

This study was designed to establish the effectiveness of methods proposed by the generative model of learning and the reasons problem college readers have for using or not using the methods independently.

Statement of Problem

Every year tens of thousands of students enter a variety of colleges and universities unprepared for the reading demands that are sure to be placed on them. Many students are identified as such, but others are not, struggling throughout their college education or dropping out prematurely. Part of this struggle is the required reading of expository texts. Expository texts are difficult for both good and poor readers to understand (Olson, 1985; Muth, 1987). Strategies designed to improve reading comprehension of these texts are meant to provide methods for any student to use on his or her own to improve the quality and efficiency of the reading act. Many strategies are likely to be perceived by those with reading problems as completely or, at least partially, a waste of time. Frequently time consuming and requiring rigid compliance to hard-to-follow steps, these strategies are likely to be rejected by problem readers, the very population who might most be helped by their use.

Part of students' dislike or lack of use of reading comprehension strategies may be their failure to meet the situational demands of each reading situation (e.g., little time, too much new content, purpose for reading). Additionally, the strategies may also be guilty of ignoring the learning styles or basic study preferences of those who might use them. What might the purpose of publishing or providing instruction in the use of these reading strategies be if readers are put off by them or are not served by them?

Currently, the educational community does not have a strong research base from which to form expectations or implement innovations regarding problem college readers' reading comprehension. The generative model of learning proposed by Merlin Wittrock stands out as an improvement upon the strategies referred to in this chapter and a promising avenue for research of effective instructional approaches. It suggests a variety of methods a reader might use to make text more interesting and meaningful. These methods can be used together or alone, depending on the demands of the reading situation and the preferences of the reader using them. The strategy puts the reader in the driver's seat, calling on him or her to use personal metacognitive control over those aspects that influence each reading act. Control of this act is not given to an external, arbitrary source. Perhaps thorough instruction in the use of this flexible, yet demanding reading strategy would encourage readers to freely adopt those aspects that satisfy their personal needs.

Although some studies have been conducted exploring reading strategies and their effective use, too few have focused specifically on developmental college readers. In addition, none has studied the reasons for readers' choosing to use reading comprehension strategies. Is the generative reading strategy a "simple," flexible, theory-based strategy that developmental readers can learn to use to improve their comprehension? If so, are they likely to use it on their own? The following study has been designed to fill this gap in the research. The effectiveness of a reading comprehension strategy will be examined specifically with developmental college readers. Their reasons for using or not using the strategy will also be explored.

Questions

1. Is there a significant difference between the means of the control group and the experimental group on the pre, post, and follow-up reading comprehension tests?
2. Due to the nature of both the method of instruction and the generative reading strategy, will participants use the strategy independently?
3. Will themes such as "usefulness," "ease of application," or "individualization" of the generative reading strategy be referred to by participants as reasons for choosing to use part or all of the generative reading strategy?

Justification for the Study

By focusing on students enrolled in a developmental reading program at a community college, it is intended that this study will contribute significantly to the current body of reading research at the college level. This study will have both theoretical and practical significance.

Theoretical significance will be found in the outcomes of statistical methods examining the role of the generative learning strategy's methods in any change in participants' test scores. Comparing means of control and experimental groups will indicate the effectiveness of the instruction and its content.

Findings concerning the reasons for readers' use or lack of use of the generative learning strategy methods will provide practical significance; a deeper understanding of developmental readers' perspectives of the methods. Problem readers' opinions of the individual methods and their decisions to use them or not is a point of view not frequently found in the literature. The

reasons these readers provide for their use of the strategy's methods may have implications for the ways in which they are taught or their appropriateness for the developmental college reading population.

Definitions

"Generative learning," according to Wittrock (1981), occurs when readers make sense of prose by going beyond the text structure to the generation of literal or inferential meanings with the help of the readers' organized knowledge and previous experience. Literal and inferential meanings are the product of the generative learning process that includes the reader's active construction of visual representations and verbal associations to improve understandings that constitute reading comprehension.

"Reading Comprehension" is largely defined by Wittrock's model, describing the process of constructing meaning during reading. The interaction between the reader, the text, and the context of the reading act is widely accepted by the literature and research (Wixson and Peters, 1987). Subjects' reading comprehension will be determined by use of criterion tests that will be developed by the researcher. The pre, post and follow-up tests contain questions that are intended to identify the reader's literal and inferential knowledge about a preceding passage.

"Literal" comprehension is the understanding of explicit textual information. "Inferential" comprehension requires readers to apply reasoning ability, both procedural and declarative knowledge, to understand the relationships of ideas and events in a text (Harris and Sipay, 1990).

The term "developmental reader" is applied to a specific population of college students. The State of Tennessee has provided institutions of higher education with guidelines to identify members of this population. The state has mandated the administration of the Academic Assessment Placement Program (AAPP) for placement when students enter an institution of higher education. This test examines students' basic skills in math, reading, and writing. A raw score of 28 or higher is considered to be college level, a score of 23-27 is considered to be developmental, and a score of 22 or less is considered to be remedial. After students are identified as remedial or developmental readers, they enroll in a section of the course that addresses their needs. At the start of class, the Nelson-Denny is administered to confirm students' placement and indicate specific areas of need. A student is automatically exempt from

remedial or developmental reading classes if he or she scores at or above the 70th percentile.

"Expository text" is characterized by content frequently unfamiliar to readers, technical vocabulary, high-frequency vocabulary used with uncommon meanings, abstract content, high content density, sentences of complex syntactic structures, and varied and changing text structures (Muth, 1987).

The term "strategy" indicates a plan, or series of maneuvers for obtaining a specific goal. The strategies discussed in this study are made up of several steps, specific actions, that will be referred to as "methods."

Assumptions of the Study

It is assumed that this study is representative of all East Tennessee developmental college readers, that are identified according to the State of Tennessee mandates. It is possible that some students at the study site were not included in this study due to absences, withdrawals, or isolated conflicts that arose in specific course sections.

It is further assumed that:

1. The faculty, whose sections were used for either control or experimental purposes, followed the guidelines agreed to and fulfilled their responsibilities in good faith.
2. The participants in this study were unaware of the the research purposes of the testing and instruction.
3. Each participant performed up to his or her potential and the pre, post, and follow-up tests accurately measured each reader's reading comprehension of the selected passages.
4. The participants responded truthfully about their use and reasons for use of the methods presented as part of the generative learning strategy.

Limitations of the Study

The results of this study are limited by the population sample used for the study, the intentions and interests of the participants and researcher, the instruments and statistical procedures used, and the scope of the research question.

The participants of the study are college students enrolled in the developmental reading course at a community college in East Tennessee. Students are considered to be at a

developmental level in reading if their AAPP score is 23 to 27. This placement is confirmed by the student's score on the Nelson-Denny. They may be only enrolled in other developmental courses such as Math, English, or Study Skills. Their study strategy use may be influenced by information provided in these courses, the developmental reading course, study skills/ college orientation courses or other sources. Participants contributing to the findings included students from Knoxville and its surrounding communities. None of the participants scored 80% or above on the researcher-made pretest. Generalizations concerning the results of this study must be limited to similar populations and groups of college students.

Limitations also exist concerning the intentions of the participants and the researcher. Good faith is assumed on the part of the research participants and their regular class instructors. Students of the population of study are, however, commonly thought to have low motivation, particularly for independent work, and few skills to ensure success in college. This may affect any student's attendance and participation at all phases of strategy learning and implementation. The researcher's interest in providing useful and effective strategy instruction is limited by her knowledge of the subject matter, her experience in its instruction, and the schedule established for its presentation to participants and their opportunity for guided and independent strategy use.

There are a number of limitations inherent in the use of researcher-made reading comprehension tests. Using a comprehension test itself is a limited means to judge the usefulness of the methods taught to improve the reading of college textbooks. Also, while the reading passages of the test were excerpted from college texts and were of a suitable range of difficulty, it is understood that reading comprehension is also influenced by students' interest and familiarity with subject matter. The multiple choice tests' format places much control over participants' responses. The open-ended questions following each test, intended to provide participants an opportunity for self-expression on their use of strategies to improve reading comprehension, also have their limitations. The accuracy of participants' responses may be influenced by their reading ability, problems with understanding of the question, poor ability to articulate a response, and/or the social acceptability of certain responses.

This study focuses on the usefulness of the generative learning strategy's methods to improve reading comprehension and the factors influencing problem college readers' decisions to use them. Although the choice to introduce methods of the generative learning strategy to this

population took reading theory and practical issues into consideration, there may be other unrecognized factors related to reading comprehension and its improvement which were not considered or investigated. This is true for the quantitative and qualitative aspects of measurement, as well.

Overview of the Procedures

The sample of college-level developmental readers was taken from those developmental readers enrolled at the main campus and its two branches of an East Tennessee community college for the Fall 1995 semester. The researcher tested and instructed experimental participants one day a week for a period of eight continuous weeks. Participants of the control groups were tested on the same schedule as those in the experimental group. Responses of both groups to qualitative questions regarding the use of the strategy's methods were examined for common themes, while scores on the pre, post, and follow-up tests were analyzed with a two factor (2x3) repeated measures design.

Organization of the Study

The remaining portions of this research will be organized in the following way:

Chapter II will review literature and research related to education and psychology. It will develop further the theoretical and empirical rationale which was outlined in Chapter I and provide the foundation for the research questions.

Chapter III will discuss the research methods and procedures including a description of the subjects, instruments, procedures, and data analysis.

Chapter IV will present the statistical findings and analysis of the data.

Chapter V will further discuss the the qualitative findings.

Chapter VI will provide a summary of the findings of the study and discuss the implications for theory, research, and practice.

CHAPTER II

LITERATURE REVIEW

American college and university populations have changed dramatically through history. These changes, since 1960, are largely the result of four major events: open admissions policies, federal policies to improve access to higher education for disadvantaged and minority students, college students' declining basic skills, and grade inflation (Maxwell, 1979). K. Edward Renner declared in 1993 that the social idealism born in the 1960s is now becoming a reality. He describes the use of the term "majority minority" to describe the variety of people who today outnumber, by two-thirds, the old majority. As the diversity of entering students has continued to increase, colleges have been forced to confront policies concerning admissions, remedial services, and student attrition. Although at one time state universities purposefully admitted large numbers of high risk students each Fall expecting many drop out before the end of their first year, a declining birthrate and increasing financial stress have strengthened their desire to keep students in college.

Because many students have been found to be lacking in reading and other essential academic areas, much discussion, research and policy-making has been devoted to improving these skills, needed for success in college. The spread and growth of college reading programs was sparked by Robert Bear's pamphlet, "How to Read Rapidly and Well," published in 1941. Programs developed at Harvard and later at Stanford have set an example for many institutions. In fact, it is public institutions that have found the greatest use, and often their primary purpose for existing, in basic skills instruction. Basic skills instruction is important to many students' survival in college.

Why Remedial Reading Instruction?

Even "average" students sometimes find that the amount of reading demanded by their college professors far surpasses anything they had experienced in high school. The difficulty of college texts and the complexity of ideas are also sources of potential frustration. Many college students, as mentioned above lack basic skills to deal effectively with these demands. Pogrow

(1993) suggests that it is not a basic skills deficit that is problematic for ineffective readers, but instead is difficulty with metacomprehension skills. Specifically, students do not control their reading strategically. Effective comprehension requires reading strategically.

Reading comprehension is an important product of any reading activity. Researchers and practitioners have long been aware, however, that too many students' comprehension of text, particularly expository text, is frequently faulty. Often, students read their assignments in the same manner, regardless of the purpose, the organization of the text or its content. A study of successful and unsuccessful high school students (Loranger, 1994) found evidence of such behaviors. Successful students were found to be "more active, purposeful, and flexible in their strategy use" and despite their sense of positive academic performance, "unsuccessful students were generally less efficient in their use of learning strategies" (p. 347).

Is the source of such a discrepancy to be found in the students or in his/her education? Applegate, et.al. (1994) criticize the bottom up reading instruction of the late 1970s and early 1980s for students' present problems of processing heavy reading loads experienced in college. Durkin's study (1979) of fourth-grade classrooms found that comprehension instruction made up less than 1 percent of the more than 7,200 minutes of observation. Studies by Armbruster and Gudbrandsen (1986) and Neilson, Rennie, and Connell (1982) also indicate an absence of comprehension instruction in primary grades. Duffy, Roehler, and Mason (1984) say that the use of practice and assessment, as identified in such studies, results in teachers seldom providing "purposes, sense-making strategies, and suggestions for self-monitoring."

In their study, Armbruster and Gudbrandsen (1986) suggested that the lack of recognizable reading comprehension instruction could be due to a number of factors, including (1) teachers' and administrators' assumptions that students came to class already prepared to read effectively, and (2) a lack of teacher preparation to provide instruction in reading and studying. Mason (1984a), however, notes an inconsistency among studies, saying that some may too narrowly define comprehension instruction. Despite this criticism, these studies appear to demonstrate that despite years of schooling, students are left unprepared for the reading challenges before them. Because of a lack of current information documenting the time spent in reading comprehension instruction today, this conclusion is difficult to dispute. Even if the above studies have stimulated some change on the part of educators, the product of this oversight is the

ill-prepared students who are filling college developmental reading classrooms. So, how should reading comprehension be defined so teachers might help students improve it?

Reading Comprehension and Comprehension Instruction

Some debate exists over whether reading comprehension is a process or a product. While some contend that reading comprehension is a process (Carroll, 1985), many others hold that it is a product. This view may be held for practical purposes, since it is common for reading comprehension to be judged through free recall methods, questions stimulating recall of details, and standardized tests. This view hinges critically on the role of memory processes. Memory and comprehension, as Royer and Cunningham (1978, p. 36) point out, are "inextricably intertwined." Well understood text will be easily remembered. Strong memory abilities will facilitate understanding. Because of this reciprocal relationship between reading comprehension and memory, instruction must take a number of issues related to the psychology of learning into account. It is important to recognize how factors, such as text structure, schemata, and metacognition, intervene in these memory and comprehension processes in readers.

Factors Effecting Reading Comprehension

Most teacher-directed comprehension strategies tend to fall in one or more of three sources of influence on reading. As Nist and Mealy (1991) show, aspects of reading such as text structure, schema theory, and metacognition highlight reasons why some comprehension strategies work well with readers while others do not. Text structure is an external source of reading difficulty that can partly account for how text is comprehended. Schema theory provides one internal explanation of how readers develop meaning as they process text. How that text is processed is influenced by another internal source, metacognition.

Text Structure

The term text structure is used to refer to how ideas in a text are organized to convey a message to a reader (Meyer and Rice, 1984). Text structure provides an organizational framework that assists readers in determining the relationship between ideas and details. Over time and with practice, readers become familiar with typical structures of written text and form expectations of

how information will be presented. Many methods have been proposed to assess the nature of text structure's influence on reading comprehension. Readability formulas are a common means of determining whether a given passage is appropriate for a certain reader. Despite this popularity, they are generally thought to be inadequate or even inaccurate indicators of text difficulty. Among the available formulas, the Fry Readability Graph is the most frequently used (Alexander and Heathington, 1988). It is easy to apply and covers grades 1-17 (Fry, 1977). But, the Fry and other readability formulas, have been criticized by Meyer and Rice (1984), Anderson and Davison (1988), and Glazer (1974) as being overly concerned with surface factors such as sentence length and the number of syllables per word, while ignoring a text's conceptual level or structure. Klare (1984) cautions against hasty criticism, pointing out that readability formulas are meant only to be predictive devices intended to yield a quantitative, objective estimate of reading difficulty. Any other use of these formulas is contrary to their design and intent. Despite this reminder, or perhaps because of it, reading instructors are likely to prefer other methods of assessing text difficulty.

Anderson and Armbruster (1986) suggest two elements that influence the comprehensibility of text structure: local coherence and global coherence. Just and Carpenter's (1980, 1987) theory of reading takes coherence into account in their explanation of the understanding of text and processing time. Local coherence results from the author's correct use of "cohesive ties," such as referents, substitutions, connectives or conjunctions. Global coherence occurs when texts are arranged logically and are connected so that they are easily understood. Examples of such organization include cause/effect, problem solution, and time order sequence. It is Anderson and Armbruster's contention that the more locally and globally coherent a text, the more likely it is that readers will comprehend it well.

Nist and Mealey (1991) emphasize that text coherence is particularly important to developmental college readers for three reasons.

First, the students enrolled in college reading programs have reading deficiencies and need all the assistance they can get from a text. Second, because a cohesive text can be read more quickly and is more easily understood, it enables developmental students to infer more when they read. Third, since developmental students often enter college with insufficient background knowledge, coherent texts help because they provide students with information in a logical and predictable order without requiring quantum leaps in understanding (p. 58).

Barbara Taylor (1992) urges direct instruction in using text structure to improve students' reading comprehension and recall. She points to studies that show that such instruction improves location of main ideas and important details. Although important, the role of text structure only partly explains the complex task of comprehending what is read. A reader's background knowledge and experience, schema, plays a significant role in the interpretation of new information (McNeil, 1984).

Schema Theory

Schema theory is concerned with the influence of prior knowledge on learning. Bartlett (1932) used the term over 60 years ago to mean "a packet of knowledge" of what one knows about a concept and how its pieces of information are related. A schema serves as a set of expectations that determine not only how and what information is encoded in memory, but also how it is organized for later retrieval (Anderson, 1984; Anderson and Pearson, 1984). As information is collected from text and drawn from prior experience, interactive models of reading hold that readers make meaning from the pieces of old and new information and their relationships (Rumelhart, 1985). Goodman (1985) considers reading to be a "psycholinguistic guessing game." Although he recognizes the importance of text in reading comprehension, Goodman suggests that a reader constructs his or her own text during reading by applying schemata to the process through assimilation and accommodation. Simonsen and Singer (1992) consider the schema-interactive model to be so significant that they recommend content area teachers to implement it in their classes through developmental reading instruction to improve content learning. Supporting this recommendation, a number of studies (Bransford and Johnson, 1973; Anderson and Pearson, 1984; Anderson, Spiro, and Anderson, 1978) have confirmed the significance of schemata in the comprehension of discourse. Pearson, et. al. (1993, p. 154) conclude from these and other studies that "new information is learned and remembered best when it is integrated with relevant prior knowledge, or existing schemata." Recognizing schema theory's role in a comprehensive appraisal of reading comprehension, metacognition, then, explains a reader's purposeful, cognitive approach to the reading task.

Metacognition

Active participation by the reader is what makes reading comprehension successful. As Tierney (1982) says, one must "self-initiate and self-regulate." For the college student to be an independent learner, he/ she must employ metacognition and cognitive strategies.

Metacognition is the knowledge and use of cognitive resources that, according to Garner (1987, p. 15), enables readers to be "active learners that direct their own cognitive resources to learn from text". Reading, of course, is just one specific domain of metacognition. Schraw, et. al. (1995) conclude from their recent study of college students' monitoring skills that such domain-specific knowledge is governed by general metacognitive processes as well as domain-specific. Therefore, strength in general metacognition will aid in effective performance in specific domains such as reading.

Two aspects of metacognition are currently thought to be important for learning tasks: knowledge about cognition and self-regulation of cognition (Baker and Brown, 1984; Brown, Armbruster, and Baker, 1986; and Garner, 1987). The former includes comprehension monitoring: a skill that includes handling failures to understand individual words, entire sentences, relationships among sentences, and the organizational pattern of the passage as a whole (Mason, 1984b). The latter, self regulation, requires the reader to ensure a smooth reading process and, when that fails, to take remedial action if a problem in comprehension occurs (Baker and Brown, 1984). Collins and Smith (1981) list some of the remedial actions that readers can take if they fail to understand. Among them are: ignore and read on, suspend judgment, reread the current sentence, read ahead or reread previous sentences, and go to an expert source.

On a broader scale, there are many cognitive, or learning, strategies that readers might employ to improve reading comprehension. Harris and Sipay (1990) identify seven basic cognitive strategy forms discussed in reading literature: (1) prereading strategies; (2) rehearsal strategies; (3) elaboration strategies; (4) organizational strategies; (5) monitoring strategies; (6) constructive strategies; and (7) affective strategies. Coupled with an appreciation of text structure and the role of schema these strategies and the published ones that incorporate them can be very helpful to improve developmental readers' reading comprehension.

Task Demands

Expository texts, commonly used at the college level, are thought to be a greater comprehension challenge to readers than narrative texts. Although the ideas may be explicitly stated, expository texts present problems to readers because of their complex structure, high content density, unfamiliar content, and technical vocabulary. Because of these task demands, both good and poor readers, in general, have more difficulty understanding expository than narrative text (Muth, 1987). Schommer and Surber (1986) found that even skilled adult readers have problems with comprehension of difficult passages when expecting only a need for a shallow level of processing, despite the readers' positive sense of understanding what was read. Meyers and Paris (1978) likened poor adult readers to beginning readers in metacognitive awareness about reading. Whether the result of an "illusion of knowing," or a confessed lack of understanding, adult developmental readers frequently suffer from poor comprehension and few known means for remedying the problem. For example, adult disabled readers (below fifth grade reading skills) were found by Gambrell and Heathington (1981) to lack sensitivity to the "strategy dimensions" of reading and, overall, have a limited understanding of reading as a cognitive process. Many secondary and post secondary students, according to Simpson (1995, p. 296), rely on passive approaches such as rereading and memorization, "rather than employing strategies that encourage active learning."

Many strategies have been developed for readers of all kinds for remedial or preventative purposes. Duffy's (1986) study indicates that instruction in the use of efficient cognitive strategies does improve school performance in poor or disabled students. Garner (1992) offers further encouragement, saying that, overall, academically sound strategies have been taught with success to students who have not ordinarily used them spontaneously.

Published Strategies

Palincsar and Ransom (1988) propose the use of three criteria in determining which strategies to teach. A strategy should: (1) be potentially used flexibly for a range of reading situations; (2) encourage reader interaction with the text; (3) promote reader comprehension monitoring; and (4) have an attractive cost/benefit ratio, so the amount of a reader's effort is rewarded adequately. Most published strategies involve a number of stages or steps that a reader

takes to reach the goal of good reading comprehension. The best, some of which will be mentioned here, are based on the foundation set by text structure, schema theory, and metacognition. Although some strategies can be taught to readers for use on their own, others frequently rely on the text or teacher to offer the stimulus for strategic reading. Examples of such "other"-initiated strategies include providing a teacher-made list of key concepts in the order they will be found in a text. Readers can use this list to identify important information and make notes to be used later to define and clarify the key concepts (Wood, 1985; 1988). Stauffer's Directed Reading/Thinking Strategy is somewhat more self-initiated. Readers are prompted to get in touch with their prior knowledge by predicting the answers to six questions: Who? What? When? Where? How? and Why? Some kind of questioning to encourage reader metacognition is part of many reading strategies, even those that are self-initiated.

Perhaps the most commonly taught self-initiated procedure is Robinson's (1970) SQ3R (modified by Pauk in 1984 as SQ4R). Its steps begin with *survey* and *question*, prereading steps that familiarize the reader with the text's organization, to establish the author's purpose, and to develop the reader's own purpose for reading. *Reading* must be active with frequent referral to prereading observations and information the reader already knows about the text's subject. While reading, one must *recite*: confirming obtained information through outlining, note taking, underlining, or subvocalization. The final step involves a *review* of the material immediately after the initial reading and at intervals in the future. The popularity of this strategy speaks for educators' general appreciation for its sound grounding in the psychology of learning. There are other reader-initiated strategies that are also available.

Marsha Sinagra and Kathryn Lopez's (1989) Associate, Read and Connect (ARC) method is much like the SQ3R strategy but is primarily different from the SQ3R method in the post reading step, *connect*. It requires a reader to consciously revise his/her network of ideas developed in the first two steps to "represent the current state of knowledge," to outline groupings of related details and write a summary based on his/her outline. In their study of developmental college reading students, Lopez and Sinagra examined ARC's effectiveness through pre- and post-course questionnaires. Specifically, they found greater use of study skills, more efficient note taking, and improved identification of main ideas.

Another strategy, PLAN, is also reader-initiated and has been shown to be effective with

students of all types and ages (Caverly, Mandeville, and Nicholson, 1995). This strategy requires that the reader (1) *predict* the text's content and structure by drawing a map of predicted ideas and their relative importance; (2) *locate* known and unknown information on the map to assess prior knowledge; (3) *add*, while reading, short words or phrases to the map to explain previously unfamiliar concepts; and (4) *note* new understanding and usefulness of the new information. Although this strategy is taught to be used in sequential steps, its advocates encourage students to "customize" it according to their needs. This brings up an important issue to reading strategy use: how flexibly can published reading strategies be used by students with varying needs?

The Importance of Strategy Flexibility

As previously mentioned, poor readers often fail to be aware of comprehension problems and generally fail to prevent or remedy these problems with the use of strategies. Bettencourt (1987) suggests that it is the passive role typically taken by poor and disabled readers that contributes to their lack of strategic behavior. Some may have developed their own solutions to their reading problems; such as continued reading despite confusion, excessive word decoding, or avoidance of text altogether. Typically, these and other efforts made by students to alleviate reading problems are not sound and all too often lead to worsening behaviors and affect. The passivity on the part of poor and disabled readers could be the result of a variety of things, including: learned helplessness, locus of control, and lack of fit between the reader and known strategies. Instruction in the published strategies mentioned above might relieve some of a poor reader's sense of helplessness and provide some basic guidelines for improving reading comprehension. They are all at fault, to some degree, for directing readers to an external source of control or providing too rigid a guide that may or may not fit their learning styles to correct comprehension problems. Stahl, King, and Eilers (1996, p. 377) anticipate that "in the years ahead we may find greater acceptance of cumulative strategies in which a range of activities based upon individual needs and desires is viewed as more acceptable than 'one best' sequential strategy."

There is a better approach to instructing a reader in personally adaptable strategy use. First, inform the reader about the influence of text structure, schemata, and metacognition. Second, encourage the reader's internal locus of control by showing how he/she might make the

accepted theories and research of education and psychology. It allows for metacognitive control of method use, and is flexible enough for most readers under a variety of reading demands.

Generative Model of Learning

The generative model of learning (Wittrock, 1974; Wittrock, Marks, and Doctorow, 1975; Linden and Wittrock, 1981; Wittrock, 1981; Doctorow, Wittrock, and Marks, 1978; Wittrock and Alesandrini, 1990), unlike the published strategies discussed above, does not provide one single approach to improve reading comprehension regardless of the reader's learning preference or purpose. It is also not made up of specific, sequential steps to be made despite the difficulty of the text or a reader's content knowledge. Instead, it provides a simple, flexible, and theory-based strategy for improving reading comprehension. Generative learning, according to the model, describes how reading comprehension occurs when readers build relationships between the text and their background knowledge and among the parts of the text. Studies employing the model show that it is effective for facilitating reading comprehension (Doctorow, Wittrock, and Marks, 1978; Wittrock, Marks, and Doctorow, 1975; Linden and Wittrock, 1981). Other studies demonstrate the model's effectiveness specifically with adults (Wittrock, 1991(a); Wittrock and Alesandrini, 1990).

Instruction in generative learning provides students with information and experience in producing visual representations, such as images, pictures, diagrams, and graphs, as well as verbal associations, such as headings, summaries, inferences, critical comments, analogies, and metaphors. This model predicts that any type of association generation can improve comprehension. For this reason, the model is seen to be highly flexible. Because any of these methods will benefit comprehension, a reader trained in the strategy's use has much freedom in choosing the "best" methods for his/her learning style and task demands. In Linden and Wittrock's study (1981) it was hypothesized and demonstrated that comprehension is best when instruction of methods (association formation) progressed from imaginal to verbal, rather than verbal to imaginal. Their instruction was not elaborate, consisting of teachers simply directing students to generate relationships of a certain kind. The methods do seem straight-forward enough and their results promising, but these studies do have limitations.

None of the three studies above examined whether comprehension improved over time or whether readers independently employed the strategy's methods to form associations to improve their reading comprehension at any time after the strategy's introduction. The participants were of elementary age and reading level. This severely limits the generalizability of the studies' findings to adult readers and poor or disabled adult readers, specifically. No research was found exploring the use of the generative learning model with college readers. Such research would be useful because the model not only provides a flexible approach, attractive to poor or disabled college readers to improve reading comprehension, but also accounts for three primary sources of influence on reading comprehension: text structure, schema theory, and metacognition. Because the generative model of learning is such a comprehensive reading strategy, its instruction becomes a very important issue.

Effective Strategy Instruction

Simply telling readers about graphic organizers, for example, or the usefulness of summarization falls short of providing strategy instruction that is meaningful and useful. Direct instruction is a term that applies to the teaching of cognitive strategies, such as the generative model of learning. It is made up of three overlapping stages: (1) demonstration, when the strategy's methods are defined, discussed and modeled; (2) guided practice, when students apply the methods under a teacher's supervision and feedback and reteaching is available; and (3) independent application, when students apply the methods automatically and on their own (Moore, Readence, and Rickelman, (1989).

Nist and Kirby (1986) have developed a teacher-to-learner model that focuses on gradually weaning readers from dependence on the instructor as they develop strategy proficiency. Their model, which has been used successfully in college reading and study strategy classes (Nist and Mealey, 1991), depends on the reader's metacognition through eight complex steps: focus attention, provide a general overview, introduce new terms, go over the method step by step, model the method, guide practice, encourage independent use of method, and reteach / remodel if necessary. As a student progresses through these steps, responsibility for successful strategy use is progressively transferred.

Mason, Roehler, and Duffy's (1984) model of comprehension instruction includes four

"layers:" (1) teacher preparation regarding content and strategies; (2) the instructional environment; (3) guiding principles of instruction (much like those provided by Nist and Kirby); (4) and the outcomes of strategy learning and content knowledge learning. In developing these layers, the authors kept the constraints of the classroom in mind and avoided "simplistic explanations" to improve comprehension instruction. Baker and Brown (1984, p. 381) have discerned three important factors that are common to the above models and that must be addressed for instruction to go beyond simple skills training:

- (1) training and practice in the use of task-specific strategies (skills training);
- (2) instruction in the orchestration, overseeing, and monitoring of these skills (self-regulation training); and
- (3) information concerning the significance and outcome of these activities and their range of utility (awareness training).

With skills training alone, students often fail to recognize when a strategy's use may be appropriate and may not independently choose to use it or disregard it.

Summary

The theoretical base and major theories that influence this study, in addition to the results of relevant research, have been described. Numerous factors appear to relate to the learning and use of reading comprehension strategies. Other factors must necessarily be considered when choosing the best strategies for poor or developmental college readers and instructing them in strategy use. The effectiveness of the generative model of learning in improving reading comprehension and whether students choose to use it independently over time will be examined in this study.

CHAPTER III

METHODOLOGY

The Location of the Study

Participants were drawn from East Tennessee; primarily Knox, Union, Anderson, Roane, Loudon, Blount, and Sevier counties. Knoxville is the largest city in East Tennessee, with a population of 165,121. Growing rapidly since 1970, Knoxville has had a significant number of people moving into the area since that time. The area in which the participants live, work and attend school can be considered both urban and rural in nature. The largest public university in the state, the University of Tennessee, is located in Knoxville. There are also a number of small private, technical, and community colleges located in Knoxville and its surrounding counties.

Participant Selection and Description

The participants for this study came from the 291 students enrolled in all available sections of the Developmental Studies Reading course offered by a technical community college in the Knoxville area. Those participants taking the Developmental Studies Reading (DSR) class in their first semester scored between 23 and 27 on the Academic Assessment Placement Program (AAPP). Other participants who took the Remedial Studies Reading class prior to DSR scored 22 and below on the AAPP during that semester. All of the participants scored lower than the 70th percentile on the Nelson Denny Reading Test. Individuals' AAPP or Nelson-Denny scores were neither identified nor used for the purposes of this research. Within this group, no restrictions were made regarding initial participation in the study so that the sample might best represent the population being researched.

Two members of the college's reading faculty were reluctant to be in the study, but agreed to participate if their sections were included in the control group. One other section was included in the control group because of a scheduling conflict with a section in the experimental group. Other DSR sections were assigned to control and experimental groups in a manner to optimize their distribution among the three campuses and the ease of scheduling strategy instruction. Initially, 117 students in five sections of DSR were designated as control participants

and 174 students in eight sections were designated as experimental participants. As the period of research passed, however, the number of participants declined a great deal. One participant in the experimental group tested out of the DSR course. One section, containing 23 participants, was dropped from the experimental group because of a conflict involving the instructor. This instructor did not follow the general guidelines agreed to by the other teachers and, after four weeks of testing and strategy instruction, it was agreed that the section's students were not of like-mind with the other students in the study. A similar case came to light after the follow-up test was administered and resulted in two control group sections (54 participants) being dropped from the study.

Other individuals (91 in all) were dropped from the study. These individuals missed one or more tests due to absence, failure to continue attending the course, or withdrawal from the course. Because "treatment" was defined as attending the latter four of the six days of instruction, 22 experimental participants were also dropped from the study for failing to attend on those days. After all three tests were administered, 100 participants contributed data that could be used: 33 in the control group and 67 in the experimental. Because the treatment involved no unusual classroom practices, none of the participants was formally informed of their role in the research study. Members of the control group were simply told by their instructors that the pre, post, and follow-up comprehension tests were meant to check for improvement in reading comprehension. Members of the experimental group were given the same information and the instruction in strategy use was explained as being additional information provided by a "guest speaker."

The Treatment

The research involved a combination of methods intended to deliver a complete picture of poor or disabled college readers' reading comprehension strategy use. The quantitative component consisted of an experimental design and measurement using pre, post, and follow-up tests to allow for comparison of experimental and control groups' scores before and after treatment. A qualitative component was added to the study by the use of a questionnaire attached to the three tests which examined participants' use or lack of use of strategies to improve reading comprehension. The treatment and testing involved in the research took nine weeks of

the semester.

The Experimental Group

After a pretest, experimental participants received direct instruction in text structure, schema theory, and metacognition. Treatment began with instruction on these topics to provide knowledge and awareness of the power possessed by readers to take control of the external and internal demands of reading. Strategy instruction followed, involving both direct instruction and guided experience, for the next five weeks. This entails, as discussed in Chapter II, the overlapping stages of the instructor's demonstration of the strategy's use, the guided practice of reader's strategy use and, eventually, the reader's independent strategy application. First, an overview of Wittrock's generative model of learning was provided. Then, over four class periods, teaching and practice of the strategy's methods took place: diagraming, graphing, calling on mental images and pictures, developing headings and summaries, main idea identification, commenting critically, and recognizing and creating analogies. The experimental group was given a pretest early in the semester, prior to strategy instruction, to assess the developmental readers' reading comprehension ability. In the week immediately following the treatment, the posttest was administered. The follow-up test was administered five weeks later.

The Control Group

No treatment was given to the control group. The sections designated for this group received instruction typical to the DSR course, but no additional information concerning reading comprehension strategies. Instructors of the DSR sections designated for this group were made aware of the treatment content, but were asked to not let the information influence what they did or did not teach their students. These instructors were aware of the need to keep their explanations about the tests' purpose brief and vague. It was discovered after the study that these instructors told their students, in some manner, that they were part of a research study. This matter will be discussed further in Chapter V. The control group did experience testing of reading comprehension on the same three occasions on which the experimental group was tested.

Data Collection

Quantitative Measures

Three reading comprehension tests were constructed by the researcher. See Appendix A to for the three tests. Guidelines published by Miller and Erickson (1990) were followed during test construction to ensure quality. Each consisted of five short passages and 25 multiple choice questions. The passages were drawn from freshman and sophomore level college text books, some of which are typically used by entering students at the institution where the research took place. According to the Fry Readability Graph, the passages ranged in difficulty from the eighth to the fifteenth grades. The passages were divided according to difficulty and content so the three tests would be roughly equal.

The researcher-constructed multiple choice questions were modeled upon those used in the AAPP. Three general types of questions were posed: literal and interpretive, identifying word or phrase meaning in context, and writer's opinion, tone, and assumptions. These question types were distributed in the same percentages as in the AAPP. Five questions followed each passage, and four alternative answers were available as responses to the questions. Only a single alternative was considered to be correct for each question. Two education professionals trained in reading instruction and test construction checked the questions for logic and correct classification in the three question types. Feedback was also provided regarding the type size of the text and word choice in questions and answers. To further ensure test form equivalency, the passages' level of reading difficulty was measured, using the Fry Readability Graph. The passages were then distributed equitably among the test forms, with the forms receiving equal numbers of passages, ranging from middle school to college level in difficulty.

Because students were unavailable or unwilling to take all three tests, eight sets of tests were given to friends and family members prior to the beginning of the study. It was hoped that responses in this pilot try-out would reveal any problems or inconsistencies among the tests before the research began. Only two of the eight sets were returned. No conclusions could be drawn from the responses. Therefore, no changes other than typographical corrections were made to the tests.

The three tests were randomly assigned to participants in the control and experimental groups for the pretest. The pre, post, and follow-up tests were organized in such a fashion that

each participant would receive all three tests, but at different times, constituting a latin square. This procedure was meant to compensate for possible inequalities in difficulty among the tests.

Each of the three test administrations occurred in participants' regular classroom environment. A time limit of 50 minutes was used, to keep the testing and questionnaire responses within the scheduled class period.

Validity. Validity is the extent to which a test measures what it is intended to measure. A test's quality hinges on its proven validity. Of the four types of validity important to teacher-made tests discussed by Miller and Erickson (1990), content validity was the primary goal during the development of the reading comprehension tests. To determine this form of validity, each test item was analyzed for applicability to behavior specified by the instructional objectives of the research.

Reliability. Consistency of test results is the basic concept inherent in the term reliability. Besides validity, reliability is the most important characteristic of a test. Without reliability, little confidence can be placed in test results. Some inconsistency among test administrations should be expected due to a number of factors other than quality, but good reliability is characterized by minimal fluctuation in the measure. In this study an equivalent-forms estimate of reliability was computed after data from tests were collected in this study. Examination of pretest scores indicated that the three reading comprehension tests were not equivalent, but means were taken to adjust students scores to statistically ensure test equivalency. This will be described further in the results section.

Qualitative Measures

Questionnaires are considered a legitimate means of data collection, often used instead of interviews. Lees-Haley (1980) notes that there are many critics that do prefer interviews over questionnaires. Although lacking in flexibility, the structured nature of the questionnaire benefits a study by allowing the researcher to maintain consistency, reliability, and objectivity. The delivery of questions changes little from administration to administration. Because a piece of paper delivers questions and receives answers, neither the researcher nor the participant is likely to be influenced by the sorts of impressions typically made during interviews. Questionnaires are also less expensive and less time consuming to perform. Because of its benefits and despite its

limitations the questionnaire was included in the study to bring the perspectives of those being studied to the common body of knowledge in this area and, perhaps, to affect the thinking and practice of reading educators.

In this study an "open-ended" questionnaire (Appendixes B and C) examined participants' strategy use for the improvement of reading comprehension. The questions were developed by the researcher with the assistance of a well-respected qualitative researcher at the University of Tennessee, Knoxville. Some minor changes were made to the questionnaire for the final test administration in order to improve the fluency of participants' responses. See Appendix D for the altered form. A questionnaire was attached to each participant's test. No identification was put on the sheet and participants were allowed to decide how and whether to respond to it. Despite this option, everyone was encouraged to respond thoughtfully. The amount of time available for participant response to the questions varied. Individuals were allowed as much time as needed after their tests were completed, within the scheduled class time.

Validity. The issues of concurrent and content validity are important for this questionnaire. Concurrent validity is an estimate that something else is occurring at the same time. In this study's case, strategy use and reasons for it, claimed by students on the questionnaire, is what occurred during the test as well as other reading comprehension situations. As during the reading comprehension test development, content validity was a concern in writing the questionnaire. This is demonstrated in the extent to which each question asks what it is meant to ask (Lees-Haley, 1980).

Reliability. Qualitative research's purpose is to describe and interpret the world. Therefore, one cannot expect any study to replicate the results of others. Merriam notes the argument advanced by Guba and Lincoln that a demonstration of internal validity may adequately serve as a check for reliability (Merriam, 1988).

Protecting Participants' Interests

Use of Codes

Participants were not told about their roles in this study of reading comprehension strategy use. Data collection sheets for tests and questionnaires had a minimum of identifying information to protect participants' anonymity. Identification numbers already assigned to

students for the purposes of Nelson-Denny and lab diagnostic test administration were written on the test answer sheets of both the control and experimental groups. No identification was placed on questionnaires since none was desired. Although participants were told that there was no need for them to put their names on their answer sheets or questionnaires, many of them did so anyway.

Experimental participants' names were used only for the purposes of role-taking before each instructional period. This was meant only to later enable the researcher to judge the degree individuals received the treatment. Although names were called out to check for attendance, only student identification numbers were documented for absences.

Adherence to Published Human Subjects Guidelines.

The use of identification numbers and other methods to ensure confidentiality were used to make certain that published human subjects guidelines were met. A form "A" was submitted to and approved by The University of Tennessee, Office of Research of Administration. Because the proposed research called for no unusual classroom practices, the Committee on Research Participation did not require a full committee review of the study. The proposal to the Committee apprised the Office of Research Administration of the conditions of the study and the manner in which confidentiality would be maintained. After the proposal was approved, the procedures outlined in it were followed, and a status report was submitted at the conclusion of the project. Data and other documents collected during the research are located in a locked filing cabinet at the home of the researcher, Elizabeth M. Schroeder. Access is available only to members of the researcher's doctoral committee.

Statistical Analysis of the Test Data

The typical techniques involving correlation, t-tests, and analysis of variance were performed on the data of this study. First, data analysis was a two factor (2x3) repeated measures design, with one factor (treatment - control) as the between subjects factor, and the other factor (pre, post, and follow-up tests) as the within-subjects factor. Second, the correlation was calculated between number of days of instruction attended and change in score from pretest to posttest and pretest to follow-up.

The tests used to measure participants' reading comprehension were not administered prior to the study to demonstrate parallelism among them. It was, therefore, expected that statistical manipulation of the tests' means from administration to administration would be necessary to compensate for any inequality due to a specific test.

It is important to note that social research is difficult to strictly control in an educational setting. The actions and opinions of participants, their teachers, and other professionals involved cannot always be anticipated and prepared for. Many variables that may influence the study are often intangible and go unaccounted for.

Analyzing the Questionnaire Data

The purpose of the questionnaire was to gather information from students enrolled in a developmental college reading program as to their use of strategies to improve reading comprehension. The researcher expected that distinct themes to surface as participants' responses were studied and to possibly differ between the control and experimental groups as the treatment progressed.

Qualitative researchers often hope to offer a "thick" description of the phenomenon being studied. This description is expected to provide as complete and deep an examination of the subject as the data allow. Because of the nature of the questionnaire and the typically limited responses of participants (with no opportunity for the researcher to ask for elaboration or clarification), the description of the themes found in participants' responses is expected to be thorough, although not complete. Goetz and LeCompte (1984), however, caution researchers to avoid the pitfalls of the "merely descriptive."

Transcending the Merely Descriptive

Merriam (1988, p. 130) notes that in data analysis information is "consolidated, reduced, and, to some extent, interpreted." The goal of this process, drawn from Taylor and Bogdan (1984, p.139), is "to come up with reasonable conclusions and generalizations based on a preponderance of the data." Such conclusions, drawn by the researcher, are important in order to avoid misinterpretation by readers of the study.

To ensure a sound and data-supported conclusion, Goetz and LeCompte (1984)

recommend that the researcher read through the data thoroughly and then gather all of the data together and organize it topically. Notes should be taken about the relationship of ideas within and outside the data and synthesized carefully. At this point, Merriam suggests following Lincoln and Guba's (1984) recommendation to "unitize" particular bits of data that are relevant to the study and can stand alone. These pieces of information should go on note cards to be coded according to the categories, or themes, for which they provide evidence. Once these themes are identified, the researcher must refine them to ensure that evidence adequately supports them and to examine how the data fit together.

Before the conclusions are presented, the researcher must determine whether a set of categories is complete. First, Merriam (1988, p. 135) recommends that "there should be a minimum of unassignable data items, as well as relative freedom from ambiguity of classification" (Guba and Lincoln, 1981, p. 96). She also comments that reliability can be improved by ensuring that the set of categories appear plausible given the source of data from which they are drawn.

Summary

College level students enrolled in a developmental reading course were divided into control and experimental groups to examine the helpfulness of instruction in a reading strategy. Members of the experimental group were instructed in the use of a reading comprehension strategy based on Merlin C. Wittrock's generative model of learning. Participants of both groups were tested before instruction began and on two occasions afterward to compare the treatment to the average improvement that might be expected over a typical semester as a developmental college reader. Information concerning personal use of reading strategies was also collected in the form of a questionnaire at each of the three test administrations.

Test data were statistically analyzed using analysis of variance and correlation. Information from the questionnaire was examined for themes common among respondents in both control and experimental groups across the semester.

CHAPTER IV

RESULTS

The first purpose of this study was to determine the effectiveness of instruction in the use of Wittrock's generative model of learning in improving reading comprehension of students enrolled in a college developmental reading course. The second purpose was to examine students' stated reasons for using or not using this or other strategies. In order to accomplish these objectives, students enrolled in the developmental reading course were divided into control and experimental groups. Only the experimental group received instruction in the methods of the generative learning strategy, but both groups were tested on three occasions to check for any change in reading comprehension proficiency over the course of the semester. On these same three occasions, both groups completed questionnaires asking about their use of reading strategies and their reasons for choosing to use or not use them.

Over the semester, the pool of 291 participants from the developmental reading course diminished to 100. These adults were tested for their reading comprehension ability. After completing each test, participants were asked to complete the questionnaire attached to their test copy, thus providing information about their reading comprehension strategy use.

In order to answer the questions developed for this research, statistical tests were performed to check for difference among tests and among participants who took the tests. The questionnaire was examined closely to confirm content validity.

This chapter will present a description of the participants, data, and the results of the statistical tests and qualitative analyses of the hypotheses. Quantitative data will contribute to the examination of test equivalency and control and experimental means. Qualitative data support a discussion of themes emerging from responses to the questionnaire. Some excerpts from the questionnaire responses will be selected to further reveal participants' perspectives of reading comprehension strategy use.

Descriptive Data

Participants

The participants for the study were enrolled at a community college located in East Tennessee. All were enrolled in sections of a developmental reading course at three campuses of the college in and around Knoxville. Scores on the AAPP and the Nelson-Denny indicated that all students enrolled in the developmental reading course had skills, including reading, that fell below the demands required of college. These scores were not made available to the researcher for the purpose of the study.

The instructors of the sections in which participants were enrolled were informed of the content of strategy instruction. The instructors of all participants agreed to tell their students that the reading comprehension tests administered on three occasions were meant to check for any change in their reading comprehension, without influence in their grades. Instructors of experimental participants explained that the researcher was a "guest speaker" who was present to offer information on reading comprehension strategy use.

All students enrolled in these course sections might have been included in the study. For a variety of reasons, however, a group that began with 291 possible participants diminished to a size of 100 once all of the data were collected. One participant in the experimental group tested out of the developmental reading course (with a score above the 70th percentile on the Nelson-Denny). One section (containing 23 participants) of the experimental group was dropped from the study due to conflicts involving the instructor (details of which can be found in Chapter Five). The experimental group was further diminished because 22 participants failed to attend all four of the classes that constituted treatment. Because of test-administration errors, two control group sections (54 students) were dropped from the study. Another 91 from both groups were dropped due to failure to take each of the three tests. Finally, 100 were left who contributed data useful to the study. Identification numbers were assigned to all participants. Information about the racial, cultural or gender make-up of the participants was never gathered. In general, however, the majority of participants were of Caucasian descent, followed by African American.

The Intervention

While members of the control group received no instruction out of the ordinary, members

of the experimental group received the intervention: instruction in the methods proposed by the generative model of learning. This instruction was provided by the researcher for six days over a period of six weeks.

Quantitative Data

The first step in data analysis concerned a quantitative assessment of the hoped-for equivalency of the three test forms. Despite efforts to attain test form equivalency (Chapter 3), a look at the pretest means and standard deviations, compiled from the scores of all who took the pre-test, indicated that problems regarding test form equivalency might exist (see Table 1).

Table 1

Unadjusted Pre-Test Means and Standard Deviations

FORM	MEAN	SD	n
X	14.83	3.0	64
Y	10.07	2.35	59
Z	11.68	2.17	57

These pretest scores, therefore, were examined using a one-way ANOVA and an F-max test to determine whether the mean scores and standard deviations on the three forms differed more than would be expected by chance. Results were significant on both counts: $E(2,97) = 55.8$, $p < .001$ and $F\text{-max} = 3.84$, $p < .05$. A Scheffe post hoc investigation revealed that each of the three forms was significantly different ($p < .05$) from the other two.

Because of the unanticipated differences among the three forms, it was necessary to "adjust" the data so as to "equate" the test forms. Had this adjustment not been made, any treatment effect would be masked by a positively biased within-group variability created by differences among the test forms. For example, the variability of the scores of the experimental group (or the control group) at any of the three test administrations would have two causal components: variability among subjects and variability among the three different test forms. The second of these components of within-group variability would be an artifact created by using three test forms. The adjustment was designed to remove this artifact from the data.

To adjust the data to obtain equivalency of test forms, scores from each form of the pre-test were first adjusted to meet a common mean of 12 and a common standard deviation of 2.5. After achieving pre-test equivalency, the post and follow-up test scores were adjusted so that if

there was no impact from the experimental treatment, the overall mean for the control group would be the same as the experimental group, except for chance fluctuation. The adjustment procedure was made up of four sequential steps:

Procedure to Obtain Test Form Equivalency

- A. Raw Score for individual, i , on any given form - the Pre-Test Mean for that form
- B. A / That given form's Pre-Test Standard Deviation
- C. B x Common Standard Deviation
- D. C + Common Mean = Adjusted Equivalency Score

As an illustration of how this procedure works, the adjustments for a specific participant will be shown. This experimental group participants scored 15 on form X on the pre-test, 13 on form Y on the post-test, and 8 on form Z on the follow-up test.

Ingredients needed to make the adjustments:

Form X Pre-Test Mean = 14.83,

Form X Pre-Test Standard Deviation = 3.0

Form Y Pre-Test Mean = 10.07

Form Y Pre-Test Standard Deviation = 2.35

Form Z Pre-Test Mean = 11.68

Form Z Pre-Test Standard Deviation = 2.17

Pre-Test	Post-Test	Follow-Up Test
A. $15 - 14.83 = .17$	A. $13 - 10.07 = 2.93$	A. $8 - 11.63 = -3.63$
B. $.17 / 3.0 = .06$	B. $2.93 / 2.35 = 1.25$	B. $-3.63 / 2.17 = -1.67$
C. $.06 \times 2.5 = .14$	C. $1.25 \times 2.5 = 3.125$	C. $-1.67 \times 2.5 = -4.175$
D. $.14 + 12 = 12.14$	D. $3.125 + 12 = 15.12$	D. $-4.175 + 12 = 7.83$

For the subject in this example, the unadjusted scores were 15 on form X on the pre-test, 13 on form Y on the post-test, and 8 on form Z on the follow-up test and the computer adjusted scores were 12.14, 15.12, and 7.83, respectively. As a second example, to clarify what this adjustment does, consider another participant's scores of 10 on form Y on the pre-test, 14 on form Z on the post-test, and 12 on form X on the follow-up test. His/her computer adjusted scores were 11.93, 14.66, and 9.64. This participant was also in the experimental group, yet received the test forms in a different order from the first example.

The adjustments on these and other participants' scores reduced variability by eliminating the artifact created by the different test forms. The differences between the two people, referred to above, on their adjusted pre-test scores (12.14 and 11.93) is smaller than on their unadjusted pre-test scores (15 and 10). Likewise, this is true for adjusted and unadjusted post-test scores (7.83 and 9.64; 8 and 12) and follow-up test scores (15.12 and 14.66; 13 and 14).

See Table 2, below, for a comparison of the original and adjusted test means and standard deviations.

Table 2
Test Means and Standard Deviations Before and After Form Equivalency Adjustment to 100
Participants' Scores

		<u>PRE-TEST SCORES</u>					
<u>GROUP</u>	<u>FORM</u>	<u>MEAN</u>	<u>SD</u>	<u>n</u>	<u>ADJ. MEAN*</u>	<u>ADJ. SD*</u>	<u>n</u>
CON.	X	15.10	2.89	39	12.23	2.41	39
and	Y	10.57	2.12	28	12.53	2.25	28
EXP.	Z	12.12	2.22	33	12.50	2.55	33
		<u>POST-TEST SCORES</u>					
<u>GROUP</u>	<u>FORM</u>	<u>MEAN</u>	<u>SD</u>	<u>n</u>	<u>ADJ. MEAN</u>	<u>ADJ. SD</u>	<u>n</u>
CON.	X	14.85	3.18	13	12.02	2.66	13
	Y	11.33	2.96	12	13.35	3.16	12
	Z	13.33	1.37	12	13.90	1.58	12
EXP.	X	14.85	4.90	20	12.02	4.09	20
	Y	9.59	2.79	22	11.49	2.97	22
	Z	13.19	2.20	21	13.73	2.54	21
		<u>FOLLOW-UP TEST SCORES</u>					
<u>GROUP</u>	<u>FORM</u>	<u>MEAN</u>	<u>SD</u>	<u>n</u>	<u>ADJ. MEAN</u>	<u>ADJ. SD</u>	<u>n</u>
CON.	X	13.64	3.17	11	11.01	2.65	11
	Y	10.13	3.59	16	12.06	3.83	16
	Z	12.00	2.62	10	12.36	3.02	10
EXP.	X	13.76	2.97	17	11.11	2.48	17
	Y	10.86	2.54	21	12.84	2.70	21
	Z	10.44	3.08	25	10.56	3.55	25

* Note: The adjusted means and standard deviations are highly similar to, but are not exactly, 12 and 2.5, respectively. The adjustment was based on 180 test-takers, but was applied to only 100, who remained in the study for its duration.

The reading comprehension tests were intended to provide answers to the study's research questions:

1. Is there a significant difference between the means of the control group and the experimental group on the pre, post, and follow-up reading comprehension tests?
2. Due to the nature of both the method of instruction and the generative reading strategy, will participants use the strategy independently?

To ascertain the answers to these questions the significance of the interaction of the statistic was of central importance. The resulting Wilks' Lambda ($E=0.6473$, $df=2,97$) did not show a significant interaction. Therefore, one is forced to conclude that improvement in reading comprehension skills and independent use of the generative reading strategy, whether at post or follow-up testings, is independent of inclusion in either the control or experimental groups.

Qualitative Data

Questionnaires were attached to participants' reading comprehension tests. Their completion was encouraged, but not required, and no identifying information was placed on the questionnaires. The number of questionnaires returned by participants generally declined from administration to administration: Experimental participants returned 107, 98, and 68 completed questionnaires on the pretest, post-test, and follow-up test, respectively. Control group participants returned 73, 78, and 68 completed questionnaires on the pre, post and follow-up tests, respectively. It is unknown which and how many questionnaires included in this analysis were returned by participants who were dropped from the study. Although the questionnaire varied slightly between the post-test and the follow-up test administrations, the four questions posed to participants remained the same on all three testing occasions. The responses to items on the questionnaire will be discussed below.

Participants' Reports of Reading Comprehension Strategy Use

Of the participants who returned completed questionnaires, many left one or more questions blank. The first two questions were intended to elicit responses from all research participants that might reveal whether strategies were used to improve reading comprehension, what those strategies might be, and participants' reasons for using or not using reading

comprehension strategies. Specifically, these questions were: "Describe in a picture or words the strategies you used to help you understand the passage(s)?" and "What about these strategies was useful to you?" The responses to these two questions fell, generally, into two categories of strategies. The two categories, Strategies Used Before Reading and Strategies Used While Reading, and the methods that constitute them will be discussed in detail below.

Prereading Strategies. Generally, this class of reading comprehension strategies helps readers organize their thoughts on a text's subject and plan for the reading task at hand. Prereading activities include noting the title or headings, passage length, organization and general content, as well as the presence of unfamiliar vocabulary and subject matter. Participants in both the control group and the experimental group identified some of these and other similar strategies in their response to questions one and two of the questionnaire.

Pre-Test. The nature of responses to the questionnaire's first two questions did not vary between the control and experimental groups at the time of the pretest administration. In both groups, the prereading strategy methods that emerged were 1) reading the test questions first and 2) skimming. Reading the Test Questions First was a commonly stated strategy at the time of the pretest. A control group student explained

I read the question first, then the answers and went back and read the passages. I feel by doing this, it prepares me to understand what I am about to read.

Another said that reading the questions first helped him/her understand better what was being read. Others in the control group and experimental group agreed. Experimental group participants said

I reviewed the questions before reading the passages. This helps me to read more carefully and I am able to group the information better, especially if I know what questions I need answer [sic]...It helps me to relax and concentrate on what I'm reading.

It helped me to understand the passage more because I could kinda [sic] figure out what it was gonna be about.

Improving understanding of the passages, however, was not a commonly stated reason for or the result of reading the questions first. Others had more practical, test-taking issues in mind.

By far, most participants indicated that they Read the Questions First for other reasons. A control group participant said, "Reading the questions before had giving [sic.] me a sense of what

to look for." Many readers also stated that this strategy helped them know "what to look for." Since any clarification of such responses is impossible, it assumed that their reasons for reading the questions first are largely pragmatic. First, some indicated that this strategy would eliminate the need to read the passages thoroughly. Experimental participants stated

I already know what I am looking for, so I don't have to read word for word.

I knew what to look for and skimmed over the rest.

Others seem to simply want to know exactly what was "important" before they read the passages. A control group participant explained, "I always read the questions first; [sic.] so I will have them in mind as I read." "It tells me what you want to know," was another, concise, response. Although this is not an approach often considered to be a prereading strategy, skimming is.

Skimming, scanning, and surveying are all terms that indicate a prereading strategy that a reader might use to get information about the length, content, organization, and difficulty of a reading passage. Participants in this study may have chosen this term to indicate a superficial reading of the passages, sometimes before reading them thoroughly. Although some participants specified how and why they skimmed the passages, others did not. Because the term is recognized in the field as a prereading strategy, all participants' responses indicating Skimming have been included in this category.

Some participants consciously used skimming to gather preliminary information about the passages. A few control group participants reported

I would first preview what I was going to read.

Deciding what I had to do when I finished reading the paragraph.
Looking at the difficulty of the material - was I interested in it?

Other participants, including experimental group participants, agreed. "By understanding the passage, I would first read it fast. Then, I read it slowly before answering any questions."

Skimming, some added, helped them identify important ideas. Another experimental group participant said that after Skimming the passages, "[I] took my time reading and I tried to remember some of the facts that I felt were important."

Some experimental group participants stated different reasons for Skimming the reading passages.

I read the first line of each paragraph. Then, I read the questions.
Then I went back to find the paragraph that corresponds with the

question to find the answer. [This strategy] ...helped me find the answers quickly and clearly.

A control group participant reviewed the steps he/she had taken to complete the test:

- skimmed over it, - got the ideas of the passage, - looked at the questions, - read the passage, - answered the questions. [These steps] help me to understand what the passage is about, so I can answer the ?s [sic.] to the best of my knowledge.

Such participants seemed to feel that this skimming approach saved time when taking the test. They depended on the questions that followed each passage to provide needed information about the passage's content. Specifically, they read the questions to find the answers. Often, these students appeared to use Skimming in lieu of actually reading the passage.

Post-Test. Responses to the questionnaire administered at the posttest did change, somewhat, from the previous occasion. Participants seemed to have more vocabulary available to describe their reading comprehension strategies. The methods within the category of prereading strategies remained the same: Reading the Questions First and Skimming. Far fewer participants, however, reported Skimming the reading passages on this questionnaire. In fact, so few participants reported Skimming, it is unlikely that it would be considered a method if it had not been previously popular. Specifically, only seven participants between the control and experimental groups reported that they had skimmed at all. These individuals skimmed for reasons similar to the pretest questionnaire. Primarily, this small group reported Skimming the passages to either locate headings and key words or to locate answers to questions quickly. Toward this latter end, many more participants relied on reading the questions first.

Reading the Questions First was, again, a popular response to questions concerning strategy use on the questionnaire. These responses were also much the same as those on the previous questionnaire. Many students were motivated to use this strategy to improve their speed and accuracy on the test. A control group participant listed his/her basic steps:

- 1st: Read all the questions and answers.
- 2nd: Read the passage keeping the questions in mind.
- 3rd: If I come across an answer to one of the questions, I go ahead and write the answer.
- 4th: After reading the entire passage, I check to see what questions have not been answered and I go back and find the answers.

Explaining what was useful about this strategy, he/she said, "finishing faster with more correct

answers." "It helped me look for the answer as I read," concurred an experimental participant. In the same vein, many participants in both groups said that this approach helped them "know what to look for."

Such statements could also indicate some motivation to understand the passages rather than simply answer the test questions. This sentiment was more commonly expressed in the posttest responses by members of both the control and experimental groups. Typically, these participants reported using more than one strategy to achieve this purpose and often related this in language used both in the intervention instruction and in their reading course. For example, an experimental participant eloquently described his/her strategy while reading the test passages:

I read over the questions before I read the passages so I would be familiar with the passages I would be reading. Then I pulled out the topic sentences from each paragraph and this information helped me understand what I was reading... The topic sentences help me to explain what the passage is about.

Clearly, he/she is informed about at least one common reading skill, identifying main ideas, and believes that this and reading the questions first will improve understanding of the passages.

Another experimental group participant initially stated that he/she read the questions first to improve his/her understanding of the passages, but elaborated further, saying,

In high [school] I had a study skills class that really helped me and she told us usually the longest answer was right, but not always. Use key words in the paragraph. Key words in questions and in paragraph connect.

Of course this student is discussing a test-taking strategy, but is also reporting a knowledge of key words and their usefulness in assisting passage comprehension. There also appears to be some sense of caution toward simple test-taking advice as he/she recommends identifying key words. Other experimental group participants use more sophisticated language as well when reporting combining Reading the Questions First with other, typical, reading strategies.

Participants in the control group did not, in large, use such language. This small group of individuals reported Reading the Questions First but few employed verbal strategies. These few looked for main ideas as they read the passage: "Pay attention to main ideas. Read carefully. Read the questions first." In general, however, more reported strategies such as rereading and visualization. "I read questions first, then read passage and as I come to the answer of the question I'll fill it in. I picture what I'm reading."

Follow-Up Test. Approximately the same proportion of participants in the experimental and control groups reported using strategies that fall into the prereading category. Again, these strategies are almost exclusively Skimming and Reading the Questions First. Overall, few participants mentioned Skimming, most of which being in the experimental group. Approximately one half of those members of the experimental group who reported skimming said they did so for the purposes of saving time. One such participant reported

1) skimmed the article, 2) read the questions, 3) went back and found the answers to the questions in the article... I found the answer quickly.

The others in the experimental group explained their reasons for skimming in terms that may have been learned from the treatment instruction or from the reading course they were enrolled in. While some skimmed simply to answer the test questions quickly, others described strategies more closely related to reading comprehension.

Reading heading and subheadings. Look at bold or italicized [sic.] words. Skimming the passage the [sic.] get a jist of what I'll be reading... Skimming before you read, read all questions first, see how long the passage is? [sic.]

To understand these passages, I used skimming and scanning techniques. I also tried to see the passages in my mind... They helped me find the major details and main ideas.

These and other questionnaire responses demonstrate that at least some experimental group participants' available vocabulary and known available reading strategies have improved beyond their control group counterparts.

The responses of the few participants in the control group who reported using the Skimming strategy were very different. They were generally more brief and never mentioned the use of strategies other than reading the questions first. "Scanned, then read, answer," reported one participant. Another said

Looked over questions to get an idea, skimmed the section, answered the ones that I could, then went back and read to find the answers that were left... I understand the story better.

The control group participants' responses of Reading the Questions First were largely the same as they were on the previously administered questionnaires. Only a few of these participants reported using other strategies in addition to reading the questions first. Skimming

the passages was the most common response: "Rereading and overlooking [sic.] the passages. Overlooking the questions first." Another control group participant explained that Reading the Questions First "gave me a preview of what I was going to read about." For the most part, however, control group participants reported Reading the Questions First for reasons such as: "knowing what I was looking for," "faster more accurate answers," or "helped me understand what I was reading better."

A similar pattern was found among the Reading the Questions First responses of the experimental group. Nearly all of the experimental group participants who read the questions first did so without mention of employing other reading or test-taking strategies. "I would read over the questions first then read the article for a better understanding." "I read the questions first to have an idea on [sic.] what questions would be ask[sic.]." In general, experimental group participants who reported Reading the Questions First continued to do so for the purposes of improved understanding and knowing what information was needed to answer questions as they, later, read the passages.

Strategies Used While Reading. A wide variety of participant responses fall into the category of Strategies Used While Reading. As in the prereading category, the overriding methods that developed from the pool of responses were largely the same between the experimental and the control groups. These strategy methods are: Read, Identifying Elements of Text Structure, Visualization, and Making Information Personally Meaningful. As before, a few participants reported using more than one strategy, but, as a whole, they designated only one in their questionnaire responses. Each method within the Strategies Used While Reading category will be examined on each occasion of the questionnaire administration.

Pre-Test. All of the four methods listed above were found to be present in participants' responses at the time of the pretest. The most common "strategy" reported in this category was Reading. Although this is not typically considered to be a reading comprehension strategy, it is in this context because participants reported it to be so. Many responses suggested that participants just "read" to help themselves understand the passages. Approximately the same proportion of participants in both the control and the experimental groups mentioned the use of the Read strategy on the pretest questionnaire. One control group participant said, "I read over the passage one time and the [sic] answered the questions based on what I remembered."

Others said "I just read it." This was the answer of several control group participants but, the majority of the Read group described an additional step. One well phrased answer typical of this group was

I used the strategies of reading and thinking about the passages.
Then reading the questions and comprehending what it was saying.
Putting all my thoughts together to answer the questions... Reading
more helps me to learn to comprehend faster.

It appears that such respondents generally wanted to answer the test questions correctly, but also felt that a thorough reading to improve passage understanding was necessary for this accuracy. Another control participant seemed to feel this way

Read the passage, then read the questions, and then look to the
passage to make sure the answer is right. Then check it again... It
makes me understand the passage better because I have to read
the questions and the passage to come up with the right answer.

Rereading is a step mentioned also in the context of Reading. This approach also appears to be chosen by participants who felt they did not understand the passage from the first reading. "I used a constant repetitious pattern. Going over the passages over and over again," was the explanation of one control group participant, "This strategy was useful because it was cautious." Another said "I basic [sic.] read the passage twice... I able to go throw [sic.] and pick up things missed the first time." While reading is not commonly considered to be a reading comprehension strategy, rereading is and can be quite effective. The use of these approaches, however, was not limited to the control group.

This pattern of responses was also found among experimental group questionnaire answers. Responses that were typical of some of these participants were, "Read the passage (just read it)," and "Read it over to understand better." Considerably more participants in the experimental group also reported reading and using an additional step. A few of these compared the language in the passage to that in the questions to check for the correct answers. After reading and looking at the test questions, many others skimmed the passage a second time to find the correct answers. Many participants reported rereading as an additional strategy; not only to locate the answers, but also to comprehend the passages in the first place.

The responses of experimental group participants were much the same as those made by control group participants.

I read them two times... I read the passage twiced [sic.] and it helped

me.

Go back, if I don't understand a passage I read the passage over again.

Such responses indicate for this group, as well, that rereading was necessary for several participants to answer the test questions or understand the passages at all. Many other participants were aware that they could or did use other, more sophisticated strategies to improve their reading comprehension. These strategies make up the other three methods of this category: Identifying Elements of Text Structure, Visualization, and Making the Information Personally Meaningful.

At least half of the responses made by participants of both groups fell into these three methods. This implies that quite a few participants had knowledge of commonly taught and naturally used reading comprehension strategies, prior to both regular class instruction and the treatment's strategy instruction. As will be seen, these methods exist, to varying degrees, across the three questionnaire administrations.

The method designated as Identifying Elements of Text Structure is made up of participants' identification of text structure basics, such as: key words and phrases, headings, main ideas, and topics. Such responses were quite common at the time of the Pretest. Participants in the control group differed in their specification of these elements.

I underline the important sentences.

Find the topic focus on the subtopics of the passage. Use the key words to help you understand what you read...If you know the main topic you can stay focused.

Read it carefully and try to pick out the major points that are important.

These examples demonstrate some knowledge of text structure and how to identify important clues to important information in passages. The language that describes it is not very sophisticated, but it does reveal an awareness of text structure on the part of such participants.

Many experimental group participants also mentioned several ways in which they tried to identify Elements of Text Structure.

I read, find key words, then reread.

I read carefully and tried to pick out the most important parts.

I read over the material carefully and picked out certain tone words to detected [sic.] the author opinion. By gaining the opinion of the

author, one can better understand the views.

As in the control group, these participants' responses indicated some knowledge of the importance of text structure. They also seem to reveal a consciousness of the reader's responsibility to identify elements that reveal the author's message. Another strategy identified by participants of both groups also requires active reading: Visualization.

The method of Visualization does not refer to a reader's use of published aids that accompany a text, but, rather, the reader's active visualization to facilitate his/her reading comprehension. Descriptions of the use of the visualization strategy vary in their specificity.

I tried to picture everything in my head. I also went back and read a lot of things over. I basically used visual strategies.

I tried to visualize the topics in my mind to help me understand them better.

I just made pictures in my head, and they changed as a [sic.] read along in the passages... So I could see the stuff while I'll [sic.] was reading.

These responses by participants of the control group are quite similar to those of experimental group participants.

I visualized what I read so I could see what was happening...The details helped me picture in my head.

I tried to visualize what the authors was [sic.] saying...It helps you understand what your [sic.] reading.

I drew mental pictures and applied what I know from day to day life to help me understand. Rereading certain paragraphs.

Elaboration on what exactly was Visualized and how was rare. Such brief responses concerning visualization were common among a number of participants in both groups. The same was true for responses indicating the third strategy method of this category.

Making the Information Personally Meaningful, is evident in the questionnaire responses, but is not as common. Related to Visualization, this method reflects responses that include an indication that some participants called on background knowledge. Such control group responses include, "I tried to use experience and also tried to remember things I had heard or seen about each subject discussed." Experimental group responses were similar, "I read the passages and try to see watch [sic.] the author is say [sic.] and compare it to what I already know...When I try to vision [sic.] and relate them I usually understand more."

This method, also reflects participants' efforts just to make the passages interesting. One control group participant reported his/her strategy very specifically.

Sometimes I just put myself in the teaching position, or sometimes times [sic.] I just get really nosey and make it like someones [sic.] business I am getting into. See how does it apply [sic.] to me, or try to make it apply to me.

I put myself in the story.

The same effort to increase interest or meaningfulness was true for a number of experimental group participants as well.

I try to put myself in there [sic.] place.

I tried to think of the passages like they were part of my life and; [sic] therefore, they would be important to me.

Another experimental group participant used the visualization strategy because "they made you put your body in the picture to see what the author was mainly talking about." The frequent reports of strategy use by participants at the time of the pretest appear to bode favorably for continued and increased reading comprehension strategy use.

Post-Test. Responses, from both groups, to the posttest questionnaire favored the strategy participants called "read." Unlike the pretest questionnaire, few references were made on this occasion to rereading as a means to improve reading comprehension. Several participants in the control group who reported "reading" appeared to be unaware of "true" strategies that they were or could be using. One such control group participant, who reported the use of no strategy explained, "they just don't help me in any way." Comments denying strategy use, such as this, were far less common than reports stating simply that Reading improved their understanding of the passages.

1. Reading the story first.
2. Understanding vocabulary words
3. What the story is trying to teach... It's easy to answer the questions if you know the story ahead of time and understand it.

I read the passage slowly and thoroughly. I make sure I understand a word before I read the whole passage. Most importantly I try and focus completely on the passage I am reading.

Responses such as these, indicating a careful Reading of the passages, were very common.

Most participants, unlike the second participant quoted, did not depend on concentration alone

to help them understand, but allowed themselves the freedom to look back in the passages for the answers to questions they did not know. "I read the passages, if I couldn't remember the answers I went back in the passage to find them" and "I just tried to remember what I read and also went back and looked at the passages" were common answers. These responses did not seem to indicate rereading, discussed on previously administered questionnaires, but a glancing or skimming over previously read passages. Such comments could indicate a pursuit of improved reading comprehension (sought after in this research) or a pursuit of locating correct answers to test questions. Among those in the control group, however, very few who "read" and/or looked back through the passages mentioned the purpose of answering questions correctly .

This was not so for the experimental group's posttest responses. Many more participants reported that their reason for Reading and looking back over the passages was simply to answer the test questions. "I first read the passages. Then I read the questions. Next I scanned back over the passage to find the answer." These actions, he/she explained, "helped me remember some of the answers." This explanation is much like the one given by another experimental group participant who said, "I read them once , then I would read the question[] and go back to the passage and find the answer."

Others reported looking back over the passages for the purpose of understanding: "If I didn't understand what I read the first time, I reread [sic.] it over until I understood." This he/she said, "helped my [sic.] understand the passage better." A few participants did report both of these reasons for looking back over what they had read: "Read it until I understood it...When I understood the passage, I could answer the question better." In general, Reading is a rather nonspecific strategy and one that is unlikely to contain any specifiable efforts to head off any comprehension difficulties. To do this, many other participants reported on the posttest questionnaire the use of three other strategies to stimulate active reading.

The strategy methods that emerged again from questionnaire responses were Identifying Elements of Text Structure, Visualization, and Making Information Personally Meaningful. Responses yielding these methods occurred in roughly the same numbers as before in the control and experimental groups.

Responses from the control group participants were more limited in their use of vocabulary to describe their reading comprehension strategies than were the experimental

group's. This was clearly evident in control group participants' descriptions of Identifying Elements of Text Structure. Examples of the control group's responses include:

Watched for key words and the way the author used such word [sic.]

I read the passages and look for key words that there may be [sic.] a question. For example, first, next, then, last.

Such responses may indicate a search for words in the passages that match words found in the questions as well as a search for words that indicate important information or patterns of organization. Other than "key words", those respondents from the control group who looked for Elements of Text Structure looked for main ideas: "The strategies I used was familiarizing myself with the main ideas or the most important information of the text." The case was somewhat different for participants of the experimental group.

Experimental group participants largely preferred the identification of main ideas and supporting details over what a few referred to as key words or context clues. This group of participants had much to say about looking for main ideas and details as strategies.

Looking at the main ideas of each passage... It helped me pick out the most important part.

Major ideas and details.

- Picked out the main idea
- Carefully read sentences with key words
- Went back over points that were unclear.
- Choosing the main idea helped me understand the significance of the details.

Finding the main topic and supporting sentences help [sic.] me understand better and to answer the questions.

As the examples might demonstrate, these experimental participants appear to have a better grasp of what text structure strategies are available and their relationship to better comprehension of the passage. This improvement over their control group counterparts, however slight it may be, was also demonstrated in experimental participants' reports of visualization.

Proportionally, the same number of participants in both groups reported using visualization strategies to improve reading comprehension. Of the control group participants, some responded that

...picturing small things in my mind... This helps me to understand.

I just read the story and tried to understand it, and pictured in my mind as I read...it helps you understand.

I just read the passages and tried to picture the events in my mind.

The same type of responses to the questionnaire given by experimental group participants were not noticeably different in content. They were, however, generally lengthier. For example,

I read the passages slowly and tryed [sic.] to visualize what I was reading. But when I visualized something it stuck with me the rest of the paragraphs (for example; [sic] when I read the last passage I visualized solar cars, heat, so on).

Reading the passages and if needed then I would draw a mental picture. The best thing was, I was understanding the readings... It made me understand the passage so that I could answer the questions.

These participants also seem to feel that visualization is helpful to improve their reading comprehension (and find the correct answers for the test questions.) Three subcategories of the visualization strategy method are worth mentioning despite the few participant responses that constituted them at the time of the posttest administration.

Four participants in the control group and two in the experimental group reported visualizing themselves in the passages as they read. This number is somewhat less than in the pretest responses. "I picture me taking the SAT test. I picture the slavery of long ago. I picture me sleeping and at cat and horses sleeping," said one experimental participant. The other explained that this "... makes me feel more comfortable about what I am reading." Control group participants seemed to feel the same way:

I just pictured each situation and put myself as the writer or a person in each story.

I put myself in the story to save the trees, teach people about death, and about how to write a paper. I find that if I put myself into the story I can work out and understand the passages.

A few participants, again, four in the control group and two in the experimental group, reported some means of Making Information Personally Meaningful as they read to keep their interest up. While one experimental group participant said, "As I read, I 'acted' the story's [sic.] out in my mind. Kind of like a newscaster reporting how something happened," those in the control group tried other methods, such as asking themselves questions about what they knew or was interesting about the topic.

Worthy of some mention is the report for the first time in the questionnaire administrations of graphic organization. Because only four participants, from the experimental group, reported using graphic organizers, this will be discussed quite briefly. These four participants had positive things to say about graphic organizers. For example, one student drew pictures depicting his/her thought processes and the relationship among the ideas in one passage. He/ she then explained, "being able to picture what they are talking about in my head as well as using charts [was helpful]."

Follow-Up Test. Essentially, the same methods that were present at the time of the previous test questionnaires were also present at the time of the follow-up test. Responses to the questionnaire administered at the time of the follow-up test also included mention of the method Read. At this time, nearly all of the participants included some description of looking back over the passages as well. More Read responses were made by participants of the control group (made up of fewer people) than by participants of the experimental group. Among those responses were explanations that "reading and looking back at the passages helped me comprehend," and "help[ed] me understand clearly." Most in this segment of the control group reported using this strategy simply to answer questions.

I just read through the material and answered the questions. I also went back and skimmed [sic.] through the material while answering the question.

- 1) Read the passage
 - 2) Read the question
 - 3) Looked in the passage to find answer
- I was able to answer the questions easier after I went back and found the answers in the passage.

As mentioned above, these sorts of answers were quite common among control group participants but were not so among those in the experimental group.

As a whole, far fewer experimental group participants reported Read as a strategy. Other strategies that were used while reading were reported. Of the few who reported Reading and looking back, about one half explained that it was to improve their understanding of the passages: "Reading carefully in order to comprehend the articles" and "I read until I understand it," for example. The other half explained that it was to aid in answering test questions:

I read each passage first, read the question, looked over the answers, and then choose [sic.] the best one .

Read the complete article, then I scanned back over looking [sic.] for the answer.

Clearly the reasons for reading and looking back over the passages have not changed over the administrations of the three questionnaires, but far fewer experimental participants now depended on such a simple approach to improving their reading comprehension.

Participant responses at the time of the follow-up test did not support all of the three remaining methods found among responses to the previous two questionnaires. Increased numbers of control group participants now reported the use of Identifying Elements of Text Structure and Visualization. The responses given by experimental group participants also showed increased use of these two strategies.

A number of control group responses indicated some use of text structure to improve reading comprehension. Typically, the topic, main ideas, and key words were sought.

I just find the topic sentence of each paragraph. That tells me what the passage is about.

The strategies I used is finding the main ideas and details and key words that help me find the answer to the question. By going back and look [sic.] for those specific key words.

Such participants were aware, at least, of some of the aspects of text structure and that identifying them can aid in comprehension of passages. This appears to also be true of several experimental group participants.

I use a number of things to help myself comprehend a passage which are: locating ideas, mental pictures, noticing critical info. [sic.].

Locating main ideas and details... In locating main ideas, I scanned the reading to find what I needed.

I just looked at what I felt was important and tried to over look [sic.] all of the details... I could see the point more clearly.

- Chose the main idea and supporting details.
- Read carefully to decide an author's tone.
- Checked for bias and opinions.

These responses and others demonstrate some improved awareness of the means to read actively on the part of the participants of both groups. Another, more commonly reported means at this administration, was Visualization.

While Visualization strategies were popular among participants of both the control and experimental groups, but the nature of them varied between the two groups. Among the control group there were very few responses that indicated participants' getting in touch with their background knowledge or putting themselves into the situation presented by the passage. Largely, those who used visualization simply pictured the events of the passage.

I just picture what the passage is says [sic.] in my own mind.

Mental images are helpful to me this was I can picture in my mind the subject in which I am reading about.

I try to visualize the events that have taken place in their passages.

Mental images is what I use to help me to understand a passage. I can picture it as I read and understand what is going on in the passage alot [sic.] better.

While the reports of Visualization given by control group participants were largely homogeneous, the experimental group's were less so. As in the control group, the most common response described picturing the events of the passage. "I used mental images and pictures to try and see what I'm reading... I do better when I see what's going on and I also learn faster with visual learning." A small group of other experimental participants, however, reported other sorts of visualization.

As I read the passages I tried to visualize things that were being said or to put myself there.

Mapping... helped me see everything at once.

I related the passages to what I know and also used pictures to try to understand the passages better.

Statements such as these occurred too infrequently to be considered sub-methods of the visualization strategy but were considered to be of interest. Perhaps these provide some evidence of increased awareness of reading strategy options on the part of experimental group participants. This issue and others will be discussed further in chapter five.

Knowledge of the Appropriateness of Reading Comprehension Strategies

The last two items of the questionnaire were intended to uncover participants' awareness of strategy appropriateness given the task at hand and their personal strengths. Specifically,

these questions were: "If you didn't use any visual or verbal strategies, what about them was not useful?" and "At what time might you find visual or verbal strategies (diagrams, pictures, summaries, or analogies, for example) helpful?" See Appendix C or D for a copy of the questionnaire. Control and experimental group participants' responses to these questions were not of the nature intended by the researcher. What those responses were will be discussed in this section.

Participants' Responses. Approximately half of the participants in both groups at the time of all three questionnaire administrations left the third and fourth items of the questionnaire items blank. The third item was left blank with much greater frequency than the fourth. Of those participants who did respond to these items, the majority appeared to have misunderstood the questions. The third question, asking what was not useful about visual or verbal strategies that caused one to not use them, elicited responses from both groups such as

I would have less comprehension about what I read at times.

I talk in my head also about what I was thinking best.

I always visualize or use verbal strategies.

Used both.

It would be harder to do.

These examples are among many answers that were incomplete, unrelated to the question, or just difficult to understand. The few other responses to this questionnaire item included some isolated reports of no strategy use, but primarily revealed no discernible methods. No trends of improvement or decline was evident when comparing experimental group responses from pretest to posttest and posttest to follow-up test. No difference was apparent between experimental and control groups at any administration of the questionnaire. The case is quite similar for responses to the fourth item of the questionnaire.

More participants of both groups answered the fourth question than the third, yet the majority, as mentioned earlier, left the item blank. Of the responses that were made, again most seemed to indicate a misunderstanding of the question. When asked at what times visual or verbal strategies might be useful, most participants seemed to expect such aid to accompany the text. Examples of such responses include

Reading about specific things or how to build something would help.

When reading something you don't understand.

In a math class.

When there's [sic.] charts for a test, and there's pictures in a book that explains what I missed by reading that certain section.

These responses appear to reflect an expectation that strategies such as diagrams or summaries would be found with the text. As can be seen from the first two examples, not all of the participants' responses clearly indicated misunderstanding of the question. Others cited tests and research papers as reasons for using visual or verbal strategies. Such responses are ambiguous; either participants expect reading comprehension assistance from textbooks or from their own work in reading actively. Because explanations of responses were all but nonexistent, it is difficult to be sure what such participants' intended meaning was.

This dilemma, the researcher being unsure of participants intended meaning when answering questionnaire items three and four, persisted throughout the examination of completed questionnaires from each of the three administrations. The responses of both groups to item four continued to differ little between groups as well as over time. There were but a few responses that did not indicate either misunderstanding or ambiguity. These did not, however, provide conclusive evidence of any initial or improved understanding of appropriate strategy use in either the experimental or control groups.

Summary

The results of this study indicate that improvement in reading comprehension was independent from inclusion in the experimental or control groups. Test data demonstrated no significant difference between experimental and control groups' reading comprehension skills at any reading comprehension test administration. Similarly, the methods found among the questionnaires were largely alike between the experimental and control groups. The proportion of responses falling into these methods did change somewhat in the experimental group, specifically in the text structure and visualization strategies.

CHAPTER V

FURTHER ANALYSIS OF QUESTIONNAIRE DATA

Responses to the questionnaire were thematized and categorized in the proceeding section according to the primary strategy reported by the research participants. As a whole, the number and type of methods remained consistent across the questionnaire administrations. The distribution of responses, however, did change and will be among the topics of discussion here. These topics consist of: 1) participants' apparent poor understanding of the term "strategy;" 2) the relationship between the strategies reported by participants and those taught as part of the treatment; and 3) changes in reported strategy use over time.

Misunderstandings Concerning the Term "Strategy"

Evidence exists showing that at least some of the research participants were unclear about the meaning of the term "strategy" as it appeared on the questionnaire items. Many responses of both control and experimental group participants at each questionnaire administration discuss activities other than reading comprehension strategies. The common responses of Read and Read the Questions First as strategies toward improved reading comprehension are two examples of the confusion concerning the term "strategy."

As described in the previous section, Read and Read the Questions First were commonly mentioned means to help participants understand the passages. These means are among several methods that make up Prereading strategies and Strategies used While Reading. Examples of the two methods are

Read the passages, try to understand them, look back for correct answers.

I read the passages and then answered the questions.

I read the questions first then read the passage and as I came to the answer of the question I'll [sic] fill it in.

Read the questions first so you know what to look for.

But these are not commonly recognized reading comprehension strategies.

Responses of Read indicate that some participants are doing only that. This answer does

not describe a strategy but the very activity a reading comprehension strategy might improve. Such responses imply several things: 1) participants were unaware that they were using strategies; 2) they used no strategies; 3) they failed, for some reason, to mention strategy use. It is difficult to be sure if these or other reasons apply because participants' lack of accuracy when answering questionnaire items.

Read the Questions First is a test-taking strategy, not a reading comprehension strategy. It is not surprising that this method was mentioned since the questionnaire followed a test at each administration. Yet, the questionnaire items asked about strategies to "help you understand the passage(s)," not answer the questions. This inaccuracy on the part of many participants resulted in a loss to the researcher of potential information concerning the influence of the treatment on experimental versus control group participants. Notably, however, Read the Questions First may have the same result as many common prereading strategies. Doing so might indicate to the taker of a reading test the difficulty of a passage's content and identify at least some of the main ideas and major details. Responses that indicate that this might be the case include one participant's explanation that he/she read the questions first "to find out what was important in the passage." This sort of misunderstanding of the term "strategy" is also evident in participants' responses when asked at what times verbal or visual strategies might be useful.

As described in the previous section, answers to this item were few. Those participants who did respond, seemed to do so inaccurately. It appears that most thought that the term "strategy" referred to aids to comprehension, such as summaries, graphs, and diagrams, that would be published as part of a text. The intention was to uncover any improvement in participants' knowledge of when reading strategy use was appropriate, not when it might be nice to refer to a prepared aid. Examples of this misunderstanding include:

Summaries I think are always helpful.

Doing math and science problems.

As before, it is difficult to be sure what the exact meaning of the respondent might have been. These responses range from being ambiguous or difficult to understand to incomplete or inaccurate.

Summarizing each paragraph - before moving on.

All of the above.

To read anything in nursing.

Charts and paragraphs.

The sheer number of participants who responded inaccurately to more than one questionnaire and the large number who did so at the time of each questionnaire administration implies that many misunderstood the meaning of the term "strategy" as it was used on the questionnaire. This road block to effectively collecting desired information from participants will be discussed in Chapter VI.

Connections Between Treatment Content and Reported Strategy Use

The content of the research treatment included both direct instruction and guided experience in the theory and methods of the generative learning strategy. Direct instruction of text structure, schema theory, and metacognition was provided. Guided experience supplemented the direct instruction of the strategies methods: visual representations, diagrams, visualization, picture drawing, heading and summary writing, location of main ideas, critical comment, and analogy-making. All of the instruction provided to experimental group participants occurred during six classes over six weeks. The control group received no treatment instruction.

As the overview of strategy methods demonstrates, such diversity is not reflected in either group's responses at any time the questionnaire was administered. To review briefly, these methods consisted of Reading the Questions First, Skimming, Reading, Identifying Elements of Text Structure, Visualization, and Making Information Personally Meaningful. The first three methods appear to be unrelated to any of the treatment content. Identifying Elements of Text Structure, which evolved to be a more common response among experimental group participants than control, relates strongly to the content of the treatment. Direct instruction in the role of text structure in reading comprehension was provided, and the direct instruction and guided experience also took place in the the critique or creation of headings and main idea identification. Visualization and Making Information Personally Meaningful indicate knowledge of at least the tenets of schema theory, given in direct instruction, and the helpfulness of visualization and picture drawing, experienced in guided experience.

Of course, control group participants also indicated using these strategies, yet, they received no treatment. (This might be explained in that those methods that are related to the

treatment as well as those that are not, do not necessarily require training to perform.) Experience in reading and awareness of the benefits of these methods are likely to influence the strategies chosen for use by all of the participants. Possible reasons why the other treatment's strategies were not used by experimental participants will be discussed in Chapter VI.

Changes in Reports of Strategy Use Over Time

The reading comprehension strategy methods derived from participants' responses generally remained the same across the three questionnaire administrations. The only change in the method make-up was in the absence of Making Information Personally Meaningful in the responses of either group on the follow-up questionnaire. Changes in strategy preference is also evident, although subtle.

While Reading the Questions First remained a common response to all three questionnaires, Skimming did not. While Skimming was reported by several participants in both groups on the pretest questionnaire, very few posttest reports mentioned Skimming. This number rose somewhat on the follow-up test questionnaire, particularly among experimental group participants. These participants typically reported Skimming in terms of a true prereading strategy: to scan for headings and main ideas, for example. The few control group participants who Skimmed did so mostly as a short-cut to a thorough reading of a passage. There were changes within other strategy methods as well.

Throughout the questionnaires administered on three occasions, Read was the most commonly described reading strategy, but by no means constituted the majority of responses. Identifying Elements of Text Structure, Visualization, and Making Information Personally Meaningful made up approximately half of all responses on the Pretest questionnaire and generally maintained that popularity on the following questionnaires. Although reported use of the latter strategy did not continue in either group on the follow-up test questionnaire, Text Structure and Visualization were increasingly noted by experimental group participants and generally sustained their popularity among control group participants.

CHAPTER VI

SUMMARY, IMPLICATIONS, RECOMMENDATIONS

In this chapter I will summarize the study's purpose, methodology, and results; discuss the results of the study in light of the literature; and consider the implications of this research for researchers in the field of Education.

Summary of the Study

College readers enrolled in a community college developmental reading course (referred to throughout this discussion as "participants"), 100 in all after data collection was complete, were divided into control and experimental groups. The purpose was to provide instruction in methods of a reading comprehension strategy based on Wittrock's generative learning model to participants of the experimental group, and to examine the influence of the treatment on reading comprehension test scores and participants' reports of reading comprehension strategy use. Members of the control group received no treatment, but were tested and were interviewed by questionnaires on three occasions, just as the experimental group participants were. Treatment consisted of direct instruction in the role of text structure, schema, and metacognition's role in reading comprehension. Direct instruction was supplemented with guided experience to stimulate a transfer of responsibility for strategy use of the strategy's methods: diagrams, graphs, images, pictures, headings, main ideas, summaries, critical comment, and analogies.

The purpose of the reading comprehension tests was to determine the effectiveness of the treatment in improving reading comprehension and to provide evidence of independent use of the strategy's methods following a period of no formal strategy instruction or practice. A questionnaire was developed and administered at the time of the pre, post, and follow-up tests to uncover participants' use of reading comprehension strategies and their stated reasons for choosing to use them or not.

Literature in the area of reading comprehension strategies has focused on their instruction to students in primary grades and those students' use of the strategies. Studies

concerning college readers, and developmental college readers in particular, are few. Typically, these involve a single or narrow group of strategies, that might not appeal to readers varying in learning styles, or meet the many reading demands common to college reading. Merlin Wittrock's research involving both primary and secondary readers has yielded a theory of learning he calls "the generative learning model" (1974). In essence, this model asserts that reading comprehension improves immensely when a reader makes information in a passage meaningful. Meaningfulness can be achieved by a variety of methods, including those that were made part of this research treatment. Employing one's metacognitive skills to draw upon knowledge of text structure and background knowledge is expected to improve reading comprehension, and ultimately, retention. Wittrock's research has shown this to be the case.

Summary of Results

Reading Comprehension

The first research question explored in this study was, "Is there a significant difference between the means of the control group and the experimental group on the pre, post, and follow-up reading comprehension tests?"

Results from statistical analysis found that no significant difference was found between scores of the experimental and control groups. This also answers the second research questions, below, since independent strategy use would be demonstrated through improved reading comprehension skills among experimental group participants. No improvement occurred, according to tests data analysis, therefore, no independent strategy use can be concluded.

The Use of Strategies

The second research question of this study was, "Due to the nature of both the method of instruction and the generative reading strategy, will participants use the strategy independently?"

This question was meant to be answered by examination of the reading comprehension test data as well as questionnaire data. Unlike the results of the comprehension test data, the questionnaire data indicate a mild improvement in strategy use among experimental participants. Both groups' responses on each questionnaire were similar in the methods that emerged from

them. Changes were found over the questionnaire administrations in the sophistication of language participants used to describe their strategy use, and the proportion of participants who described use of the several strategy methods. Participants of the experimental group demonstrated a greater improvement in their description of their reading comprehension strategies over the control group participants. This was true, specifically, in the methods of text structure and visualization strategies. These two strategy methods were also found to be increasingly reported by the experimental group participants, while the control group participants generally reported them in the same numbers on each of the three questionnaires.

These results indicate that modest improvement was made among experimental group participants in the independent use of the reading comprehension strategies taught for the study. These results are not conclusive, however, because participants' responses included evidence of other issues: 1) some participants' persistent misunderstanding of the term "strategy;" 2) a significant number of participants' seemingly rigid use of passive reading activities, such as "reading;" and 3) a common use of test taking strategies instead of reading comprehension strategies. Because these three topics were so strongly demonstrated in participants' responses on each of the three questionnaires, there is little doubt that they interfere, with finding positive results in this research. This interference makes it necessary to conclude only modest improvement in independent reading comprehension strategy use. This conclusion and the reasons for it will be discussed further.

The third question of the study was, "Will themes such as 'usefulness,' 'ease of application,' or 'individualization' of the generative reading strategy be referred to by participants as reasons for choosing to use part or all of the generative reading strategy?"

Responses to the questionnaire items meant to determine an answer to this question were disappointing. As discussed earlier, approximately half of the returned questionnaires at the time of each administration had no responses for the last two items. Of those responses that were given, most were confusing and inaccurate. Some participants seemed to lack an understanding of the term "strategy." Others simply misunderstood the meaning of the items themselves. These problems resulted in the researcher making no conclusions concerning this research question. The problems that caused this unfortunate outcome and measures to remedy them will also be discussed further.

Links to Developmental Reading Literature

This study's findings vary in their agreement with developmental reading literature. The failure to find clear improvement in reading comprehension strategy use on the part of the study's participants does not agree with the findings of Merlin Wittrock and others who have studied reading comprehension strategy use in developmental college readers. Dramatic results have been found among elementary and high school students taught methods that are part of the generative model of learning (Linden and Wittrock, 1981; Doctorow, Wittrock, and Marks, 1978). Wittrock (1991) reports that his study with Kelly (1984), teaching learning strategies and metacognitive processes to young, functionally illiterate adults (enrolled in college basic skills courses) improved their reading comprehension about 20%. Another study involving college developmental readers found more modest results (Wittrock and Alesandrini, 1990).

Developmental College Readers

Perhaps these results and those found in my research are evidence of something particular to this population which hinders their adoption and application of reading comprehension strategies. The issue of metacognition / self-regulated learning is one that comes up repeatedly, not only in the related literature, but also in discussions among instructors of developmental reading. While metacognition is the awareness and control of one's thought processes, self-regulated learning involves purposive behavior on the part of the learner and, depending on the theoretical perspective of the reading professional, some sense of why students choose to use certain strategies or responses (Zimmerman, 1989). There is wide recognition among reading professionals that getting their students to learn, practice, and use strategies is not easy. Zimmerman's (1995, p. 217) response to Winne's thesis concerning self-regulation includes Winne's list of obstacles to successful self-regulation. These obstacles are:

- (a) failing to apply sufficient effort to academic self-regulation, (b) engaging in self-monitoring when it conflicts with acquisition, (c) expecting quick learning epistemically, (d) making inaccurate predictions of learning based on massed practice, and (e) failing to coordinate study tactics as one practices behaviorally.

He goes on to explain that

- a deals with insufficient motivation to self-regulate, obstacles c and d involve inaccurate expectations and self-beliefs about learning, and obstacles b and e concern ineffective metacognitive self-

monitoring and adjustment of learning methods.

Motivation and inaccurate expectations of learning are particularly difficult to change in developmental college readers. These students are familiar with failure and have deeply rooted study habits, despite evidence of their ineffectiveness. Reading faculty often speak of their own frustrations due to students' failure to use strategies despite knowledge of their potential benefit. In general, these faculty seem to consider motivation as either intrinsic or extrinsic, either of which being inadequate for most students to read actively. Harrison (1991), however, suggests that motivation can be taught. He proposes that motivation and metacognition are linked. Motivation is a conscious, teachable activity that can be improved through a succession of questions posed to students by teachers. These questions are meant to heighten awareness of the students' thought processes regarding their learning efforts. Such an activity might also influence inaccurate learning expectations as well.

Reading Comprehension Assessment

Tests are a common means for researchers and instructors of reading to assess readers' abilities to comprehend text. Because this is so, it seemed natural to follow suit and check for treatment effects through reading comprehension testing. The tests used in this study were developed by the researcher to suit the study's purposes. Using researcher-made tests is not uncommon for the purposes of evaluating the effectiveness of an instructional program (Cross and Paris, 1987). Tests used in this and similar studies were not standardized and have little or no established reliability and validity data. The finding that the three reading comprehension tests in this study lacked equivalency is, therefore, neither surprising nor particularly worrisome.

The tests were designed to uncover any changes in participants' reading comprehension abilities. This may not have been the only knowledge, however, being tested. Johnston (1983, p. 20) shrewdly points out that

performance on the test will depend on characteristics of the text, the nature of the task, and the context, as well as the person's reading abilities and prior knowledge.

Therefore, it is necessary to take each of these factors into account when interpreting an individual's test performance. This was done, only in part: the text passages selected for the reading comprehension tests were of typical freshman course content. The difficulty of each

passage was determined with the application of the Fry Readability Graph. The other, uncontrolled, variables, could be very influential on participants' decisions to use reading comprehension strategies during the test or to make an effort to do well at all.

The Generative Model of Learning

There might be something about the content of the generative model of learning strategy instruction that makes it less successful for this population. Each of the generative model of learning methods (write summaries, relate the text to your experience, construct images, and draw inferences) are widely accepted means of improving comprehension and retention of text. It is, in fact, a very comprehensive, theoretically sound model of learning. Its methods are diverse: meeting the needs of a variety of learners in a variety of reading situations. Perhaps the problem is not what the generative learning strategy's methods are, but the amount of information provided over a given amount of time. Or, perhaps, it is the diversity of strategy options - - causing confusion or uncertainty as to which to use - - that is responsible for less dramatic reading comprehension improvement in college developmental readers.

Suggestions for Further Study

Conducting research in a school setting proved to be a challenge in this study. Many variables including students, staff, scheduling of classes, and weather influenced the manner in which the study was actually conducted. For example, students placed in developmental college courses typically have high attrition rates. This was evident in the study in the large number of participants who failed to remain in the study because of absences. Another example was the reluctance of two faculty members to be part of the study, yet agreeing to their sections' being part of the control group. Their reluctance may have contributed to their failure to follow through on terms agreed to concerning test administration and rewards for experimental participants' efforts. As a result, one of their sections was dropped from the experimental group in mid-study and two others were dropped from the control after the follow-up test.

Of course, the natures of institutions and people cannot be changed, nor should they be. "Reality" is desirable, even when frustrating, for researchers. This reality, however, often interferes with the smooth running of a study and the fulfillment of the many standards

determined during the study's planning. Despite such problems, educational research in naturalistic settings offers valuable opportunities for researchers that can not often be found in a lab.

What follows are suggestions for further study. Largely, they stem from mistakes and insights made by the researcher during the course of the study.

Conducting the Pilot Study

Conducting a proper pilot study is essential to heading off possible research problems. Repeating this study would best be done if the pilot study involved at least one section of developmental reading students. These students should experience instruction in strategy use and take the tests and complete questionnaires as scheduled. Such a procedure would indicate drop-out rates, where improvements might be made in direct instruction and guided practice, and problems with text passages or test and questionnaire items. For example, participants' common use of test-taking strategies might have been evident in a successful pilot study and subsequently corrected in some manner by the researcher so that reading comprehension strategies would be a stronger priority for, at least, some participants. Also, it is no surprise that taking a test, regardless of its content, would cause so many to use methods thought to improve performance. The focus of students' efforts, however, might somehow be better focused on reading comprehension itself. Other problems might also have been avoided if a proper pilot study had been done.

Poor understanding of the term "strategy" on questionnaires may have also been evident in participants' responses to questionnaires in a pilot study. Changes in the explicitness of strategy instruction or the phrasing of questionnaire items could have been made. The generally poor understanding of several questionnaire items, as demonstrated by vague or inaccurate responses, might also have been recognized and accommodated for. If the proper corrections had been made, more, useful data might have been collected. As it was administered in this study, however, the questionnaire was largely a failure.

Opting for an Interview. Interviews, to get at participants' decisions to use reading comprehension strategies, could well have been more effective than questionnaires. Participants' confusion concerning the meaning of the term "strategy" and other items in the

questionnaire could be avoided. Interviews would allow the researcher to clarify his/her meaning through explanation. Participants' responses could similarly be clarified if they appear to be vague or inaccurate. Also, addressing participants in person should allow both the interviewer and interviewee the opportunity to mention or ask about issues that may not have appeared to be important during planning. Because interviews can be time consuming and expensive, and complex decisions regarding just how many and which participants should be interviewed must be made, a carefully prepared questionnaire may yet be desirable.

Preparing All Individuals Involved in Carrying Out the Study

It may seem obvious that everyone involved in a study must be prepared for their responsibilities. But, the emphasis here is on making sure that, when possible, everyone receives the same method of preparation. This study suffered from two teachers missing the meeting held just prior to the study. If they had attended this meeting they could have been part of decision-making, had their questions answered, and voiced their concerns about being included. These teachers learned second hand what was expected of them and may never have felt to be part of a team.

Because they did not have this experience, the two teachers failed to follow some of the procedures agreed upon during the organizational meeting. The first teacher told his/her experimental section that I was a doctoral student conducting research, instead of a "guest lecturer." This teacher also failed to attend classes in which treatment instruction was given and otherwise failed to express support to his/her students for the reading comprehension strategy instruction. As a result, this experimental section was dropped from the study. The second teacher admitted at the time of the follow-up test administration that he/she had failed to read the letters describing the test administration procedure. Instead of ensuring that each participant received the test with his/her identification number on it, this teacher simply handed them out to anyone. It was impossible to determine if any participant received each of the three tests, as intended. These two control sections were also necessarily dropped from the study.

This experience was described in detail to emphasize the importance of every person involved with carrying out the study attending all organizational meetings. As seen above, important issues are agreed upon at that time and questions or doubts can easily be answered.

This, of course, does not ensure that everyone will follow through on what was agreed to.

Teachers varied in their adherence to the guidelines set for the study. While some maintained them well, at least one other teacher told his/her class that I was performing a research study. This teacher, however, was enthusiastic about the information offered in the treatment and was very careful to see that each of his/her students took the reading comprehension tests, even when it took up additional class time. It is not clear if all the teachers of the experimental sections actually rewarded their students with five points for each day of participation in strategy learning and test taking. Although everyone agreed that offering points was necessary to motivate students to come to class and practice the strategies taught, not every teacher actually kept attendance or paid full attention to who actually worked as directed.

In future studies, some measure should be taken to either better ensure compliance on the part of teachers or have the researcher take responsibility for standards such as attendance and participation monitoring.

Planning and Executing Strategy Instruction

The strategy instruction in this study was organized to progress from instruction of visual representations to verbal associations. This organization was indicated by successful studies conducted by Merlin Wittrock and no evidence from this study suggests that this is not a good approach for the instruction of the generative learning model's methods. Suggestions that are indicated are 1) plan for exploring students' definitions of "strategy" and definite "strategy" correctly, 2) provide explicit, detailed instruction of each method, 3) allow for adequate guided practice and emphasize evidence of strategy's usefulness, and 4) simulate questionnaire-type questions as part of the strategy instruction.

The need to define the meaning of the term "strategy" is clearly indicated from participants' inaccurate questionnaire responses. But, defining "strategy" alone would be inadequate. Participants may have some misconceptions about the meaning of this term. It is important to explore how they understand this term to be used and how they use the term themselves. Finding what these misunderstandings are will allow the researcher / instructor to correct participants' faulty thinking and replace their misunderstandings with the true meaning of "strategy."

Also evident from experimental participants' questionnaire responses was a failure to appreciably improve in recall of available strategies and how to employ them. Careful, explicit instruction in the generative learning model's methods could result from repeated direct instruction and guided practice of each methods before moving to another. This should not only aid in participants' understandings of what the methods are, but also should aid in understanding of how and when they are best used. As described in the results section, knowing when strategies might be used appropriately was not demonstrated coherently in participants' questionnaire responses in this study. Explicit instruction, coupled with adequate guided practice and knowledge of methods' usefulness, should improve both reading comprehension test scores and the clarity of questionnaire responses.

This study also suffered, in the researcher's judgment, from inadequate time allocated for guided practice. Strategy use, like many other skills, develops over time. The guided practice that was part of this study was a good start, but was not enough to ensure understanding of the methods' use. Primarily, three things could be expected from adequate guided practice. First, participants would gain confidence in using the strategy's methods correctly. Second, they would have more than one opportunity to recognize the helpfulness of using the strategy's methods. Third, they might begin to appreciate which reading situations dictate the use of specific strategies. These three benefits would be very desirable for future researchers and should demonstrate the benefits of planning for more guided practice. Of course, one would want to check for improvement. But, these three benefits would be difficult to clearly discern in the results of reading comprehension tests alone. Questionnaires or interviews, properly employed, could very well uncover these nuances in participants' understanding.

Regarding the use of questionnaires or interviews, another addition to the strategy instruction should improve their usefulness for the research's purposes. As mentioned before, the questionnaire responses in this study were typically vague and often inaccurate. Researchers, in the future, might avoid this with the experimental group participants by asking similarly phrased questions during direct instruction and guided experience. Familiarity with the phrasing of these questions and the information the researcher is asking for should improve experimental participants' accuracy and depth in responding. Of course, any researcher would desire the results of this simple change results to improve the drawing of conclusions concerning

developmental readers' reading comprehension strategy use. In addition, participants may also feel more confident about what is being asked of them and respond with greater thoughtfulness.

Improving Motivation / Interest

Because the reading comprehension tests were not meant to affect participants grades in any manner, the teachers of the sections included in the experimental group felt that some sort of external motivation was necessary. Their experience led them to believe that this population was unlikely to do extra work "for their own good." It was agreed that everyone would reward experimental group students who attended and participated in strategy instruction and took the reading comprehension tests with five points each day. In practice, this was not uniformly done (discussed fully above) and, of course, not everyone is influenced by the same type of external motivation. This study's researcher kept this in mind while selecting texts thought to be of interest to at least some participants for strategy instruction, guided practice, and the tests. This is a challenge, because college textbooks are often fact-oriented and developmental college readers often lack in sufficient background knowledge to read them easily. It is suggested that future researchers accept the challenge to locate diverse and interesting material while keeping within the bounds of expository text. This approach aims at drawing out readers' own internal motivation. Although less ideal, other approaches to external motivation should also be explored.

There is another important issue within the topic of motivation that should be addressed by future researchers. While participants' presence and actions in class can be easily accounted for, their honest attempts at independent practice, doing well on the tests, and answering the questionnaires thoughtfully and completely are less tangible. This research found that many participants in both groups returned blank questionnaires. Many of the questionnaires that were answered were given only brief or incomplete responses. These examples may be evidence of participants' lack of motivation or even unwillingness to participate fully. Such evidence is not so easily discerned in the comprehension tests or what participants do on their own time. One could infer from the lack of treatment effects on reading comprehension test scores that experimental participants were not motivated to practice the strategy's methods independently or do their best on the tests.

Researchers in the future should at least be mindful of this dilemma. Perhaps it could be

remedied by using participants' test performance as an external motivator, influencing course grades. Extended guided practice might also correct for the infrequent or non-existent independent practice.

A third issue concerning motivation refers again to the internal source of motivation. Many practitioners would agree that success and usefulness are necessary to stimulate motivation in learners. An assessment of participants' understandings and abilities in reading comprehension strategies should be made, followed by the teaching of strategies within their zone of proximal development. Emphasis should be placed on helping participants develop metacognitive approaches to reading comprehension. Reasonable expectations must also be kept in mind. Perhaps adjustments will need to be made: what benefits the learning of participants should benefit the study.

Choosing a Reading Comprehension Strategy for Instruction

A final word should be said about choosing a reading comprehension strategy to share with developmental college readers. Wittrock's generative model of learning's methods are supported by theories of learning and classroom use. The methods provide a flexible approach for a variety of readers for a variety of reading tasks. It remains my contention that this sort of flexibility is of great value to developmental college readers. Each student should find at least one method that meets his/her requirements for strategy use. If that method "fits well," it may be used frequently. Future researchers of developmental college readers' reading comprehension strategy use should again explore the benefits of such a flexible strategy for this population. A note of caution, however, should be made.

As discussed earlier, explicit strategy instruction and adequate guided practice is necessary to fully inform students about the strategy's methods. After assessing participants' strengths and weaknesses, researchers might consider narrowing strategy options made available to them. Teaching just one method at a time until mastered is one idea. Perhaps each experimental participant could elect which strategies he/she would like to learn and in what order. Those who make common choices could be grouped together for instruction. Confusion on the part of participants should decrease while a sense of control over one's learning should increase.

LIST OF REFERENCES

- Alexander, J.E., and Heathington, B.S. (1988). *Assessing and correcting classroom reading problems*. Glenview, IL: Scott, Foresman and Company.
- Anderson, R.C. (1984). Some reflections on the acquisition of knowledge. *Educational Researcher*, 13, 5-10.
- Anderson, T.H., and Armbruster, B.B. (1986). Readable textbooks, or selecting a textbook is not like buying a pair of shoes. In J. Orasanu (Ed.), *Reading comprehension: From research to practice*. Hillsdale, NJ: Erlbaum.
- Anderson, R.C., and Davison, A. (1988). Conceptual and empirical bases for readability formulas. In A. Davison and G.M. Green (Eds.), *Linguistic complexity and text comprehension: readability issues reconsidered* (pp. 23-53). Hillsdale, NJ: Erlbaum.
- Anderson, R.C., and Pearson, P.D. (1984). A schema-theoretic view of basic processes in reading comprehension. In P.D. Pearson (Ed.), *Handbook of reading research*. New York: Longman.
- Anderson, R.C., Spiro, R.J., and Anderson, M.C. (1978). Schemata as a scaffolding for the representation of information in connected discourse. *American Educational Research Journal*, 15, 433-440.
- Applegate, M.D., Quinn, K.B., and Applegate, A.J. (1994). Using metacognitive strategies to enhance achievement for at-risk liberal arts college students. *Journal of Reading*, 38, 1, 32-40.
- Armbruster, B.B., and Gudbrandson, B. (1986). Reading comprehension in social studies. *Reading Research Quarterly*, 21, 36-48.
- Baker, L. (1987). Comprehension monitoring: Identifying and coping with text confusions. *Journal of Reading Behavior*, 11, 363-364.
- Baker, L. and Brown, A.L. (1984). Metacognitive skills in reading. In P.D. Pearson (Ed.), *Handbook of reading research*. New York: Longman.
- Bartlett, F.C. (1932). *Remembering: A study in experimental and social psychology*. Cambridge, England: Cambridge University Press.
- Bettencourt, E.M.(1987). Effect of teaching enthusiasm on student on-task behavior and achievement. *American Educational Research Journal*, 20, 435-450.

- Bransford, J.D. and Johnson, M.K. (1973). Consideration of some problems of comprehension. In W.G. Chase (Ed.), *Visual information processing*. NY: Academic Press.
- Brown, A.L., Armbruster, B.B., and Baker, L. (1986). The role of metacognition in reading and studying. In J. Orasanu (Ed.), *Reading comprehension: From research to practice*. Hillsdale, NJ: Erlbaum.
- Carroll, J.B. (1985). The nature of the reading process. In Singer, H. and Ruddell, R.B. (Eds.), *Theoretical models and processes of reading* (pp. 25-34). Newark, DE: IRA.
- Caverly, D.C., Mandeville, T.F., and Nicholson, S.A. (1995). PLAN: A study-reading strategy for informational text. *Journal of Adolescent and Adult Literacy*, 39, 3, 190-199.
- Collins, A., and Smith E.E. (1981). Teaching the process of reading comprehension, *Intelligence*, 1981.
- Cross, D.R., and Paris, S.G. (1987). Assessment of reading comprehension: Matching test purposes and test properties. *Educational Psychologist*, 22, 3&4, 313-332.
- Doctorow, M.J., Wittrock, M.C., and marks, C.B. (1978). Generative processes in reading comprehension. *Journal of Educational Psychology*, 70, 109-118.
- Duffy, G.G. (1986). The relationship between explicit verbal explanation during reading skill instruction and student awareness and achievement: A study of reading teacher effects. *Reading Research Quarterly*, 21, 237-252.
- Duffy, G.G., Roehler, L.R., and Mason, J. (1984). The reality and potential of comprehension instruction (pp. 3-9). In Duffy, G.G., Roehler, L.R., and Mason, J. (Eds.), *Comprehension instruction: Perspectives and suggestions*. New York: Longman.
- Durkin, D. (1979). What classroom observations reveal about reading comprehension instruction. *Reading Research Quarterly*, 14, 481-533.
- Fry, E. (1977). Fry's readability graph: Clarifications, validity, and extensions to level 17. *Journal of Reading*, 11, 513-516.
- Gambrell, L.B., and Heathington, B.S. (1981). Adult disabled readers' metacognitive awareness about reading tasks and strategies. *Journal of Reading Behavior*, 13, 215-222.
- Garner, R. (1987). *Metacognition and reading comprehension*. Norwood, NJ: Ablex.

- Garner, R. (1992). Metacognition and self-monitoring strategies, 236-252. S.J. Samuels and A.E. Farstrup (Eds.), *What research has to say about reading instruction*. Newark, DE: International Reading Association.
- Glazer, S.M. (1974). Is sentence length a valid measure of difficulty in readability formulas? *The Reading Teacher*, 27, 5, 464-468.
- Goetz, J.P., and LeCompte, M.D. (1984). *Ethnography and qualitative design in educational research*. Orlando, FL: Academic Press.
- Goodman, K. (1985). Unity in reading. In H. Singer and R.B. Ruddell (Eds.), *Theoretical models and the processes of reading*, 813-840. Newark, DE: IRA.
- Guba, E.G., and Lincoln, Y.S. (1981). *Effective evaluation*. San Francisco: Josey-Bass.
- Harris, A.J., and Sipay, E.R. (1990). *How to increase reading ability: A guide to developmental and remedial methods*. Longman: New York.
- Harrison, C.J. (1991). Metacognition and motivation. *Reading Improvement*, 28, 1, 35-39.
- Johnston, P.H. (1983). *Reading comprehension assessment: A cognitive basis*. Newark, DE: International Reading Association.
- Just, M.A., and Carpenter, P.A. (1980). A theory of reading: From eye fixations to comprehension. *Psychological Review*, 87, 329-354.
- Just, M.A., and Carpenter, P.A. (1987). *The psychology of reading and language comprehension*. Boston, MA: Allyn and Bacon.
- Klare, G.R. (1984). Readability. In P.D. Pearson (Ed.), *Handbook of reading research* (pp. 681-744). New York: Longman.
- Lees-Haley, P.R. (1980). *The questionnaire design handbook*. Huntsville, AL: Paul R. Lees-Haley Associates.
- Lincoln, Y.S., and Guba, E.G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.
- Linden, M. and Wittrock, M.C. (1981). The teaching of reading comprehension according to a model of generative learning. *Reading Research Quarterly*, 17, 44-57.
- Loranger, A.L. (1994). The study strategies of successful and unsuccessful high school students. *Journal of Reading Behavior*, 26, 4, 347-360.

- Mason, J. M. (1984). A question about reading comprehension instruction. In Duffy, G.G, Roehler, L.R., and Mason, J. (Eds.), *Comprehension instruction: Perspectives and suggestions* (pp. 39-56). New York: Longman. (a)
- Mason, J.M. (1984). A schema-theoretic view of the reading process as a basis for comprehension instruction. In G.G. Duffy, L.R. Roehler, and J. M. Mason (Eds.), *Comprehension instruction: Perspectives and suggestions* (pp. 26-38). New York: Longman. (b)
- Mason, J., Roehler, L.R., and Duffy, G.G. (1984). A practitioner's model of comprehension instruction. In G.G. Duffy, L.R. Roehler, and J. M. Mason (Eds.), *Comprehension instruction: Perspectives and suggestions* (pp. 299-314). New York: Longman.
- Maxwell, M. (1979). *Improving Student Learning Skills*. San Francisco: Josey-Bass.
- McNeil, J.D. (1984). *Reading comprehension: new directions for classroom practice*. Glenview, IL: Scott, Foresman.
- Merriam, S.B. (1988). *Case study research in education*. San Francisco: Jossey-Bass.
- Meyer, B.J.F. and Rice, G.E. (1984). The structure of the text. In P.D. Pearson (Ed.), *Handbook of reading research* (pp. 319-351). New York: Longman.
- Meyers, M. and Paris, S.G. (1978). Children's metacognitive knowledge about reading. *Journal of Educational Psychology*, 70, 680-690.
- Miller, P. W. , and Erickson, H.E. (1990). *How to write tests for students*. Washington, D.C.: National Education Association.
- Moore, D.W., Readance, J. E., And Rickelman, R.J. (1989). *Prereading activities for content area reading and learning* (2nd ed.). Newark, DE: International Reading Association.
- Muth, K.D. (1987). Structure strategies for comprehending expository text. *Reading Research and Instruction*, 27, 66-72.
- Neilson, A.R., Rennie, B., and Connell, B.J. (1982). Allocation of instructional time to reading comprehension and study skills in intermediate grade social studies classrooms. In J.A. Niles and L.A. Harris (Eds.), *New inquiries in reading research and instruction* (pp. 81-84). Rochester, NY: National Reading Conference.

- Nist, S.L., and Kirby, K. (1986). Teaching comprehension and study strategies through modeling and thinking aloud. *Reading Research and Instruction*, 24, 254-264.
- Nist, S.L., and Mealey, D.L. (1991). Teacher-directed comprehension strategies. In R.F. Flippo and D.C. Caverly (Eds.), *Teaching reading and study strategies at the college level* (pp. 42-85). Newark, DE: International Reading Association.
- Olson, M.W. (1985). Text type and reader ability: The effect on paraphrase and text-based inference questions. *Journal of Reading Behavior*, 17, 3, 129-139.
- Palincsar, A.S., and Ransom, K. (1988). From the mystery spot to the thoughtful spot: The instruction of metacognitive strategies. *The Reading Teacher*, 41, 784-789.
- Pearson, P.D., and Fielding, L. (1991). Comprehension instruction. In R. Barr, M. Kamil, P. Mosenthal, and P. D. Pearson (Eds.), *Handbook of reading research*. New York: Longman.
- Pearson, P.D., Roehler, L.R., Dole, J.A., and Duffy, G.G. (1993). Developing expertise in reading comprehension. 145-199. In R. S.J. Samuels and A.E. Farstrup (Eds.), *What research has to say about reading instruction*. Newark, DE: International Reading Association.
- Pogrow, S. (1993). The forgotten question in the Chapter 1 debate: Why are the students having so much trouble learning? *Education Week*, 26, 36.
- Renner, K. E. (1993). On race and gender in higher education: Illusions of change. *Educational Record*. 74, 44-48.
- Robinson, F.P. (1970). *Effective reading* (4th ed.). New York: Harper and Row.
- Rumelhart, D.E. (1985). Toward an interactive model of reading. In H. Singer and R.B. Ruddell (Eds.), *Theoretical models and processes of reading*, 722-750. Newark, DE: IRA.
- Schommer, M., and Surber, J.R. (1986). Comprehension-monitoring failure in skilled adult readers. *Journal of Educational Psychology*, 78, 5, 353-357.
- Schraw, G., Dunkle, M. E., and Bendixen, L.D. (1995). Does a general monitoring skill exist? *Journal of Educational Psychology*, 87, 3, 433-444.
- Simonsen, S., and Singer, H. (1992). Improving reading instruction in the content areas, 200-219. In S.J. Samuels and A.E. Farstrup (Eds.), *What research has to say about reading instruction*. Newark, DE: International Reading Association.

- Simpson, M.L. (1995). Talk throughs: A strategy for encouraging active learning across the content areas. *Journal of Reading*, 38, 4, 296-304.
- Sinagara, M. D., and Lopez, L (1989). ARC: An alternative teaching strategy for developmental reading. ED310816.
- Stahl, N.A., King, J.R., and Eilers, U. (1996). Post secondary reading strategies rediscovered. *Journal of Adolescent and Adult Literacy*, 39, 5, 368-379.
- Taylor, B. (1992). Text structure, comprehension, and recall, 220-235. In S.J. Samuels and A.E. Farstrup (Eds.), *What research has to say about reading instruction*. Newark, DE: International Reading Association.
- Taylor, S.J., and Bogdan, R. (1984) *Introduction to qualitative research methods*. New York: Wiley.
- Tierney, R.J.(1982). Essential considerations for the developing basic reading comprehension skills. *School Psychology Review*, 11 (3), 299-305.
- Winne, P.H. (1995). Self-regulation is ubiquitous but its forms vary with knowledge. *Educational Psychologist*, 30, 4, 223-228.
- Wittrock, M.C. (1974). Learning as a generative process. *Educational Psychologist*, 11, 87-95.
- Wittrock, M.C. (1981). Reading comprehension. In F.J. Pirozzolo and M.C. Wittrock (Eds.), *Neuropsychological and cognitive processes in reading* (pp. 229-259). New York: Academic Press.
- Wittrock, M.C. (1991). Generative teaching of comprehension. *The Elementary School Journal*, 92, 2, 169-184.(a)
- Wittrock, M.C. (1991). Testing and recent research in cognition. In M.C. Wittrock and E. L. Baker (Eds.), *Testing and cognition* (pp. 1-16). Englewood Cliffs, NJ: Prentice Hall.(b)
- Wittrock, M.C., and Alesandrini, K. (1990). Generation of summaries and analogies and analytic and holistic abilities. *American Educational Research Journal*, 27, 3, 489-502.
- Wittrock, M.C., Marks, C.B., and Doctorow, M.J. (1975). Reading as a generative process. *Journal of Educational Psychology*, 67, 484-489.

- Wittrock, M.C., and Kelly, R. (1984). *Teaching reading comprehension to adults in basic skills courses*. Final Report, University of California, Los Angeles, Graduate School of Education (Vols. 1-3).
- Wixson, K.K., and Peters, C.W. (1987). Comprehension assessment: Implementing an interactive view of reading. *Educational Psychologist*, 22, 333-356.
- Wood, K. D. (1985). Free association assessment: An alternative to traditional testing. *Journal of Reading*, 29, 106-111.
- Wood, K. D. (1988). Guiding students through informational text. *The Reading Teacher*, 41, 912-920.
- Zimmerman, B. J. (1989). Models of self-regulated learning and academic achievement. In B.J. Zimmerman and D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theory, research and practice* (pp. 1-25). New York: Springer-Verlag.
- Zimmerman, B.J. (1995). Self-regulation involves more than metacognition: A social cognitive perspective. *Educational Psychologist*, 30, 4, 217-221.

APPENDIXES

APPENDIX A

Reading Comprehension

For the next 40 minutes you will be asked to read 5 passages taken from college freshman level textbooks. Please read carefully and respond to the five questions that follow each passage. You may look back over the material you have read. Remember to pace yourself so you will have enough time to do your best on each task.

Write the letter of the answer that best completes the question on your answer sheet. Do not write on the exam. You are free to write on the answer sheet or you may ask for a scrap sheet of paper.

This test is anonymous and will not affect your grade. When you finish, return the test to your instructor.

GETTING READY TO WRITE

You may have noticed a significant feature about the seven-step writing process outlined at the end of Chapter 4: Four steps precede the first drafting stage. Getting ready to write a first draft is an important part of writing. Without proper preparation, you will waste time and energy and may well end up without a document that you are proud of.

Before even beginning the initial step of the writing process, try to rid yourself of any fears, doubts, and preconceptions you may have about writing. One reason some people panic when faced with a blank page is that they have already convinced themselves that they "can't write." If you believe you cannot write, then you will undoubtedly prove yourself correct. So have faith in your own abilities!

Do not let the following myths prevent you from becoming a good business writer.

MYTH 1: WRITERS ARE BORN, NOT MADE

False. Some people have an interest in language and writing, but they do not write well "naturally" any more than they play the guitar or program computers "naturally." Being good at something takes work.

MYTH 2: OTHER PEOPLE WRITE MORE QUICKLY THAN I DO

True, some people do write more quickly, but chances are they have already gone through the first steps of the writing process: They have done some initial brainstorming and planning. Good writing takes time and thought. Do not be impressed by people who wrote their reports in two hours; be impressed by the people who have left themselves enough time to do a good job.

MYTH 3: WRITING REQUIRES INSPIRATION

False. The adage about genius applies to writing as well: It's 10 percent inspiration and 90 percent perspiration. Good writing might even be 95 percent perspiration.

MYTH 4: OTHER PEOPLE DON'T GET AS UPSET

ABOUT WRITING AS I DO

False, again. Facing a blank page or empty computer screen frightens most people. Famous writers may even be more scared than you are because their whole careers and

reputations rest on their writing. Athletes are often frightened to compete; stage actors are terrified before the curtain goes up. To be successful, these people learn to control their fears. You can, too, if you do not let your fears control you.

From Cullinan, M. (1993). *Business communication: Principles and processes*, pp. 96-97. Harcourt Brace Jovanovich: Fort Worth.

QUESTIONS

- Most of the advice given here should be used
 - before the writing process.
 - during the writing process.
 - when manuals are not available.
 - with caution.
- The author's intended audience is
 - novel writers.
 - college teachers.
 - business investors.
 - business writers.
- The percentages given in "Myth 3" demonstrate that
 - writing is harder than it seems.
 - writing is more work than creativity.
 - writing requires more creativity than it may seem.
 - inspiration is necessary for good writing.
- Examples of athletes and actors in the last paragraph show
 - that many of them aren't good at what they do either.
 - that writers aren't alone in their fear of performance.
 - that writers have it better than actors and athletes.
 - that writers have a lot to be concerned about, too.
- As a reader, you are expected to recognize
 - how difficult business writing can be.
 - how business writing can be made easier.
 - the importance of "natural" writing skill.
 - the importance of steps taken before writing a first draft.

STAGES OF DYING

Dr. Kubler-Ross, author of *On Death and Dying* as well as many other books about the dying process, describes the stages that a person experiences on learning of his or her own impending death.

She identifies the first stage as *denial* ("It can't be happening to me"). The denial may be partial or complete. Denial is usually a temporary defense that a person uses as a buffer until able to mobilize his or her defenses to face the inevitability of death.

The second stage is often *anger* ("Why is this happening to me?"). This emotion may be directed toward specific persons or projected into the environment at random. Dr. Kubler-Ross reflects on the origin of this rage: "The problem here is that few people place themselves in the patient's position and wonder where this anger might originate. Maybe we, too, would be angry if all our life activities were interrupted so prematurely."

The third stage is *bargaining* ("If you'll only let me live, God, I will..."). The person attempts to strike a bargain for more time to live or more time to be without pain in return for doing something for God. The person often turns or returns to religion during this stage.

Depression is the fourth stage ("Oh, God. I'm going to die, and I see no way out"). Usually when people have completed the process of denial, anger, and bargaining, they move into depression. Sometimes called reactive depression, this stage occurs when the person reacts against the impending loss of life and grieves for himself.

The final stage of dying is that of acceptance ("Yes, I am going to die and I am ready to leave"). This occurs when the person has worked through the previous stages and accepts his or her own inevitable death. With full acceptance of impending death comes readiness for it; however, even with acceptance, hope is still present and needs to be supported realistically.

Many factors influence how individuals accept death, from their personal values and beliefs about life to past experiences in coping with traumatic situations. Regardless of how prepared we think we are, we will not know our coping resources until the day comes when we must face impending death.

The Glaser-Strauss research team offered another conceptualization of the dying process in their now-classic works, *Awareness of Dying* and *Time for Dying*. The first research team to actually study the distinctive characteristics of terminal illness, Glaser and Strauss used the term "dying trajectories" to refer to perceptions about the course of dying. These trajectories may be either lingering or crisis oriented. The expectations of care providers (family or medical staff) about a patient's dying affect the level of care that patient receives. These expectations also affect the patient's own beliefs about his or her dying. For example, if care providers view the individual as being in a lingering death trajectory, that person may give up control over his care; and when that individual does die, the caregivers see that event as appropriate.

We need more sensitive research, more hospice-type centers, more publications on the dying process. The more aware our society becomes of the rights and needs of the dying, the more it can support and care for them. Many hospitals have a standard joke that once a patient is "terminal," the doctor does not come around. In fact, this unfair allegation crystallizes the difficulty most health care workers have in relating to the dying patient. Somehow, this sensitive and supportive level of care is often missing in the hospital setting. The sophisticated technology is present, but the touching is missing. Where we do see sensitivity and nonjudgemental caring is in hospice centers and at home.

From Smith, S.F., and Smith, C.M. (1990). *Personal Health Choices*, pp. 486-487. James and Bartlett: Boston.

QUESTIONS

6. The term "mobilize" in the second paragraph means to
 - a. travel
 - b. ward off
 - c. put into action
 - d. be determined
7. According to the passage, individuals differ in how they accept death because
 - a. personal values and beliefs about life

- vary.
- b. different people die for different reasons.
 - c. patients who are considered to be "terminal" are often ignored by doctors.
 - d. some try not to think about their own inevitable death.
8. The author believes which of the following is true?
- a. The dying need to be treated by doctors.
 - b. More professional and public knowledge and sensitivity is needed to best help the dying.
 - c. Kubler-Ross' stages are not adequate..
 - d. Patients and medical staff should try not to be so negative.
9. The purpose of this passage is to
- a. identify the 5 stages experienced upon learning of one's own impending death.
 - b. describe two popular conceptualizations of the dying process.
 - c. show how a terminal diagnosis affects the level of care a patient receives.
 - d. describe the popular success of two authors' books.
10. The author seems to feel that
- a. doctors do not take dying patients seriously.
 - b. doctors stop visiting a patient once he is "terminal."
 - c. hospitals are not able to take care of dying patients.
 - d. hospitals are the least caring environment for the terminally ill.

CLASSICAL CHAMBER MUSIC

Classical **chamber music** is designed for the intimate setting of a room (chamber) in a home or palace, rather than for a public concert hall. It is performed by a small group of two to nine musicians, with one player to a part. Chamber music is lighter in sound than classical orchestral music. During the classical period, it was fashionable for an aristocrat or a member of the well-to-do middle classes to play chamber music with friends and to hire professional musicians to entertain guests after dinner.

Chamber music is subtle and intimate, intended to please the performer as much as the listener. A chamber music group is a team. Each member is essential, and each may have an important share of the thematic material. Therefore much give-and-take is called for among the instruments. Classical chamber music does not need a conductor; instead, each musician must be sensitive to what goes on and coordinate dynamics and phrasing with the other musicians. In this respect, a chamber ensemble is like a small jazz group.

The most important form in classical chamber music is the string quartet, written for two violins, a viola, and a cello. Haydn, Mozart, and Beethoven wrote some of their most important music in this form. The string quartet can be compared to a conversation among four lively, sensitive, and intelligent people. And it's not surprising that the string quartet evolved when conversation was cultivated as a fine art.

Like the symphony, the string quartet usually consists of four movements: (1) fast, (2) slow, (3) minuet or scherzo, (4) fast. (Sometimes the second movement is a minuet or a scherzo and the slow movement is the third.)

Other popular forms of classical chamber music are the sonata for violin and piano, the piano trio (violin, cello, and piano), and the string quintet (two violins, two violas, and cello).

Today, as in the eighteenth century, much chamber music is performed by amateurs. By consulting the directory *Amateur Chamber Music Players*, one can find partners for chamber music almost anywhere in the United States.

From Kamien, R. (1988). *Music: An appreciation*, pp. 232-233. McGraw-Hill: New York.

QUESTIONS

11. According to the passage, a group playing chamber music is like a jazz group because
 - a. its members are as pleased as the listeners.
 - b. it is a small group of performers.
 - c. its members are concerned with how they sound.
 - d. its members listen for and respond to what the others are doing.
12. Chamber music is most likely to be heard in
 - a. concert hall.
 - b. an auditorium.
 - c. a small room.
 - d. public.
13. The author's use of the word "most important" in paragraph 3 demonstrates
 - a. his opinion about the topic.
 - b. his knowledge of the topic.
 - c. a commonly accepted fact.
 - d. objective proof.
14. By amateur, the author means that _____ perform most chamber music.
 - a. nonprofessional people.
 - b. unskilled people.
 - c. well-paid people.
 - d. professional people.
15. Chamber music
 - a. is common among royalty.
 - b. is played in several forms, using different instruments.
 - c. is unlike jazz.
 - d. was written only by Hayden, Mozart, and Beethoven.

THE INTERNATIONAL BUSINESS SCENE

No man is an island is a phrase that could apply to the business community. Businesses are all interrelated; they do business with one another and affect each other's operations.

Why do we need to examine the international scene? The world is like an international department store. Many products whose brand names are household words are produced in other countries. Norelco razors, Volvo automobiles, and Heineken beer are produced abroad and marketed in the United States.

On the other hand, products produced in the United States are found in the marketing channels of other countries. Gillette razor blades, Jeep four-wheel-drive vehicles, International Business Machines (IBM) computers, and Chris Craft yachts are produced in America and are sold worldwide.

Multinational business is not an element of the future. It is here now. The clock in the international arena is ticking faster and faster. Communication and transportation have made the world smaller. Political and economic decisions have opened up new business opportunities, new alliances, a new set of problems, and new potential solutions.

In the last five years, the international scene has exploded. The Eastern European nations of East Germany, Czechoslovakia, Hungary, Poland, Bulgaria, Yugoslavia, Rumania, and Albania - with their evolving political and economic systems - have become the new frontier. Eastern Europe joins Western Europe, North America, and the Pacific Rim countries in the world marketplace. The changes in the Soviet Union initiated by *perestroika* have sent western European and American capitalists flocking to create business partnerships. The changes in the European Economic Community making western Europe one common market have changed the strategies of business all over the world.

All over the world, businesses are breaking out of their national borders. McDonald's not only launched the biggest McDonald's restaurant in the world - it can serve 30,000 people a day - in Moscow, it is now serving hot dogs under the golden arches in Japan. California's In-and-Out Burger beat all

competitors to China - the Tobu Department Stores Company of Tokyo joined forces with Saks Fifth Avenue management to buy the forty-six store Saks Fifth Avenue chain from BAT Industries, its London-based parent.

The world is becoming smaller and smaller as the borders of international trade expand.

We will examine the importance of international business and the concepts involved in conducting it.

From Straub, J.T. and Attner, R.E. (1991). *Introduction to Business*, 4th ed., p. 546. PWS-Kent Publishing Co.: Boston.

QUESTIONS

16. "No man is an island" is a phrase that applies well to the business community because

- a. most businesses are owned by men.
- b. to open a business, a man needs the help of others.
- c. businesses work with and affect other businesses.
- d. once in business, you are on your own.

17. It is important to examine the international scene because

- a. many of the most popular products are made in foreign countries.
- b. products and property are made and distributed all over the world.
- c. communist countries now allow hamburger restaurants to open in them.
- d. Eastern European countries have become the new frontier.

18. According to the passage, the main reason the international scene has exploded in the last five years is

- a. Eastern European nations have strong political systems.
- b. because there were so many Eastern European nations.
- c. hamburger restaurants and department stores have suddenly become very popular.
- d. many Eastern European nations' political and economic systems have changed.

19. Opening In-and-Out Burger in China is an example of

- a. the world's love of American hamburgers.
- b. supply and demand.
- c. a better understanding between communist and capitalist investors.
- d. businesses opening outside of their national borders.

20. The author included this passage in an introductory business textbook because

- a. students are unaware that some products are made outside of the U.S.
- b. students should appreciate how trade expansion is making the world smaller.
- c. companies like Gillette find it hard to sell their products elsewhere.
- d. most students want to create products to sell in the international scene.

PERPETUAL AND POTENTIALLY RENEWABLE RESOURCES

A **perpetual resource**, such as solar energy, is virtually inexhaustible on a human time scale. Not wasting energy and living off virtually inexhaustible solar energy in the form of heat, wind, flowing water, and renewable wood and other forms of biomass (tissue from living organisms that can be burned or broken down to provide energy) is a sustainable lifestyle. Depending on indirect solar energy stored in essentially one-time deposits of fossil fuels, or uranium used to fuel nuclear power plants, is sooner or later an unsustainable lifestyle.

A **potentially renewable resource** is one that theoretically can last indefinitely without reducing the available supply because it is replaced more rapidly through natural processes that are nonrenewable resources. Examples are trees in forests, grasses in grasslands, wild animals, fresh surface water in lakes and streams, most ground water, fresh air, and fertile soil. The planet's most valuable resource is its diversity of potentially renewable forms of life.

Classifying something as a potentially renewable resource does not mean that it can't be depleted and that it will not always be renewable. The highest rate at which a potentially renewable resource can be used without reducing its available supply throughout the world, or in a particular area, is called the **sustainable yield**. If this natural replacement rate is exceeded, the available supply of a potentially renewable resource begins to shrink - a process known as **environmental degradation**.

Several types of environmental degradation can change potentially renewable resources into nonrenewable or unusable resources.

- * Converting productive land with water, concrete, asphalt, or buildings to such an extent that crop growth declines and places for wildlife to live (habitats) are lost.
- * Cultivating land without proper soil management, so that crop growth is reduced by soil erosion and depletion of plant nutrients.
- * Irrigating crop land without sufficient drainage, so that excessive buildup of water

(waterlogging) or salts (salinization) in the soil decreases crop growth.

- * Removing water from underground sources (aquifers) and from surface waters (streams and lakes) faster than it is replaced by natural processes. Water scarcity is emerging on every continent.
- * Removing trees from large areas (deforestation) without adequate replanting, so that wildlife habitats are destroyed and long-term timber growth is decreased. Every minute, a piece of tropical forest the size of 20 city blocks disappears and another area this size is degraded.
- * Depletion of grass by livestock (overgrazing), so that soil is eroded to the extent that productive grasslands are converted into unproductive land and deserts (desertification).
- * Eliminating or severely reducing the populations of various wild species through destruction of habitat, commercial hunting, pest control, and pollution.
- * Polluting renewable air, water, and soil so that they are unusable for various purposes.

From Reynolds, M. (1995). *Reading for understanding*, p.442. Wadsworth Publishing: Belmont.

QUESTIONS

21. Nuclear power is an example of
 - a. a sustainable resource.
 - b. indirect solar energy.
 - c. one-time deposits.
 - d. man's ingenuity
22. Trees and streams are considered to be renewable resources because
 - a. they are replaced rapidly through natural processes.
 - b. they can be found all over the world.
 - c. they make it possible for animals to survive.
 - d. rain, common to our ecosystem, renews both easily.
23. One might say that rainforests suffer from environmental degradation because
 - a. trees are not allowed to sustain their natural replacement rate.

- b. trees are often used for paper and housing.
 - c. rain, a renewable resource, causes erosion around the roots.
 - d. they have no sustainable yield.
24. Planting a crop of corn is unlikely to cause environmental degradation if
- a. soil is protected from erosion and nutrient depletion.
 - b. corn is the only sustainable crop for the land used.
 - c. like forests and grass, corn is considered to be a renewable resource.
 - d. farmers are careful to not plant too much.
25. The author's attitude toward this subject is
- a. not biased.
 - b. concerned.
 - c. excited.
 - d. skeptical.

Reading Comprehension

For the next 40 minutes you will be asked to read 5 passages taken from college freshman level textbooks. Please read carefully and respond to the five questions that follow each passage. You may look back over the material you have read. Remember to pace yourself so you will have enough time to do your best on each task.

Write the letter of the answer that best completes the question on your answer sheet. Do not write on the exam. You are free to write on the answer sheet or you may ask for a scrap sheet of paper.

This test is anonymous and will not affect your grade. When you finish, return the test to your instructor.

RECORDED AND LIVE PERFORMANCE

Recorded performance is a sensational innovation of our time. Our homes resound with medieval music, rock, Beethoven, and Indian ragas. The living room is a new kind of concert hall where we can hear and repeat what we want. Performances heard on a record may never even have existed "live," played through from beginning to end. Instead, they are often made up of spliced tape from several performances. (It's understandable that performers who have smudged some notes would like them cleaned up by the splicing process. However, too much cleaning of a tape results in a loss of natural vitality, and the long interpretive line can be destroyed.)

Through **dubbing**, records have made available new listening experiences not possible in live performance. Beeps, clangs, whistles, never-ending gongs, and other effects can be added to music at a composer's electronic whim. Echo chambers and other equipment have given a new dimension to tone.

It's only in the last 200 years or so that concert-hall listening has developed. Before that, music was heard in church or palace, street or home. Much music was intended for amateurs to enjoy around their fireplaces. In church, at dances, or on ceremonial occasions, the listener often was also a performer.

In a live performance, artists put themselves on the line; training and magnetism must overcome technical difficulties to involve the listeners' emotions. What is performed, how it sounds, how the artist feels about it that evening - all can never be repeated; they exist for a fleeting moment. An audience responds to the excitement of such a moment, and in its response, feelings are exchanged between stage and hall.

Despite the special electricity of a live performance, there are those who object to coughs and sneezes, the price of tickets, and the fact that seats don't recline in a concert hall. They prefer the living room, where they can choose in comfort from a staggering variety of music and performers on records. But in the living room, recorded music can become background sound. Carried to extremes, this can lessen the ability to concentrate. Total

satisfaction from music requires that we focus attention as we would at a live performance.

Although records have wooed some people away from concert halls, it's true that they have helped to build audiences for live performances. Enthusiasm for a record has filled innumerable seats in concert halls. So even though it's an individual matter, most alert listeners will try to strike a happy balance between the voltages offered by the concert hall and by the wall socket.

From Kamien, R. (1988). *Music: An appreciation*, p. 85. McGraw-Hill: New York.

QUESTIONS

1. By "cleaning of a tape" the author is referring to
 - a. improving the quality of the performance by combining several recordings.
 - b. using a cleaning tape to remove dust and other particles from playing equipment.
 - c. an electronic system that removes minute flaws on the tape itself.
 - d. splicing the interpretive line.
2. Before the 1800's much music was listened to
 - a. by amateurs.
 - b. around fireplaces.
 - c. for the aristocracy.
 - d. in churches and palaces.
3. The author wrote this selection to
 - a. share the history of music performance.
 - b. judge the usefulness of home stereo.
 - c. show how live performance is the best way to enjoy music.
 - d. contrast recorded and live music.
4. Playing recorded music at home can lessen the ability to concentrate because
 - a. satisfaction is harder to reach.
 - b. a variety of music and performers can be chosen from.
 - c. the music becomes background sound.
 - d. most people are unable to focus their attention.
5. In the fourth paragraph, the author uses "magnetism" to refer to
 - a. attraction between performer and

- audience.
- b. the magnetic force that exists in the electronic equipment.
- c. the musical know-how of the performer.
- d. the performer's anticipation of technical difficulties.

WHY WOMEN AREN'T GETTING TO THE TOP Susan Fraker

Ten years have passed since the U.S. corporations began hiring more than token numbers of women for jobs at the bottom rung of the management ladder. A decade into their careers, how far up have these women climbed? The answer: not as far as their male counterparts. Despite impressive progress at the entry level and in middle management, women are having trouble breaking into senior management. "There is an invisible ceiling for women at that level," says Janet Jones-Parker, executive director of the Association of Executive Search Consultants, Inc. "After eight or ten years, they hit a barrier."

The trouble begins at about the \$75,000 to \$100,000 salary level, and seems to get worse the higher one looks. Only one company on *Fortune's* list of 500 largest U.S. industrial corporations has a woman chief executive. That woman, Katharine Graham of the Washington Post Co. (No. 342), readily admits she got the job because her family owns a controlling share of the corporation.

More surprising, given that women have been on the ladder for ten years, is that none currently seems to have a shot at the top rung. Executive recruiters, asked to identify women who might become presidents or chief executives of *Fortune* 500 companies, draw a blank. Even companies that have women in senior management privately concede that these women aren't going to occupy the chairman's office.

We have only four of the 154 spots this year at the Harvard Business School's Advanced Management Program - a prestigious 13-week conclave to which companies send executives they are grooming for the corridors of power. The numbers aren't

much better at comparable programs at Stanford and at Dartmouth's Tuck School. But perhaps the most telling admission of trouble comes from men at the top. "The women aren't making it," confessed the chief executive of a *Fortune* 500 company to a consultant. "Can you help us find out why?"

All explanations are controversial to one faction or another in this highly charged debate. At one extreme, many women - and some men - maintain that women are the victims of blatant sexism. At the other extreme, many men - and a few women - believe women are unsuitable for the highest managerial jobs; they lack the necessary assertiveness, they don't know how to get along in this rarefied world, or they have children and lose interest in - time for - their careers. Somewhere in between is a surprisingly large group of men and women who see "discrimination" as the major problem, but who often can't define precisely what they mean by the term.

The discrimination they talk about is not the simple-minded sexism of dirty jokes and references to "girls." It is not born of hatred, or indeed of any ill will that the bearer may be conscious of. What they call discrimination consists simply of treating women differently than men. The notion dumbfounds some male managers. You mean to say, they ask, that managerial women don't want to be treated differently from men in any respect, and that by acting otherwise - as I was raised to think only decent and gentlemanly - I'm somehow prejudicing their chances for success? Yes, the women respond.

"Men I talk to would like to see more women in senior management," says Ann Carol Brown, a consultant to several *Fortune* 500 companies. "But they don't recognize the subtle barriers that stand in the way." Brown thinks the biggest hurdle is a matter of comfort, not competence. "At senior management levels, competence is assumed," she says. "What you're looking for is someone who fits, someone who gets along, someone you trust. Now that's subtle stuff. How does a group of men feel that a woman is going to fit in? I think it's very hard."

From Comley, N. R., et. al. (1994). *Fields of writing: Readings across the disciplines*, pp. 464-465. St. Martin's Press: New York.

QUESTIONS

6. The author's purpose is to
 - a. show that women aren't getting upper management jobs.
 - b. discuss 10 years of hiring women in token numbers for lower management jobs.
 - c. show how men are trying to keep women out of management.
 - d. discuss the reasons for the lack of women in upper levels of management.
7. Examples of blatant sexism in this passage could be
 - a. not sending women to business schools.
 - b. dirty jokes and calling women "girls."
 - c. women are not fit for the highest managerial jobs.
 - d. women do not fit in.
8. Women can't "get to the top"
 - a. only in *Fortune* 500 companies.
 - b. because of *Fortune* 500 companies.
 - c. in salaried positions above \$75,000.
 - d. because they have children to care for.
9. That women are not being considered for executive positions is demonstrated in the fact that
 - a. few women are executives.
 - b. few women fill available spots at respected business school programs.
 - c. those women who are chief executives have influential families.
 - d. none make over \$75,000.
10. Carol Brown's opinion that the biggest problem is "comfort, not competence" means
 - a. it's not what women can do, but how well they fit in.
 - b. men just don't feel comfortable around women with power.
 - c. women aren't sure if they want to be executives.
 - d. it's not how well women work but how they feel about it.

THE LAWS OF THERMODYNAMICS

The laws of thermodynamics deal with "isolated systems," which are any parts of the universe that cannot exchange either matter or energy with any other parts. The universe as a whole is the largest isolated system. No small part of the universe is truly isolated from all possible exchange with every other part, but the concept of an isolated system is a useful one in thinking about energy flow.

The First Law of Thermodynamics

The first law is often called the law of conservation of energy. **The First Law of Thermodynamics states that within any isolated system, energy can be neither created nor destroyed, although it can be changed in form (e.g., from chemical energy to heat energy).**

In other words, within an isolated system *the total quantity of energy remains constant*. To use a familiar example, let's see how the first law applies to driving your car. To a first approximation, we can consider that your car (with a full tank of gas), the road, and the surrounding air constitute an isolated system. When you drive your car, you convert the chemical energy of gasoline into kinetic energy of movement and heat energy. The total amount of energy in the gasoline is the same as the total amount of this kinetic energy and heat.

An important rule of energy conversions is this: **Energy always flows "downhill," from places with a high concentration of energy to places with a low concentration of energy.** This is the principle behind engines. As you may know, temperature is a measure of the speed of movement of molecules. The burning gasoline in your car's engine consists of molecules moving at extremely high speeds: a high concentration of energy. The cooler air outside the engine consists of molecules moving at much lower speeds: a low concentration of energy. The molecules in the engine hit the piston harder than do the air molecules outside the engine, so the piston moves downward, driving the gears that move the car. Work is done. When the engine is turned off, it cools down. The molecules on both sides of the piston move at the same speed, so the piston stays still. No work is done.

QUESTIONS

11. Information that is implied but not stated in this passage is
 - a. a definition of "isolated systems."
 - b. other uses of gasoline.
 - c. other laws of thermodynamics.
 - d. a definition of kinetic energy.
12. The transfer of chemical energy into kinetic and heat energy in a car engine
 - a. is an example of combustion.
 - b. shows that gasoline is an efficient fuel.
 - c. shows how the total amount of energy stays the same.
 - d. shows how energy is lost as heat.
13. An isolated system is just a "useful concept" because
 - a. the only true isolated system is the universe.
 - b. because isolated systems are difficult to identify.
 - c. because it is helpful in energy production.
 - d. it is relatively unstable.
14. Laws of thermodynamics are
 - a. rules made by scientists.
 - b. rules of nature.
 - c. laws concerning energy conservation.
 - d. laws about the workings of car engines.
15. When an engine is off it is cool because
 - a. molecules on both sides move at the same speed.
 - b. there are no chemicals in it.
 - c. molecules inside are moving slowly.
 - d. molecules outside are moving slowly.

POPULATION GROWTH

Studies of ecosystems undisturbed by human beings show that many populations tend to remain relatively stable over time. Yet we are vividly aware from the human example that populations can readily increase. Let's first examine how and why populations grow, then look at the factors that normally control this growth.

Three factors determine whether and how much the size of a population changes: births, deaths, and migration. Organisms join a population through birth or **immigration** (migration in) and leave it through death or **emigration** (migration out). A population remains stable if, on the average, as many individuals leave as join. Population growth occurs when the number of births plus immigrants exceeds the number of deaths plus emigrants. Populations decline when the reverse occurs. A simple equation for the change in population size is:
$$(\text{births} - \text{deaths}) + (\text{immigrants} - \text{emigrants}) = \text{population change}$$

In many natural populations, organisms moving in and out contribute relatively little to population change, leaving birth and death rates as the primary factors influencing population growth.

The ultimate size of any population (discounting migration) is the result of a balance between two major opposing factors. The first is **biotic potential**, or the maximum rate at which the population could increase, assuming ideal conditions allowing a maximum birth rate and minimum death rate. Opposing this potential for growth are limits set by the living and nonliving environment. These limits include the availability of food and space, competition with other organisms, and interaction among species such as predation and parasitism. Collectively, these limits are called **environmental resistance**. Environmental resistance can both decrease the birth rate and increase the death rate. The **interaction between biotic potential and environmental resistance usually results in a balance between population size and available resources**. To understand how populations grow and how their size is regulated, we must

examine each of these forces in more detail.

From Audesirk, G. and Audesirk, T. (1993).
Biology: Life of Earth, p. 946. Macmillan: New York.

QUESTIONS

16. A balance of the size of a population and the resources available to it is usually due to
 - a. a decrease in birth rate and an increase in death rate.
 - b. migration.
 - c. a struggle against predation and parasitism.
 - d. harmony between maximum population growth and the environment.
17. The purpose of this passage is to discuss
 - a. undisturbed ecosystems.
 - b. human population growth.
 - c. reasons that population growth is normally stable.
 - d. reasons that human population growth has increased.
18. "Immigration" and "emigration" refer to
 - a. a member of a population transferring to or from a group.
 - b. members of a population.
 - c. births and deaths in a population.
 - d. a person becoming a citizen.
19. By mentioning the increase in human population, the author is indicating that
 - a. it is a good example of stability over time.
 - b. human population growth is influenced by other factors.
 - c. humans have somehow changed the factors that normally control growth.
 - d. it belongs in a different class of population growth.
20. What factor might influence all the others in the "simple" equation for change in population size?
 - a. Environmental resistance
 - b. Biotic potential
 - c. Organisms moving in and out of a population
 - d. Undisturbed ecosystems

THE LIMITATIONS OF SCIENCE

Science is only one way of exploring the world around us; history, religion, and philosophy are others. Science deals only with things that can be experienced directly or indirectly through the senses (sight and hearing, for example). By definition, science has nothing to say about the supernatural. As biologist George Gaylord Simpson noted, "This is not to say that science necessarily denies the existence of immaterial or supernatural relationships, but only that, whether or not they exist, they are not the business of science." By the same token, many religious leaders argue that religion should not censor science. A Vatican Council report put it this way: "research performed in a truly scientific manner can never be in contrast with faith because both profane and religious realities have their origin in the same God."

Although science does not deal with the supernatural or with the illogical, scientists themselves may be just as emotional, political, or illogical as anyone else, and this may affect their scientific efforts. Furthermore, their social environment strongly influences how scientists think and what projects they undertake. Scientists today do not study the physics of how to build pyramids to last for thousands of years, because we do not wish to build pyramids for the burial of our rulers.

Much public support goes to projects on "applied science," investigating problems of immediate concern such as cancer, alternative energy sources, or food production. However, there is still a great deal of basic, or "pure," research to be done to discover the principles underlying the behavior of objects and organisms in the world around us. Although such research may not benefit humankind immediately, it adds to our understanding of the world and will almost inevitably be put to use sooner or later. And even work that does not find an application may be as intellectually satisfying as painting a picture or writing a play. It is interesting that people may accept "art for art's sake" but often will not grant the same privileges to science, which must work for its keep.

The history of science is replete with scientific dogmas that turned out to be wrong, although for a time they were widely accepted. This is one reason why the cautious person will

not place too much faith or invest heavily in a new scientific discovery until it is fairly clear that the theory will stand the test of time.

Scientists often say that science is neither good nor bad; only the use of science, by scientists or by society, has moral consequences. From a purist's point of view, this is true. The discovery that the atom could be split was merely a scientific discovery with no moral implications. It was the decision to use this knowledge to build an atom bomb that produced the moral dilemma of whether or not it was ever right to use such a weapon.

From Barnwell, T., and McCraney, L. (1990). *Introduction to critical reading*, pp. 225-226. Holt, Rinehart, and Winston: Fort Worth.

years.

25. The author warns us to be careful before believing a new scientific discovery because
- a. many critics of science have been found to be wrong.
 - b. many experiments are unethically performed.
 - c. technology changes daily.
 - d. many scientific "laws" have been found to be wrong.

QUESTIONS

21. The author quotes a biologist and a Vatican Council report to show that
- a. clergymen are more superstitious than scientists.
 - b. religion and science conflict.
 - c. religion and science do not conflict.
 - d. religion should not accept scientific inquiry.
22. The term, "applied science," means
- a. its purpose is to solve present problems.
 - b. it can be applied to a variety of problems.
 - c. it is applicable to the understanding of nature.
 - d. it is used to treat cancer.
23. The author seems to think that
- a. scientists should study how to build pyramids.
 - b. scientists are too emotional, political, or illogical.
 - c. "pure" research is more important than "applied science."
 - d. "pure" research is wrongfully neglected.
24. The phrase "art for art's sake" refers to the idea that
- a. art is better than science.
 - b. an activity has value in itself, regardless of its perceived usefulness.
 - c. beauty is in the eye of the beholder.
 - d. most art goes up in value over a period of

Reading Comprehension

For the next 40 minutes you will be asked to read 5 passages taken from college freshman level textbooks. Please read carefully and respond to the five questions that follow each passage. You may look back over the material you have read. Remember to pace yourself so you will have enough time to do your best on each task.

Write the letter of the answer that best completes the question on your answer sheet. Do not write on the exam. You are free to write on the answer sheet or you may ask for a scrap sheet of paper.

This test is anonymous and will not affect your grade. When you finish, return the test to your instructor.

The Evolutionary Theory of Why We Sleep

Sleep may be a way of conserving energy. If we built a solar-powered robot to explore the planet Mars, we probably would program it to shut down almost all its activities at night in order to conserve fuel and in order to avoid walking into rocks that it could not see.

According to the **evolutionary theory of sleep**, evolution equipped us with a regular pattern of sleeping and waking for the same reason (Kleitman, 1963; Webb, 1979). The theory does not deny that sleep provides some important restorative functions. It merely says that evolution has programmed us to perform those functions at a time when activity would be inefficient and possibly dangerous.

Note, however, that sleep protects us only from the sort of trouble we might walk into; it does not protect us from trouble that comes looking for us! So we sleep well when we are in a familiar, safe place; but we sleep lightly, if at all, when we fear that burglars will break into the room or that bears will nose into the tent.

The evolutionary theory accounts well for the differences in sleep among species (Campbell & Tobler, 1984). Why do cats, for instance, sleep so much, whereas horses and sheep sleep so little? Surely cats do not need five times as much repair and restoration as horses do. But cats can afford to have long periods of inactivity because they spend little time eating and are unlikely to be attacked while they sleep. Horses and sheep must spend almost all their waking hours eating, because their diet is very low in calories. Moreover, they cannot afford to sleep too long or too soundly, because their survival depends on their ability to run away from attackers. (Woody Allen once said, "The lion and the calf shall lie down together, but the calf won't get much sleep.")

Which of the two theories of sleep is correct? Both are, to a large degree. Supporters of the repair and restoration theory concede that the timing and even amount of sleep depend on when the animal is least efficient at finding food and defending itself. Supporters of the evolutionary theory concede that during a time that evolution has set aside for an animal to conserve energy, the animal takes that opportunity to perform repair and restoration functions.

From Reynolds, M. C. (1995). *Reading for understanding*, pp. 184-185. Wadsworth: Belmont.

QUESTIONS

1. The evolutionary theory of sleep _____ the repair and restoration theory.
 - a. is similar to
 - b. contradicts
 - c. is the same as
 - d. completes
2. The evolutionary theory of sleep says
 - a. we sleep when activity would be dangerous.
 - b. cats sleep five times as much as horses do.
 - c. some species sleep only when they have plenty to eat.
 - d. most species cannot sleep in strange places.
3. The quote by Woody Allen reminds us that
 - a. many animals must sleep lightly for survival.
 - b. lions and calves are enemies.
 - c. lions can run faster than calves.
 - d. no one can be trusted.
4. Horses and sheep do not sleep too long or too soundly because
 - a. it is difficult to lay down.
 - b. their survival depends on their ability to run to a new location to eat.
 - c. they must always be ready to run from attackers.
 - d. their sensitive senses keep them awake.
5. According to the author
 - a. both theories are largely incomplete.
 - b. neither theory has much scientific support.
 - c. Woody Allen supports the evolutionary theory of sleep.
 - d. both theories are largely correct.

The Scholastic Aptitude Test

Although most people do not regard the **Scholastic Aptitude Test (SAT)** as an intelligence test, it serves the same function. It predicts performance in college. Administered to large groups of students at one time, the SAT has traditionally consisted of multiple-choice items divided into two sets, verbal and quantitative. Each set is scored on a scale of 200 to 800. The designers of the test intended that the mean or average score would be 500 on each scale. Now that a higher percentage of high-school students take the test, the mean score is actually about 450. As a college student, you may be familiar with the SAT or with the similar American College Test (ACT).

The SAT was designed to help colleges select among applicants for admission. The best predictor of college success is success in high school. But high-school grades by themselves are not entirely satisfactory. Some high schools set higher standards than others and may give lower grades for work that would receive higher grades elsewhere. Even within a given school, some students take more challenging courses than others do. One student's B average may indicate higher academic accomplishments than another student's A average. The SAT offers a way to compare students who have attended different high schools and have taken different courses. As a predictor of college success, the SAT by itself is even less satisfactory than high-school grades by themselves. When combined with high-school grades, however, SAT scores significantly improve the prediction of college success (Weitzman, 1982).

Because many students worry about doing well on the SAT, a coaching industry has developed. Students can pay to attend sessions after school or on weekends. If you attend such sessions, did you get your money's worth? The results have been consistent: On the average, participation in SAT-coaching sessions raises a student's score by 10 to 20 points (on a scale of 200 to 800). Students who attend longer, more intensive coaching sessions score only slightly higher than those who attend briefer sessions. To improve scores by more than about 30

points, a student has to spend almost as much time in the coaching sessions as in school (Kulik, Bangert-Downs, & Kulik, 1984; Messick & Jungeblut, 1981).

From Reynolds, M. C. (1995). *Reading for understanding*, pp. 392-393. Wadsworth: Belmont.

QUESTIONS

6. According to the passage, the SAT is used
 - a. to predict intelligence.
 - b. to select applicants for admission to college.
 - c. to test students' ability to think quantitatively.
 - d. incorrectly as an intelligence test.
7. High-school grades alone are not helpful to determine college admission because
 - a. some students simply do not do well in school.
 - b. schools cannot share grades with anyone outside a student's family.
 - c. some high schools set higher standards than others when grading.
 - d. high school grades are not at all related to college performance.
8. According to the passage, intelligence tests
 - a. serve the same function as the SAT.
 - b. can predict how well a student has done in high school.
 - c. predict how a student will do in college
 - d. ensure that every student is admitted into college.
9. The passage implies that a student who does not make good grades in high school
 - a. is not likely to make good grades in college.
 - b. should not take the SAT.
 - c. has low intelligence.
 - d. should not expect to get into college.
10. The author approaches this subject
 - a. doubting the helpfulness of SAT coaching sessions.
 - b. questioning the accuracy of the SAT's prediction of college success.
 - c. exploring the pro's and con's of the SAT.

- d. with a positive attitude about the use of the SAT.

SLAVERY AND THE NATION'S FUTURE: DRED SCOTT CASE

For years the issue of slavery in the territories had convulsed Congress, and for years the members of Congress had tried to settle the issue with vague formulas. In 1857 a different branch of government stepped onto the scene with a different approach. The Supreme Court addressed this emotion-charged subject and attempted to lay controversy to rest with a definitive verdict.

A Missouri slave named Dred Scott had sued his owner for his freedom. Dred Scott based his suit on the fact that his former owner, an army surgeon, had taken him for several years into Illinois, a free state and into the Wisconsin Territory, from which slavery had been barred by the Missouri Compromise. Scott first won and then lost his case as it moved on appeal through the state courts, into the federal system, and finally after eleven years to the Supreme Court.

Normally this was the type of case that the Supreme Court avoided. Its justices were reluctant, as a rule, to inject themselves into political battles, and it seemed likely that the Court would stay out of this one. An 1851 decision had declared that state courts had the last word in determining the status of Negroes that lived within their jurisdiction. The Supreme Court had only to follow this precedent to avoid ruling on substantive, and very controversial, matters.

Was a black person like Dred Scott a citizen and eligible to sue? Had residence in a free territory made him free? Did Congress have the power to prohibit slavery in a territory or to delegate that power to a territorial legislature? All these issues were raised by the case, and behind the last question lay all the disagreement that Lewis Cass, Henry Clay, Stephen Douglas, and others for years tried to obscure.

Initially it appeared that the Supreme Court would dispose of *Dred Scott v. Sanford* by following the 1851 precedent. At its conference the Court even assigned one justice the task of writing such an opinion.

Then the Court decided to rule on the Missouri Compromise after all. This change occurred for a number of reasons. Two northerners on the Court indicated that they would dissent from the planned ruling and argue for Scott's freedom and for the constitutionality of the Missouri Compromise. Their division emboldened southerners on the Court, who on their own were growing anxious to declare the 1820 compromise unconstitutional. Southern sympathizers in Washington were pressing for a proslavery verdict; moreover, many justices felt they should try to resolve an issue whose uncertainties had caused so much strife. Thus on March 6, 1857, Chief Justice Roger B. Taney delivered the majority opinion of a divided Court. Taney declared that Scott was not a citizen of either the United States or Missouri; that residence in free territory did not make Scott free; and that Congress had no power to bar slavery from a territory, as it had done in the Missouri Compromise. Not only did the decision overturn a sectional compromise that had been venerated for years, it also said that the basic ideas of the Wilmot Proviso, and popular sovereignty, were invalid.

From Norton, M. B., Katzman, D. M., Escott, P.D., Chudacoff, H.P., Paterson, T.G., and Tuttle, W.M. (1990). *A people and a nation: A history of the United States*, Vol. 1, p. 388. Houghton Mifflin: Boston.

QUESTIONS

11. Dred Scott won and then lost his case because
 - a. of the 1851 precedent.
 - b. it was appealed a number of times.
 - c. its appeal was popular among northerners.
 - d. its appeal took eleven years.
12. The term "venerated" in the last line of the passage means
 - a. respected.
 - b. enforced.
 - c. debated.
 - d. ignored.
13. The southerners on the Court were "emboldened," meaning
 - a. angered.

- b. encouraged.
 - c. confused.
 - d. offended.
14. The author seems to be
- a. concerned.
 - b. pro-slavery.
 - c. anti-slavery.
 - d. objective.
15. The Supreme Court finally made a decision about the issue of slavery because
- a. the 1851 precedent required that it do so.
 - b. it had to by law.
 - c. Congress refused to touch the emotional issue.
 - d. Congress' attempts were not effective.

CLAUDIO MONTEVERDI

Claudio Monteverdi (1567-1643), one of the most important composers of the early baroque era, was born in Cremona, Italy. He served at the court of Mantua for twenty-one years, first as a singer and violinist, then as music director. For this court Monteverdi created the earliest operatic masterpiece, *Orfeo* (*Orpheus*, 1607). Though widely recognized as a leading composer in Mantua, Monteverdi received little pay or respect: "I have never received greater humiliation," he wrote, "than when I had to go and beg the treasurer to obtain what was due to me."

Life improved for Monteverdi in 1613, when he was appointed music director at St. Mark's in Venice, the most important church position in Italy. He stayed at St. Mark's for thirty years, until his death in 1643. There he composed not only the required sacred music but also secular music for the aristocracy. He wrote operas for San Cassiano in Venice, the first public opera house in Europe. At the age of seventy-five, Monteverdi wrote his last opera, *L'incoronazione di Poppea* (*The Coronation of Poppea*, 1642).

Monteverdi is a monumental figure in the history of music. His works form a musical bridge between the sixteenth and seventeenth centuries and greatly influenced composers of the time. All his music - madrigals, church music, opera - is for voices, ordinarily supported by a basso continuo and other instruments.

Monteverdi wanted to create music of

emotional intensity. He felt that earlier music had conveyed only moderate emotion, and he wanted to extend its range to include agitation, excitement, and passion. To achieve this intensity, he used dissonances with unprecedented freedom and daring. And to evoke the angry or warlike feelings in some of his texts, he introduced new orchestral effects, including pizzicato and tremolo.

Monteverdi was the first composer of operatic masterpieces. Only three of the twelve operas he wrote are preserved, but they truly blend music and drama. His vocal lines respond marvelously to the inflections of Italian while maintaining melodic flow.

From Kamien, R. (1988). *Music: An appreciation*, p. 159. McGraw-Hill: New York.

QUESTIONS

16. The term "monumental" in paragraph 3 means
- a. virtuous.
 - b. outstanding.
 - c. authentic.
 - d. large.
17. Monteverdi wrote most of his music
- a. in Mantua.
 - b. to bridge the sixteenth and seventeenth centuries.
 - c. for singing.
 - d. for orchestras.
18. The author seems to think that Monteverdi's goal was to express
- a. emotion in his music.
 - b. his talent to music writers.
 - c. pizzicato and tremolo.
 - d. his sense of humiliation to the treasurer.
19. Monteverdi was a great opera composer because
- a. he was well respected.
 - b. he composed sacred music as well as secular.
 - c. Italian went well with musical instruments.
 - d. his words complemented the Italian language as well as his music.
20. To achieve intensity, Monteverdi used

- a. loud and soft instruments.
- b. unprecedented freedom.
- c. inflections in Italian and vocal harmony.
- d. unusual sound and new orchestral effects.

THE GAP BETWEEN STRIVING AND ACHIEVING: THE CASE OF ASIAN-AMERICAN WOMEN Deborah Woo
THE WORKING CONSUMER: INCOME AND COST OF LIVING

One striking feature about Asian Americans is that they are geographically concentrated in areas where both income and cost of living are very high. In 1970, 80 percent of the total Asian American population resided in five states - California, Hawaii, Illinois, New York, and Washington. Furthermore, 59 percent of Chinese, Filipino, and Japanese Americans were concentrated in only 5 of the 243 Standard Metropolitan Statistical Areas (SMSA) in the United States - Chicago, Honolulu, Los Angeles/Long Beach, New York, and San Francisco/Oakland. The 1980 census shows that immigration during the intervening decade has not only produced dramatic increases, especially in the Filipino and Chinese populations, but has also continued the overwhelming tendency for these groups to concentrate in the same geographical areas, especially those in California. Interestingly enough, the very existence of large Asian communities in the West has stimulated among more recent refugee populations what is now officially referred to as "secondary migration," that is, the movement of refugees away from their sponsoring communities (usually places where there was no sizable Asian population prior to their own arrival) to those areas where there are well-established Asian communities.

This residential pattern means that while Asian Americans may earn more by living in high-income areas, they also pay more as consumers. The additional earning power gained from living in San Francisco or Los Angeles, say, is absorbed by the high cost of living on such cities. National income averages which compare the income of Asian American women with that of the more broadly dispersed

Anglo women systematically distort the picture. Indeed, if we compare women within the same area, Asian American women are frequently less well-off than Anglo American females, and the difference between women pales when compared with Anglo males, whose mean income is much higher than that of any group of women.

When we consider the large immigrant Asian population and the language barriers that restrict women to menial or entry-level jobs, we are talking about a group that not only earns minimum wage or less, but one whose purchasing power is substantially undermined by living in metropolitan areas of states where the cost of living is unusually high.

Another striking pattern about Asian American female employment is the high rate of labor force participation. Asian American women are more likely than Anglo American women to work full time and year round. The model minority interpretation tends to assume that mere high labor force participation is a sign of successful employment. One important factor motivating minority women to enter the work force, however, is the need to supplement family resources. For Anglo American women some of the necessity for working is partly offset by the fact that they often share in the higher incomes of Anglo males, who tend not only to earn more than all other groups but, as noted, earlier, also tend to receive higher returns on their education. Moreover, once regional variation is adjusted for, Filipino and Chinese Americans have a median annual income equivalent to black males in four mainland SMSAs - Chicago, Los Angeles/Long Beach, New York, San Francisco/Oakland. Census statistics point to the relatively lower earning capacity of Asian males compared to Anglo males, suggesting that Asian American women enter the work force to help compensate for this inequality. Thus, the mere fact of high employment must be read cautiously and analyzed within a larger context.

From Comley, N.R., et al. (1994). *Fields of writing: Readings across the disciplines*, pp. 676-677. St. Martin's Press: New York.

QUESTIONS

d. discuss who is at fault for Asian American women's failures.

21. In paragraph 2, the author says that comparisons between Asian American and Anglo American women are "distorted" because

- a. Anglo American women live in a greater variety of areas than their Asian counterparts.
- b. Asian and Anglo American women cannot be fairly compared because they hold different types of jobs.
- c. it only considers women in large cities.
- d. not all women are paid for their work.

22. The author concludes that a high rate of employment should be considered cautiously because

- a. Asian Americans do not have the education to compete with non-Asians.
- b. Asian Americans make the same income as black males.
- c. Most Asian Americans have to work to compensate for low income and high cost of living.
- d. it's only temporary.

23. Most Asian American women must work because

- a. their husbands make low wages.
- b. most men are unemployed.
- c. they are better suited for menial labor.
- d. they get low returns on their education.

24. The term "residential pattern" in paragraph 2 refers to

- a. the tendency for most Asian Americans to live in San Francisco or Los Angeles.
- b. the tendency for the majority of Asian Americans to live in only 5 SMSAs.
- c. Standard Metropolitan Statistical Areas (SMSAs).
- d. the neighborhoods Asian Americans tend to live in in major cities.

25. This section is just part of a larger text, the purpose of which must be to

- a. discuss why Asian American women strive and achieve.
- b. show that Asian American women aren't achieving financial success.
- c. demonstrate the reasons why Asian American women aren't achieving financial success.

Answer Sheet

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____
- 7 _____
- 8 _____
- 9 _____
- 10 _____
- 11 _____
- 12 _____
- 13 _____
- 14 _____
- 15 _____
- 16 _____
- 17 _____
- 18 _____
- 19 _____
- 20 _____
- 21 _____
- 22 _____
- 23 _____
- 24 _____
- 25 _____

Test # _____

Score _____

APPENDIX B

Take your time on this part.

Describe in a picture or words the strategies you used to help you understand the passage(s).

What about these strategies was useful to you?

If you didn't use any visual or verbal strategies, what about them was not useful?

At what times might you find visual or verbal strategies (diagrams, pictures, summaries, or analogies, for example) helpful?

APPENDIX C

Take your time on this part.

Many strategies can be used to improve reading comprehension, such as diagrams, graphs, mental images, pictures, locating main ideas and details, summaries, making up headings, critical comment, and analogies.

1) Describe in a picture or words the strategies you used to help you understand the passage(s).

2) What about these strategies was useful to you?

3) If you didn't use any visual or verbal strategies, what about them was not useful?

4) At what times might you find your use of visual or verbal strategies (diagrams, pictures, summaries, or analogies, for example) helpful?

VITA

Elizabeth McKamy Schroeder was born in Dayton, Ohio, on December 26, 1967. She attended public schools in Oak Ridge, Tennessee and graduated in 1986 from Oak Ridge High School. All but her tenth and eleventh grade years were spent in Oak Ridge. From August 1983 until August 1985, she attended school at the American International School in Vienna, Austria while her mother fulfilled a two year contract with the United Nations. Her experience there stimulated an interest in the German language and multicultural issues.

After high school graduation, she attended Wofford College. After four years, and a semester of study in Salzburg, Austria, she received a Bachelor of Arts degree in 1990 with majors in both government and German.

Although interested in law and international relations upon graduation, she found employment only as a receptionist and, later, as an account collector in Columbia, SC. Because of her difficulty in getting experience and employment in her field, Ms. Schroeder searched for other vocational possibilities that would be of personal interest or service to others. She then attended evening classes in the Department of Education at the University of South Carolina. These classes answered her desire to specialize in a field that would satisfy her questions about learning and enable her to apply that knowledge.

This interest in education led Ms. Schroeder to seek full time enrollment in educational programs in the South. She was accepted at and chose to attend the University of Tennessee's doctoral program in educational psychology in the fall of 1992. In August 1995 she completed her coursework for the Ph.D. as she developed reading comprehension tests and finalized plans for her research. That research and writing this dissertation has consumed most of her time in the year that followed. Her research reflects her deep interest in the motivations of underprepared or reluctant learners and the methods that might improve their college experience. Regardless of the study's statistical outcome, the research process has been very educational.

As a result of her education at the University of Tennessee, she has had opportunities to work with community released felons, aspiring teachers, student athletes, underprepared college students, and a mentally ill, learning disabled teenager. She feels fortunate to have had such diverse and rewarding experiences while working on her degree and looks forward to having more upon receiving it.