The Effect of Instruction in a Metacognitive Strategy on Functional Reading of Learning Disabled Students (Comprehension, Special Education, Literacy).

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Louisiana State University and Agricultural & Mechanical College

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The Effect of Instruction in a Metacognitive Strategy on Functional Reading of Learning Disabled Students

A Dissertation
Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in
The Department of Curriculum and Instruction

by
Karen Ortego LaCroix
B.S. Louisiana State University, 1979
M.Ed., Louisiana State University, 1982
August 1986
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This study was conducted to determine the effect of instruction in a metacognitive self-monitoring strategy on functional reading ability of 15- and 16-year-old learning disabled students. Metacognitive strategy training has been shown to be effective with older or better readers when used with content or narrative materials. This study was unique in that the metacognitive self-monitoring instruction was provided utilizing functional or everyday reading materials. The study, which consisted of a pretest, eight periods of instruction, a posttest and a delayed test was conducted with 31 high school students identified as having specific learning disabilities. The students were randomly assigned to either the experimental (instructional) group or the control group. The subjects in the experimental group were taught how to use a strategy called "What I Know" to help them become better readers. All of the materials used during the instructional period were functional, and an effort was made to select materials that would be of interest to high school learning disabled students. Metacognitive awareness, self-regulation and application of skills were all stressed in the structured periods of instruction. Data was analyzed using a mixed analysis of variance.
Although no significant main effect was found for the between subject factor of group, or the within group factor of time, there was a significant interaction for Group x Time. This time-of-test interaction indicates that instruction improved posttest scores of the experimental group relative to the scores of the control group. In addition, positive changes in the approaches of the experimental group were noted when they addressed the tasks related to the everyday reading material. Implications for teaching and future research were discussed.
Chapter 1

INTRODUCTION

In its recent publication, *Becoming a Nation of Readers*, the National Academy of Education's Commission on Education and Public Policy (U. S. Department of Education, 1985) stated: "Reading is a basic life skill. It is a cornerstone for a child's success in school and, indeed, throughout life. Without the ability to read well, opportunities for personal fulfillment and job success inevitably will be lost" (p. 1).

Societal demands on educators to produce a nation of readers are probably greater now than they have been at any other time. The fact that millions in our country are not considered functional readers renders these people illiterate by many standards (Carroll & Chall, 1975; Harman, 1970), and remains a source of consternation to educators and the public alike.

In the Report of the Committee on Reading of the National Academy of Education, the authors suggest that the most persuasive argument for literacy is that for an individual to participate fully in society, s/he must be able to read at a rather high level of literacy (Carroll & Chall, 1975). The opportunities available for the literate persons in our society are certainly better and more numerous than those available to the illiterate, at all
socio-economic levels. An integral component of the literacy issue is reading ability, and more specifically, functional reading ability.

Functional reading competency, which involves comprehending materials encountered in daily situations (Fitzgerald, 1984), usually poses no problem for good readers and older readers (Clay, 1973; Forrest & Waller, 1979; Kavale & Schreiner, 1979; Weber, 1970). Readers with diagnosed learning disabilities, however, often have difficulty comprehending everyday materials such as newspaper articles, job applications, and written directions and labels, even after exposure to materials of this type in learning situations (Henker, Whalen & Hinshaw, 1980; Serafica & Sigel, 1970).

Exposure to everyday reading materials and traditional instruction has not guaranteed that these materials are comprehensible to disabled readers (Henker, Whalen & Hinshaw, 1980; Serafica & Sigel, 1970). Therefore, the applicability of theories and strategies used with narrative and content reading materials should be examined in an effort to determine if functional reading ability can be improved by employing these strategies. Specifically, recent research on metacognition or "one's knowledge concerning one's own cognitive processes and products or anything related to them" (Flavell, 1976, p. 232) may provide a sound
theoretical framework for examining how a learner knows what knowledge s/he possesses, as well as how the learner came to possess this knowledge related to reading everyday materials.

Many recent research studies in metacognition and metacognitive awareness conducted have shown that metacognitive strategies improve students' general comprehension (Armbruster, Echols & Brown, 1983; Babbs & Moe, 1983; Brown, 1981; Brown & Palincsar, 1982; Palincsar, 1984a, 1984b). No studies however, have been conducted to determine if training in a metacognitive strategy can improve a learning disabled student's ability to read functional or everyday material.

This study was designed to investigate the effect of teaching learning disabled students to use a metacognitive self-monitoring strategy to read materials encountered in daily life situations. Learning disabled students learn best when provided a structured learning procedure to follow when studying (Brown & Palincsar, 1982). Thus, this metacognitive strategy provides a self-monitoring structure which may enhance reading performance for students who have the most difficulty with reading and who must possess functional reading skills in order to become a contributing member of society.
Importance of the Study

To date, functional reading research has occurred mainly with an adult population, and in many instances in the context of determining literacy levels of normal adult populations (Petre, 1972; Reis, 1977). This study examined the effect of instruction in a metacognitive self-monitoring strategy on high school learning disabled students' ability to gain information from everyday reading materials. These resource students were addressing high school diploma requirements and received resource assistance to develop functional reading competencies.

Another aspect contributing to the importance of the study is that in recent years, educators have examined the effects of various metacognitive strategies on the general comprehension ability of various age groups (Armbruster et al., 1983; Babbs & Moe, 1983; Brown, 1981; Brown & Palincsar, 1982; Palincsar, 1984a, 1984b). The majority of these studies have used narrative and content discourse material. This study examined the effect of teaching students how to use a metacognitive self-monitoring strategy with everyday reading materials.

Research studies examining metacognitive abilities such as comprehension monitoring have shown that poor readers are less able to monitor their understanding of what they read or hear than good readers (Garner, 1980;
Markman, 1977, 1979; Paris & Myers, 1981; Smith, 1967). However, studies have also shown that modeling or explicitly teaching metacognitive strategies can improve metacognitive abilities (Andre & Anderson, 1978-79; Bartlett, 1978; Markman & Gorin, 1981; Wong & Jones, 1982). In addition, the need for information on certain remedial strategies with students who have diagnosed learning problems is a concern of researchers and educators today (Brown & Palincsar, 1982). This study utilized a highly structured metacognitive self-monitoring strategy with learning disabled readers to determine if these students could monitor their comprehension when reading everyday materials.

Brown and Palincsar (1982) suggested that an ideal cognitive skills training program for learning disabled students should include: "(a) practice in the specific task appropriate strategies (skills training), (b) direct instruction in the orchestration, overseeing and monitoring of these skills (self-regulation training), and (c) information concerning the significance of those activities and their range of utility (awareness training)" (p. 31). This study utilized these three components with a population of high school learning disabled students.

The use of modeling the metacognitive self-monitoring
strategy to teach students to read for the most important ideas is of importance as well. Dewey (1910) pointed out the importance of one's being able to "seize what is evidential or significant and to let the rest go" (p. 56). Researchers investigating different aspects of reading have often centered on the content factors of reading while ignoring the process factors (Hyram, 1957; Maney, 1958; Sochor, 1958; Struthers, 1969; Wolf & Ellinger, 1967; Wolf, King, & Huck, 1968). Through the use of the metacognitive self-monitoring strategy employed in this study, learning disabled students learned to talk about strategies which they used in small group settings.

Students must be made aware of the logical use and value of skills taught to them (Roehler & Duffy, 1984). Modeling the metacognitive strategy using direct teacher instruction makes the students aware of the value, as well as providing "academic focus, precise sequencing of content, high pupil engagement, careful teacher monitoring and specific corrective feedback to students" (Duffy & Roehler, 1982, p. 35). For these reasons the students were taught not only how and why to use the self-monitoring strategy, they were taught how to regulate their understanding of what they read.

The ability to read and comprehend everyday materials is a crucial aspect of literacy. Functional reading research has occurred mainly with an adult population. If
the ultimate goal of schools is to produce readers who can, at the very least, successfully deal with everyday reading material, then students in the normal and handicapped populations must be taught effective strategies for enhancing functional reading ability.

In summary, this study examined the effect of instruction in a metacognitive self-monitoring strategy on the functional reading ability of learning disabled high school students. The combination of three key components of this study, namely the learning disabled population, the use of everyday reading materials, and the adaptation of a metacognitive self-monitoring strategy, made the study unique in the areas of reading, learning disabilities and literacy. Therefore, the findings of this study should be of value to researchers in these areas.

Background for the Study

Although literacy has been discussed, researched and reported on extensively in the last thirty years, the one thing researchers agree upon is the right to disagree. The fact that there is no one universally accepted definition of literacy causes determinations of the extent of illiteracy to vary widely from case to case (Carroll & Chall, 1975). Uses of grade equivalents, years of schooling completed and criteria such as being able to
read and write a simple statement, have been used in determining literacy. In response to this dilemma, many researchers are identifying a more specific level of literacy needed to exist in day to day life, that of functional literacy.

In the United States, functional literacy is most often defined in terms of the number of years of schooling completed (usually five to eight years). Two major flaws easily detected in this criteria are that it neither takes into account reading failure in school, nor does it predict a level of reading proficiency (Weber, 1975). Shortcomings such as these have led researchers to examine functional reading ability as a separate aspect of functional literacy.

Functional literacy, or the "ability of an individual to use reading skills in everyday life situations - reading street signs, reading and comprehending written directions, labels, applications, and work-oriented information" (United States Department of Education, Ford Foundation and the National Advisory Council on Adult Education) should be the minimum goal of every healthy adult in society today (Fitzgerald, 1984). This definition illustrates the relation between reading and functional literacy.

By its very nature, functional literacy includes everyday reading ability as an integral component. The
importance of functional or everyday reading competency cannot be overlooked in light of the attention focused on the issue of functional literacy, by educators and the public alike. Reading experts have tried for years to identify and agree upon workable definitions of the terms literacy, functional literacy and functional reading in order to conduct research related to literacy and reading. Psychologists, on the other hand, have been examining the effects that being able to read or not being able to read have had on people in home, work and social settings. Government agencies and the Bureau of the Census have struggled for years to differentiate between illiterate and functionally illiterate people by adjusting the definitional criteria of each. Obviously, functional, or everyday reading ability, has a direct effect on literacy levels in our nation.

Need for Functional Reading Ability

The term "functional reading" was originally coined by the United States Army during World War II to refer to a soldier's "ability to understand written instructions for carrying out basic military tasks" (Singer & Donlan, 1980, p. 197). Petre (1972) contends that the emphasis on reading today should center on ways to help individuals deal with written materials encountered in everyday experiences. Herber's (1978) notion that functional
reading is taught when the reader must use the skills to understand the content of an information source supports Petre's contention.

It is only in the last fifteen years or so that an effort has been made to determine functional reading levels. In 1970 the United States Office of Education and the Educational Testing Service located 15,000 reading research reports dated between 1960 and 1970, yet they found no information on the extent of functional literacy. The reason cited was that no data on adults' performance of everyday reading tasks could be found. In a subsequent study, Educational Testing Service found that reading schedules, directions, labels, signs, recipes and lists were perceived to be important acts of reading.

Bishop (1978) stated that the 1977 National Assessment of Educational Progress found that 13% of 17-year-olds were functionally illiterate because they could not read street signs, telephone directories, store coupons or driver's license tests. Although the performance of 17-year-olds improved in the most recent assessments, there were no improvements in the performance of 9- and 13-year-old students.

Sharon (1973-74) reported that a survey conducted by Louis Harris and Associates in 1970 attempted to measure survival literacy. Participants were asked to fill out common application forms related to obtaining a driver's
license, social security number, personal bank loan and Medicaid. Eight percent of the adult population could not adequately complete a driver's license application and 34% were unable to complete a Medicaid application.

Sharon (1973-74) surveyed 5,067 adults to determine reading patterns. Among specific kinds of reading, reading price, size and weight information while shopping were regarded as most important. Sharon found that reading occurs more often in general types of activities such as traveling, working or shopping.

Functional reading materials utilized in this study dealt with gleaning significant information from written directions, graphic materials, reference materials and general information sources. Researchers (Goodman, 1985; Harris and Associates, 1970; Petre, 1972; Sharon, 1973-74) investigating functional reading ability cited the importance of comprehending materials such as job applications, forms, logos, magazines, newspapers, charts and graphs. The materials used in the instructional portion of this study and on the assessment instrument were selected based upon the findings of research related to functional reading. If reading activities of this type are perceived to be important by society in general, then investigating methods of improving functional reading ability of learning disabled students is also of
importance.

**Needs of Learning Disabled**

Definitions of learning disabilities, like those of literacy, functional reading and metacognition, are subject to debate. The extent of a learning disability and its degree of severity is often determined by several factors. Children of normal or above normal intelligence who suffer from specific clusters of learning problems are considered to be learning disabled (Brown & Palincsar, 1982). Poor performance on standardized IQ tests subtests such as digit span, coding, general information, and difficulty in one or more academic areas such as reading, writing, spelling and math calculations are general indicators that a learning disability may exist. In addition, a learning disabled child generally possesses a strength in at least one academic area. Silver (1978) suggested that 30 or 40 different profiles of strengths and disabilities would probably be found in a learning disabled population of 100 students.

Many students with diagnosed learning failures doubt their own learning potential based on their history of academic failure (Torgesen, 1977). Researchers have found that students' perceptions about themselves, as well as specific learning tasks, can have an effect on their performance (Bransford, 1979; Henker, Whalen & Hinshaw, 1980; Holt, 1964). If students are taught strategies that
can help them become better readers, and if they are taught how and when to use these strategies, perhaps they may perceive themselves and the act of reading in a more positive way. To assist these students in learning to employ such strategies, additional information is needed regarding the reaction of learning disabled students to various metacognitive strategies.

**Metacognition and Metacognitive Training**

The efficacy of using metacognitive strategies with content and narrative materials has been demonstrated by researchers in recent years (Armbruster et al., 1983; Babbs & Moe, 1983; Brown, 1981; Brown & Palincsar, 1982; Palincsar, 1984a, 1984b). Recognition of the fact that metacognition involves knowledge of cognition as well as control of cognition or regulation dictates that current metacognitive investigations consider both aspects. Thus, subjects in these studies need to be aware of what they know, as well as how they came to possess this knowledge, and what they can do with the knowledge.

Metacognitive awareness requires the learner to recognize points of comprehension failure and possess knowledge of strategies to resolve these failures. Brown (1980) identifies the following reading skills that involve metacognition: (a) clarifying the purpose for reading, (b) identifying important aspects of a message,
(c) focusing attention on major content, (d) monitoring activities, (e) engaging in self-questioning, and (f) correcting comprehension failures.

Wertsch (1979) suggests that metacognitive abilities originate in social interaction, and that metacognitive skills can be developed in children when adults provide regulatory directives as the child is led through a particular task. Vygotsky (1978) theorized that higher mental processes in children occur first on an interpsychological plane between people, and later on an intrapsychological plane on the individual level. Control of actions is transferred from the expert to the learner once a social activity is internalized by the learner. Arguing from Vygotsky's theory, students can be taught to monitor and regulate their reading for maximum comprehension.

This study utilized three components of a metacognitive skills training program (Brown & Palincsar, 1982) with a population of high school learning disabled students to determine if functional reading ability could be improved. Instruction in metacognitive skills training, self-regulation training and awareness training was provided using functional reading materials. The efficacy of determining effective instructional strategies that could be used to improve functional reading ability of learning disabled students was investigated.
Statement of Problem

This study was designed to investigate the effect of instruction in a metacognitive self-monitoring strategy on the performance of 15-year-old and 16 year old high school learning disabled students on a measure of everyday or functional reading ability.

Hypothesis

The following research question was identified and tested at the 0.05 level of significance:

1. On a measure of functional reading ability, is there a difference in the scores of students who received direct teacher instruction of a metacognitive self-monitoring strategy and the scores of students who received no instruction?

Definition of Terms

For the purpose of promoting understanding and for clarification of terms in this study, the following descriptors are defined as follows.

Functional Reading. Functional reading is the ability to read and comprehend materials encountered in daily situations.

Functionally Literate. The ability of an individual to use reading skills in everyday life situations - reading street signs, reading and comprehending written directions, labels, applications and work oriented
Information (Fitzgerald, 1984) qualifies one as functionally literate.

**Gleaning Significant Ideas.** The ability to glean significant facts relates directly to the ability to read material encountered in daily life situations, and then to extract significant ideas that are needed to comprehend the material, directly related to the purpose for reading.

**Graphic Materials.** Any materials encountered which contain illustrations, as well as materials such as order forms, coupons, etc..

**Illiterate.** A person is illiterate if he or she is unable to read and write a simple statement in his native language (Harman, 1970).

**Learning Disability.** Public Law 94-142 defines a learning disability as "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculation" (United States Office of Education, 1977).

**Metacognition.** "Metacognition refers to one's knowledge concerning one's own cognitive processes and products or anything related to them" (Flavell, 1976, 232).

**Metacognitive Self-Monitoring Strategy.** The metacognitive self-monitoring strategy used in this study was one which
involved teacher modeling, teacher and student questioning, direct explanation of the reading comprehension process and a modified directed reading lesson format (Heller, 1986).

Reference Materials. Materials such as encyclopedias, telephone books, newspapers, magazines, and other general information sources are considered to be reference materials for the purpose of this study.

Resource Student. A student who receives special instruction in a resource room during the course of a typical day because he or she is identified according to Louisiana Bulletin 1508 as a Mild/Moderate handicapped student is considered to be a resource student. This resource assistance can last from one to three hours per day.

Written Directions. Those directions provided that must be read and interpreted in order to complete a daily task or operation.

Limitations of Study

This study is limited by the following factors:

1. The sample will be limited to learning disabled students enrolled in public high schools in Ascension Parish, Louisiana. Learning disabled students were selected because the effect of providing instruction for such students in a metacognitive self-monitoring strategy utilizing everyday reading materials had not
been examined. This, of course, allows
generalizability to other high school learning
disabled populations, but restricts generalizability
to normal high school students.

2. The State of Louisiana, Bulletin 1508, which
establishes the criteria for identifying handicapped
students, may be somewhat different than criteria
bulletins used in other states. Although all states
follow the mandates of Public Law 94-142, individual
states are given some degree of freedom in
determining the appropriate criteria needed to
qualify as a learning disabled student.

3. Each learning disabled students differs in degree of
severity, thus working with learning disabled high
school students was in itself a limitation.

Organization of the Paper

This study is organized into the following five
chapters. Chapter 1 contains introductory remarks, and
describes the importance and background for the study.
The statement of the problem as well as the definition of
terms, limitations and research questions are also
presented in this chapter. Chapter 2 is a review of
related literature. Chapter 3 includes descriptions and
findings of the pilot study, a description of the
population used for the study, the means of data
collection, and concludes with an explanation of the instrument and statistical procedures used for the study. Chapter 4 presents and analyzes the data. The summary, conclusions and recommendations for future research are contained in Chapter 5.
Chapter 2

REVIEW OF RELATED LITERATURE

The interrelation of literacy, functional reading, learning disabilities and metacognition is a critical aspect of this study. The importance of each of these areas in examining reading processes is recognized by researchers in the fields of reading and psychology. A brief discussion of literacy, functional reading and learning disabilities provides the framework for the more extensive discussion of the construct of metacognition that follows.

Literacy/Illiteracy

The goal of literacy is one which is common to most cultures as well as to most individuals. Estimates of the number of illiterate people in our nation vary greatly from report to report (Carroll & Chall, 1975). The variance in the number of identified illiterate persons is a product of no universally accepted definition of literacy (Carroll & Chall, 1975). Attempts to define literacy, and thus illiteracy, have been made by government agencies, educational researchers and public interest groups, among others. In many cases, a distinction is made between literacy and functional literacy, or, between illiteracy and functional illiteracy.
The literacy movement in the United States began in the late 1800's, as rapid western expansion brought about the need for a railroad to connect the eastern seaboard with the western settlements. As Asian immigrants were brought in to build the railroad in the west and European immigrants were brought in to build the railroad in the east, no consideration was given to the social, educational or economic problems that bringing in illiterate people could cause (Cook, 1977). As time went on, the use of literacy tests was proposed to restrict the influx of immigrants.

This early attempt to identify illiterate persons was altered many times over the next 100 years. The Bureau of the Census in 1900 identified people as illiterate if they were ten years of age or older, and unable to read and write in their native language (Cook, 1977). By 1910 the definition was altered to include only those who were unable to write, regardless of reading ability. This definition remained in effect until a grade equivalent was included in the 1930 census. By the 1960 census, the Bureau differentiated between illiterate persons and functionally illiterate persons.

The United States Bureau of the Census today defines a person as illiterate if s/he is unable to read and write a simple message in English or any other language (Harman, 1970). However, a person is considered to be functionally
literate by the Bureau if s/he is able to hold a decent job while supporting self and family, and if s/he can lead a life of pride and dignity (Rupley & Gwinn, 1978).

Educational researchers have defined literacy in terms of levels of literacy and societal norms (Powell, 1977). Goodman (1985) points out that literacy is influenced by political, social, cultural and economic factors. Heath (1985) relates that numerous definitions of literacy have provided graded levels of literacy such as survival literacy, functional literacy and average literacy. Descriptors of literacy and illiteracy in the field of education are as varied as the researchers who set forth these definitions.

The United States Army first used the phrase "functionally literate" in reference to servicemen who could read at the fifth grade level (Rupley & Gwinn, 1978). Bessemer & Spencer (1975) report that for the purposes of Title I evaluation, functional literacy for youth involves non-academic computational and reading skills. UNESCO'S expert committee on the Standardization of Educational Statistics today defines a person as functionally literate "when he has acquired the essential knowledge and skills which enable him to engage in all those activities in which literacy is required for effective functioning in his group and community" (Harman,
Pollsters in recent years have conducted surveys to determine the extent of the illiteracy problem using practical tasks to assess literacy. Fitzgerald (1984) states in a recent report on the state of Indiana's Adult Literacy Initiative, that functional illiteracy costs the American society a staggering amount of money when crime, poverty and unemployment related to illiteracy are considered. Public pressure to find ways to deal with the illiteracy problem in the United States led to movements such as Right to Read which assessed adult literacy without utilizing grade equivalents.

In the past, social indices of literacy have been based on grade equivalent scores from standardized reading tests or on grade completion in school. Assessing literacy in this manner often leads to an underestimation of the number of illiterate people in the United States (Harman, 1970).

The term literacy appears to be taking on a less concrete meaning, thus complicating assessment of the number of illiterate persons in the United States. Powell (1977) states that definitions of literacy should be unidimensional, measurable and generalizable in order for accurate assessment of literacy to occur. An instrument devised to assess literacy must at least measure the construct of literacy as defined by the test developer, as
well as taking into account issues of reliability and validity (Bessemer & Spencer, 1975). Ayrer (1977) states that designing a test of functional literacy involves the following: (a) identifying the purpose for the test, (b) determining the form of the test, and (c) specifying what you want the test to do. The inherent problem in each of these suggestions remains: there is no one accepted definition of literacy or functional literacy. Functional reading competency is a component of many definitions of literacy, and the ability to successfully read everyday materials is an integral part of survival in developed nations.

Functional Reading

Functional reading, as defined in A Dictionary of Reading and Related Terms (Harris & Hodges, 1981, p. 125) is "reading for practical purposes, as to get information" as well as "the level of reading skill needed to get along in a society." Often referred to as survival reading, functional reading relates to functional literacy because it is an indicator of a literacy level which allows a person to function successfully in society on a daily basis.

The ability to read functionally is defined by Wilson and Barnes (1975) as being able to read, understand and use materials important to social success and daily
functioning. The materials they see as functional include newspapers, medicine bottle labels, recipes, menus and consumer directions. Petre (1972) also suggests that emphasis on reading today should center on helping people cope with everyday experiences such as reading road signs, written directions, forms, food labels, recipes or menus.

Reading and interpreting graphic materials such as charts, graphs, maps, forms and logos is perceived to be an important type of reading by many adults (Sharon, 1973-74 and Educational Testing Service), and is thought to be necessary for survival in today's society (Petre, 1972). Other researchers cited important functional reading activities such as completing job applications and income tax forms, as well as reading other material that contains directions of two or more steps (Goodman, 1985; Harris and Associates, 1970; Petre, 1972).

Recently functional reading has received increasing emphasis in schools. This shift in emphasis may be partially attributed to the minimum competency testing movement. Gambrell and Cleland (1982) suggest that if a functional reading program is going to be implemented, the following factors must be considered: (a) the varying learning rates of students, (b) the individual assessment procedures needed, (c) instruction needed that is personally relevant to the students, (d) the real world problem solving situations to be presented,
(e) provision of instruction on a continuous basis, (f) teacher sharing of resources related to functional reading, and (g) schools involving parents in functional reading skills application.

Vacca and Vacca (1981) offer three prerequisites needed in developing an effective functional reading program. They suggest that a working definition of functional reading is necessary so that instruction in the program centers on applying skills to real-life tasks. In addition, they suggest that material for the functional reading program be timely and realistic. Finally, Vacca and Vacca suggest that functional reading instruction focus on meaning by encouraging the students to develop their own questions and make predictions so reading will be purposeful. They also suggest the activation of prior knowledge to better enable the reader to succeed.

Reis (1977) emphasizes the importance of providing instruction in functional reading competencies to the nonreaders or disabled readers who will need the skills to function in life. He suggests that teaching functional reading skills to these readers involves relating the content directly to life skills, and making the students actively involved in learning.

Functional reading involves reading and comprehending materials such as newspapers, recipes, road signs, written
directions and any other materials encountered in daily life. The importance of being able to read such materials has been investigated by researchers in various fields, and the ability of learning disabled students to read these materials is of particular interest.

Learning Disabilities

Public Law 94-142 defines a learning disability as "a disorder in one or more basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculation" (United States Office of Education, 1977 as cited in Lerner, 1981). Like the definitions of literacy and functional literacy, the definition of learning disabilities is widely interpreted. The extent of learning disabilities in students and the degrees of severity make it virtually impossible to equate one learning disabled student with another. Today, controversy exists about whether the learning disabled label can be considered applicable to a homogeneous population (McKinney, 1984; Norman & Zigmond, 1980; Ryckman, 1981; Stephens, 1985). Boynar and Martin (1982) suggest that the entire process of labeling students lacks a sound theoretical base, while other researchers criticize the "discrepancy" method used to identify students as learning disabled (Berk, 1984; Killen &
Criteria for labeling a child as learning disabled varies from state to state and school district to school district.

Learning disabled students are thought to be less active in utilizing certain strategies related to reading because they are considered less intrinsically motivated to perform well in school (Henker, Whalen & Hinshaw, 1980). Torgesen (1977) proposed that learning disabled students lack an inclination or ability to develop and use efficient strategies because these students may lack the cognitive and emotional characteristics needed. Serafica and Sigel (1970) noted a difference in the cognitive styles of good and poor readers in that poor readers could not conceptually synthesize their categorization skills. Other researchers have found that poor readers tend to be less reflective and more impulsive in their cognitive style than good readers (Becker, Bender & Morrison, 1978; Epstein, Hallahan & Kauffman, 1975).

Learning disabled students are often passive learners and are often disorganized in their methods of approaching various learning tasks. In order to encourage students to become more active in the reading process, researchers can teach specific comprehension monitoring strategies helpful for learning disabled students, as well as providing information to build the learner's background knowledge.
Activating prior knowledge illustrates the connection between what is already known and that which will be learned.

Recent studies conducted with learning disabled students have been successful in identifying strategies that can improve their reading comprehension ability. Clark, Deshler, Schumaker, Alley, and Warner (1984) taught secondary learning disabled students a visual imagery strategy and a self-questioning strategy found to be effective with ability level material and grade level material after only brief periods of instruction. Wong and Jones (1982) also attempted to improve the reading comprehension ability of secondary learning disabled students by teaching a self-questioning strategy. The students who were trained in the self-questioning strategy answered more comprehension questions correctly than did those in the untrained group.

Bos and Filip (1984) conducted a study with learning disabled students in which students in cued and non-cued conditions were to read a passage and answer questions. Students in the cued condition who were warned of text inconsistencies used comprehension monitoring strategies successfully, while students in the control group did not spontaneously monitor comprehension.

Kavale (1980) matched learning disabled and normal students on grade level and asked both groups to describe
aloud how they came to answer 40 multiple choice questions. Kavale found that 20% of the time the learning disabled students did not report using a strategy, moreover, when they did report using a strategy, it was not a particularly effective one.

Learning disabled students are generally disorganized, passive learners who use reading strategies less actively than good readers (Henker, Whalen & Hinshaw, 1980; Torgesen, 1977). The metacognitive self-monitoring strategy used in this study provided a highly structured framework in which the learning disabled students were made active participants in the learning process. Direct instruction in task appropriate strategies was provided, as was self-regulation training. In addition, activation of prior knowledge was incorporated on a daily basis to establish the connection of the functional reading material to the students' background knowledge.

Recent research on learning disabled students has been in the area of metacognition, or knowledge of one's own cognitive systems (Hall, 1980; Loper, 1980; Torgeson, 1977; Wong, 1979). If metacognitive constructs can explain why learning disabled students experience academic difficulties (Hagen, Barclay & Newman, 1982) then subsequent instruction may remediate these difficulties.
Metacognition

The notion of metacognition, or "those theories and principles used in the study of thought processes" (Harris & Hodges, 1981, p. 196) provides a sound theoretical framework for discerning relation between metacognitive awareness and skills, and effective reading. Today, many reading researchers recognize the importance of examining metacognitive constructs when evaluating both processes and products related to reading.

Metacognitive constructs related to thinking and reasoning appeared in literature in the early 1900's. Precursors of metacognition such as "reasoning" (Thorndike, 1917), "thought-getting and thought manipulating" (Huey, 1968), and "clear vigorous thinking" (Gray, 1949) used in early definitions of reading, reflect the study of reasoning and thinking that was already in progress. Use of the term metacognition, however, did not appear in literature with any frequency until the mid-1970's.

Cognition and metacognition are separate but related entities. Cognitive studies which examine acquired knowledge generally focus on the product or method in question. Metacognitive studies, on the other hand, generally examine what the learner knows about knowledge, as well as how the learner uses and controls knowledge. Stewart and Tei (1983) suggest that the use of knowledge
can be described as cognition, while a personal awareness of knowledge and how to use the knowledge is metacognition.

Use of the term metacognition in recent years has been widely accepted to refer to different aspects of active cognition (Flavell, 1981). Metacognition has been defined as "thinking about thinking" (Babbs & Moe, 1983), active monitoring and consequent regulation and orchestration of mental processes (Flavell, 1976), knowing about comprehension (Wagoner, 1983), and deliberate conscious control of one's cognitive actions (Brown, 1980). In the literal sense of the word, according to Armbruster, et al. (1983), metacognition means "transcending knowledge." The term metacognition, however, refers to two separate functions: (a) knowledge of cognition, and (b) regulation of cognition (Brown, 1981; Brown, Day and Jones, 1983).

Knowledge about cognition relates directly to consciously accessing one's cognitive operations, and reflecting on the cognitive operations of others (Brown & Palinscar, 1982). According to Piaget's stages of development (1976, 1978) this kind of knowledge is generally late developing because it requires the learners to view their cognitive processes as objects that can be thought about and reflected upon. This knowledge about
cognition is also referred to as stable because it is a permanent part of one's knowledge of a topic, and stateable because the learner is able to reflect on processes and discuss them with others (Baker & Brown, 1984; Flavell & Wellman, 1977).

Regulation of cognition is often equated with executive control in information processing models of cognition. The prime functions of this executive control include planning activities prior to problem solving, monitoring activities during learning and checking outcomes (Brown & Palincsar, 1982; Baker & Brown, 1984). These skills are not necessarily stable in that older children and adults use them more often than younger children.

Piaget theorizes that there are three types of self-regulation: autonomous, active and conscious. Autonomous regulation requires learners to regulate performance continuously. In active regulation, the learner constructs and tests theories in action, while conscious regulation requires the mental formation of hypotheses which can be tested through imagination (Brown et al., 1983). The ability to consider one's own thought processes as well as the ability to direct one's own cognitive knowledge is thought to be a late developing skill which lies at the roots of formal operations (Brown & Palincsar, 1982).
Information processing models of cognition provide a theory of executive control used by many investigators of metacognition. Brown and Bransford (1982) describe a "central processor" as an executive system or supervisor which can evaluate its own operations intelligently. This processing may be automatic or controlled. Automatic processing is considered a fast, parallel process that requires little learner effort and control, while controlled processing is relatively slow and requires subject effort and a large degree of subject control. Machine or human intelligence systems are highly dependent on "executive orchestration, resource allocation, and monitoring functions" (Brown & Palincsar, 1982). The metacognitive skills generally attributed to this executive theory in human memory of self-regulation include predicting, checking and monitoring among others (Baker & Brown, 1984).

Psychologists studying metacognition are also interested in the development and use of compensatory strategies utilized by learners who are aware of their cognitive processes (Baker & Brown, 1984). The strategies learners employ vary in accordance with the activity goal. Brown (1980) identifies the following metacognitive skills which may require strategy application for remediation: (a) clarifying the purposes for reading; (b) identifying
the important aspects of the message; (c) focusing attention on the major content; (d) monitoring ongoing activities to determine whether comprehension is occurring; (e) engaging in self-questioning; and (f) taking corrective action when comprehension failure occurs.

The construct of metacognition provided a sound theoretical framework on which this study was based. Emphasis in the instructional phase of the study centered on making students aware of the knowledge they possessed, as well as teaching the students how to regulate this knowledge. In addition, students were able to reflect on reading processes and discuss these processes with other students. The importance of this aspect of metacognition has been stressed by researchers in recent years (Baker & Brown, 1984; Flavell & Wellman, 1977). Finally, instruction was provided in metacognitive skills that often require strategy application for remediation of reading problems (Brown, 1980).

Models of Metacognition

Flavell's (1979) model of metacognition has four specific components: knowledge, experiences, goals and actions. Metacognitive knowledge includes personal factors such as awareness of one's learning characteristics and awareness of task knowledge related to task characteristics' effect on learning. The awareness of availability of effective strategies is also a personal
factor. Conscious cognitive and/or affective experiences related to learning are considered to be metacognitive experiences. The objects of cognitive activities are the goals or tasks, while the behaviors exhibited to achieve the goals are the actions, or strategies (Flavell, 1979).

Fischer and Mandl (1982) suggest that Flavell's model focuses too much on the knowledge aspect of metacognition and not enough on executive aspects. In other words, the description of metacognitive processes are given less attention than the assumption that awareness exists. Fischer and Mandl (1982) also find fault with the metacognitive model of Brown (1978) because they feel that Brown's model places too much emphasis on the executive function and not enough on the knowledge function.

Brown's (1978) model identifies four factors that influence metacognitive skills. Secondary ignorance, or not knowing when information is not understood is the first factor. In a learning or problem solving situation, predicting the probability of success is also a metacognitive factor. The third and fourth components of metacognitive skills encompass planning the use of strategies and then checking and monitoring one's understanding in a learning situation.

The metacognitive model in "reading to learn" (Armbruster et al., 1983) is influenced by four distinct
variables: text, task, strategies and learner characteristics. Memory and comprehension of the material to be learned is also influenced by interest, structure, familiarity and text difficulty. Task variables are those that relate directly to the requirements for storing and retrieving what is needed to perform the task. Strategies are the specific activities the learner engages in to store and retrieve the information, while learner characteristics are those that influence learning such as ability, motivation and other personal attributes. Readers then, must be aware of what they know, when they know, what they need to know and how to utilize active intervention (Brown, 1980).

Both the knowledge and executive aspects are considered in recent models of metacognition. Factors such as task awareness, secondary ignorance, comprehension monitoring, text variables and planning strategies are also included in some models (Armbruster et al., 1983; Brown, 1978; Flavell, 1979). Researchers investigating metacognitive constructs often focus on one or more aspects of these models in designing their studies. This study focused on task factors, learner characteristics and strategy application constructs of metacognition.
Comprehension Monitoring

Skilled readers can be characterized as reading on "automatic pilot" until a triggering event alerts them to a comprehension failure (Brown, 1980). As long as the processing flows smoothly, meaning construction is fairly rapid. If comprehension failure occurs, fluent readers must slow down and employ "debugging devices" that allot extra processing time. This procedure commonly referred to as comprehension monitoring is a metacognitive activity. Although metacognition and cognitive monitoring describe cognition in general, comprehension monitoring generally refers to reading comprehension monitoring. Wagoner (1983) defines comprehension monitoring as cognitive monitoring that occurs during interaction with written discourse. Pitts (1983) defines comprehension monitoring as the ability to judge or monitor the quality of one's own understanding.

Recent models of comprehension incorporate comprehension monitoring activities either implicitly or explicitly. These models (Collins, Brown & Larkin, 1980; Goodman, 1976; Ruddell, 1976; Rumelhart, 1980) suggest comprehension involves an active process of schema building or hypothesis testing. The notion of comprehension as an active process was suggested as early as 1917 by Thorndike who noted that comprehension problems are evident if the reader did not treat the ideas s/he
encountered as provisional so s/he could accept or reject them as they appeared.

Baker (1979) identifies three basic steps involved in comprehension monitoring: keeping track of successful comprehension, ensuring that comprehension continues smoothly, and taking remedial action if necessary. Fluent readers actively monitor their own comprehension and are cognizant of comprehension failures. These fluent readers then generally select a strategy from their field of knowledge to correct the problem. Most researchers agree that mature or fluent readers are not consciously aware of this comprehension monitoring process until a problem arises (Baker & Brown, 1980; Brown, 1980). When a problem is noted, the comprehension monitoring process is at a conscious level, unlike that present before a comprehension problem arises. Hence, Brown's (1980) automatic state would be a subconscious level while the debugging state is at a conscious level.

It is assumed that poor readers are deficient in the skills and strategies necessary for comprehension monitoring. Poor problem solvers are generally less spontaneous and flexible in preplanning and monitoring skills than good problem solvers (Brown & Palinscar, 1982). Poor readers also fail to concentrate on main ideas or to reread sections that could improve
comprehension. In general, poor readers and young readers focus on decoding and have little awareness that they must make sense of the text (Canney & Winograd, 1979; Clay, 1973; Denny & Weintraub, 1963, 1966; Myers & Paris, 1978).

Comprehension monitoring requires that the reader not only recognize that s/he has failed to comprehend, s/he must also know how to proceed once failure occurs. If the reader takes strategic action, the confusing material may be clarified by rereading, consulting a dictionary or a knowledgeable source, or jumping ahead in the text (Baker & Brown, 1984). Or, the reader may store the inconsistency in memory as a "pending" question (Anderson, 1980) and hope that the author will provide clarification.

Baker and Brown (1984) identify five methods of assessing levels of metacognitive skills and degrees of comprehension monitoring: (a) ratings of felt understanding; (b) self-corrections during reading; (c) cloze technique; (d) on-line measures; and (e) self-reports during reading. Ratings of felt understanding require the reader to rate the certainty that s/he answered comprehension questions correctly or incorrectly. Readers rate their performance after, not during reading. Readers are considered good comprehension monitors as long as there is no mismatch between their confidence ratings and the correctness of their answers.

Forrest and Waller (1979) used a rating of felt
understanding to examine third and sixth graders ability to evaluate their understanding. Good, average and poor readers were asked to read stories for fun, to make up a title, to skim and to study. Students took a comprehension test and rated their confidence on their answers. Older students and better readers evaluated their performance better than younger and poorer readers. In addition, the older and better readers scored better on the comprehension tests, illustrating with both of these findings that age and reading ability are factors in confidence ratings.

Examining self-corrections during reading is a second method that Baker and Brown (1984) suggest can be used to evaluate metacognitive ability. Studies have shown that good readers monitor their comprehension and make corrections more often than poor readers (Clay, 1973; Kavale & Schreiner, 1979; Weber, 1970). Poor readers, it appears, spend more time decoding words and often miss context clues that may signal comprehension problems. Isakson and Miller (1976) matched good and poor fourth grade readers on their ability to decode words in isolation, and found that more often the good readers not only recognized comprehension failures, they also tried to correct problems or inconsistencies.

Use of the cloze technique to examine levels of
comprehension monitoring requires use of contextual information on the part of the reader. Good readers are usually more successful than poor readers on cloze tasks because they utilize context clues better (Neville & Pugh, 1976-1977). DiVesta, Hayward and Orlando (1979), in a study utilizing cloze passages, found that older and better readers were better able to use subsequent context of a text to complete a cloze passage than poorer and younger readers.

On line measures of processing during reading (Baker & Brown, 1984) such as eye-voice span (EVS), eye movements, and reading times have been used instead of comprehension to examine reading behavior. These studies, do however, have findings that parallel other studies looking at the reading ability of good and poor readers. Good readers, for example, modify their eye movements when they encounter difficult material (I. H. Anderson, 1937). Good readers also appear to use a "scan-for-meaning" strategy rather than a word-by-word strategy as evidenced by longer eye-voice spans.

The final method of evaluation suggested by Baker and Brown (1984) is that of self-reporting during reading. Introspective reports obtained from adults suggest that mature readers do have an awareness of and control over their comprehension (Collins et al, 1980). Again, in many instances, good readers were found to be more proficient
in self-reporting than poor readers (Strang & Rogers, 1965; Smith, 1967).

Heller (1986) developed a technique with structured procedures for modeling metacognitive strategies in the content area classroom. In addition to teacher modeling, a directed lesson format was combined with a writing activity to provide a comprehensive approach to modeling metacognitive strategies. Direct instruction of the reading comprehension process was stressed. A "What I Know" sheet was developed to guide the students' comprehension monitoring. Using the procedure, the teacher would select a lesson to build upon the students' prior knowledge. Heller also suggested that when developing the instructional procedures using expository materials, a chapter or chapters with clear methods of development should be used.

Heller (1986) outlined the procedures in the metacognitive strategy to be used before, during and after reading. Before reading, the teacher distributes the What I Know sheets that include the following information: (a) the specific reading topic the teacher will use to model the metacognitive strategies, (b) the purpose for reading, and (c) three columns of information that reflect levels of cognition. The three columns of information on the sheet ask the student to identify: (a) "What I already
know", (b) "What I now know", and (c) "What I don't know". The students write the reading topic on their papers, participate in prereading activities, develop a question (with teacher assistance) to guide reading and write the question on their papers.

Heller (1986) suggests that during reading, the students appropriately classify, in one of the three columns on the What I Know Sheet, the information they encounter while reading. The teacher completes a What I Know Sheet while the students are reading and completing their sheets. After reading, the students answer the purpose question. The teacher then explains to the students exactly what metacognitive strategies s/he employed while constructing an answer for the purpose question. Heller suggests that ultimately, student modeling should replace teacher modeling, and finally independent modeling should occur.

Comprehension monitoring is cognitive monitoring that occurs during interaction with written discourse (Wagoner, 1983). The models of comprehension monitoring in use today suggest that comprehension is an active rather than a passive process. Recent studies in comprehension monitoring investigated differences in the performance of good and poor readers on various comprehension tasks. Generally, poor readers and young readers are less spontaneous than good readers and older readers in
employing preplanning and monitoring skills (Brown & Palincsar, 1982). Poor readers and young readers also often focus on the decoding aspects of reading while neglecting comprehension (Canney & Winnograd, 1979; Clay, 1973; Denny & Weintraub, 1963, 1966; Myers & Paris, 1978).

This study investigated the effect of instruction in a metacognitive self-monitoring strategy on the functional reading ability of poor readers. This study also employed three constructs common to several comprehension monitoring models in use today: keeping track of successful comprehension, ensuring ongoing comprehension, and taking remedial action when necessary (Baker, 1979).

Factors that Influence Metacognitive Abilities

A recent focus of research in metacognition centers on the structure, or rhetorical and logical organization of text (Armbruster et al., 1983). Research findings indicate that (a) learning is influenced by structure, even if the learner is not cognizant of the effect; (b) age and ability are both influencing factors related to the knowledge of the effect of the structure; and (c) learning can be maximized if the learner is aware of the structure and the effect that the structure has on learning.

Brown and Smiley (1977) conducted a study with 8-, 10-, 12- and 18-year olds, and found that when asked to
rate folk tales according to relative importance of idea units to the theme of the passage, ability to distinguish relative importance was strongly related to age. Recall of the most important information, however, was similar across age levels. The most important information was recalled most frequently, while the least important information was recalled least frequently.

Markman (1977) investigated developmental changes in comprehension monitoring of children in grades one and three in an effort to determine their ability to identify incompleteness and inconsistency in oral passages. The students listened to instructions with critical information omitted, on how to play a card game or perform a magic trick. The third graders recognized incomplete information more readily than the first graders. In many instances, the younger children did not recognize any inconsistency until they actually tried to carry out the instructions. The results suggest that first graders often fail to monitor comprehension and seem to be processing material at a superficial level.

In a follow-up study (Markman, 1979) asked third, fifth and sixth graders to listen to essays with inconsistencies and then answer questions to assess awareness of inconsistencies. The essays included either an implicitly or explicitly stated inconsistency. The children were asked probing questions designed to make
them realize an inconsistency existed. Once the child identified the problem, probing was discontinued. Markman noted that when inferencing was required to note the inconsistency, elementary school children were unaware of the problem. Performance improved when the inconsistency was stated explicitly. Many of the students failed to question the inconsistency.

In a second experiment, Markman (1979), again asked third, fifth and sixth graders to listen for inconsistencies. When specifically warned of inconsistencies, a greater proportion of children (mainly sixth graders) reported them. Comprehension monitoring therefore, appears to be easier when criteria for evaluation is explicit (Baker & Brown, 1984).

Markman and Gorin (1981) examined the ability of three groups of eight-year-olds to adjust their standards of evaluation. One group was told only to expect problems while the other two groups were given specific example of either inconsistencies or falsehoods. According to the findings of the study, explicit information about the kind of problem to be encountered allowed the students to adjust their criteria to the specific problem, according to the findings of the study.

Flavell, Speer, Green and August (1981) investigated the development of comprehension monitoring and knowledge
about communication. Kindergarteners and second grade children listened to tape recorded instructions on how to make a block building. The child who originally constructed the building, tape recorded instructions for the other students to follow. The students were shown how to use the tape recorder and were encouraged to listen to the directions as often as they wished. Ambiguities, unfamiliar words, insufficient information and/or unattainable goals were found in the instructions. The researchers detected that older children noticed the inadequacies in the messages more often than the younger students. They also noted that kindergarten and second grade students tried to follow defective instructions, and communication/comprehension knowledge and monitoring skills are important for young children to acquire.

Several researchers have found that in the absence of metacognition, text features may affect learning. These same researchers have consequently suggested that an awareness of the role of text features in learning is essential if the learner is to consciously use the features to comprehend the text (Owings, Petersen, Bransford, Morris & Stein, 1980; Brown & Smiley, 1977, 1978).

Owings et al. (1980) manipulated text structure of passages fifth graders were asked to read. Successful and less successful students were presented "nonarbitrary"
versions of stories in which the subjects and predicates of sentences were re-paired so they were not consistent. The students rated the difficulty, justified their responses and then recalled the stories. Students in both groups recalled the logically structured passages better than the illogically (arbitrary) passages, but only the better readers consistently recognized the illogical passages as more difficult. Also, the better readers devoted more time to the arbitrary passages while the less successful readers spent equal time on the two types of passages.

Brown and Smiley (1978) asked students in fifth grade through college level to read and study passages before they recalled a task. Children in seventh grade and above improved recall of important text elements with extra studying time, but recall of less important items did not improve. Brown and Smiley concluded that younger and less mature readers did not concentrate on important elements because they were not aware of what was important.

Baker (1979) found that although college students can and do monitor their comprehension, they do not do so consistently. Fourteen college students were introduced to three types of confusions (unclear references, inconsistent information and inappropriate logical
connectives) and then retrospective reports were obtained to determine how comprehension was affected. Students were told to study problem passages and probed recalls were taken. Next, the students were told about the types of confusions in the passages and asked if they noticed the inconsistencies. Results of the probes indicated that students used a variety of "fix up" strategies before a faulty interpretation was realized at a conscious level. Comprehension monitoring ability was detected when the students found the inconsistencies after they had been warned of their existence. Because many of the students did not recognize the confusions until they were pointed out, Baker concluded that the poor comprehension ability of these students could be related to a lack of instruction in cognitive monitoring strategies.

A study conducted by Pace (1981) examined the effect of task demands and passage topics on the comprehension monitoring ability of elementary students. Second, fourth and sixth graders read about a common activity such as playing checkers, or a little known topic such as making lye soap. When comprehension questions were asked, more students who read the passage with unfamiliar information referred back to the text to answer questions. Both familiar and unfamiliar passages were designed so that the questions could not be answered without first reading the passage. Comprehension on the whole was better for the
sixth graders and for the familiar passage. It appears topic may affect whether students will employ comprehension monitoring strategies.

Baker and Anderson (1981) had college students read normal expository passages and passages with detail and main point inconsistencies. Students spent more time reading passages with inconsistent information leading Baker and Anderson to conclude that subjects monitored their comprehension while reading. The reading behavior of the subjects was not altered by instructing students to be aware of inconsistencies.

Garner (1980) investigated the ability of good and poor readers to detect inconsistent information in passages. The students were asked to edit four segments of an altered passage on American heroes. Garner hypothesized that poor readers failed to monitor their comprehension, but could read the words. She reported that good readers recognized the altered material and could identify inconsistencies.

Metacognitive abilities are influenced by task factors as well as text factors. Students have purposes or goals to accomplish when reading, and learners differ in their ability to meet these cognitive goals. In general, younger and less mature readers are unable to deal successfully with certain task factors.
The most general task or goal in learning during reading is comprehending the text. Younger and poorer readers tend to view reading as a decoding process and they are often not aware that they must make sense of or comprehend the text (Canney & Winograd, 1979; Denny & Weintraub, 1963; Myers & Paris, 1978). In a study conducted by Canney and Winograd (1979), second-, fourth- and sixth-grade better comprehenders' definitions of reading included "meaning focused" features, while poorer readers focused more on decoding aspects.

When a specialized task demand such as locating specific information was presented to students, Kobasigawa, Ransom and Holland (1980) found that children in grades four, six and eight were able to skim a passage successfully when told how to do so. The researchers also found that although students at all three grade levels had knowledge of text characteristics, spontaneous skimming to meet a task requirement was a skill that developed with age.

Smith (1967) conducted a study in which good and poor twelfth grade students read to gain details or to obtain general impressions. Students were interviewed about the processes they used for whichever purpose they were given. Good readers approached the passages quite differently according to purpose, while poor readers made only slight changes in their approaches according to purposes.
Paris and Myers (1981) also examined the comprehension and memory skills of good and poor readers. Fourth grade students were evaluated on their comprehension monitoring strategies in the areas of (a) self-correction during oral reading; (b) underlining problem areas; and (c) study behavior. Poor readers spent more time on decoding and were unable to use the comprehension monitoring strategies effectively. The poor readers failed to engage in other spontaneous behaviors such as asking questions, taking notes or using the dictionary as often as good readers.

The ability of a reader to recognize that comprehension failure has occurred is of primary importance. Once the reader recognizes the failure, s/he must employ some type of strategy to correct the problem. Alessi, Anderson and Goetz (1979) state that the decision to take remedial action depends largely on the purpose for reading. The available "fix-up" strategies include storing the problem, rereading the text, looking ahead in the text, or consulting an outside source.

Alessi et al. (1979) examined the strategy of "lookbacks" which involves rereading important parts of the text which could help remedy comprehension failures. Students in the study read a text which was displayed on a computer screen, with questions interspersed. If the
students answered one of the questions incorrectly, the computer forced them to "look back" at the section of the text in question. This forced look back helped the students resolve the problem.

Sixth grade students interviewed by Myers and Paris (1978) stated that they resolved comprehension failures at the word or sentence level by asking someone for help, or using a dictionary. Second graders, on the other hand, had few strategies for resolving these comprehension failures. Paris and Myers (1981) found that good fourth grade readers asked questions, used the dictionary and took notes more often than poor readers. Although poor readers were interested in pronouncing unknown words, good readers were more concerned about the meaning of words.

Sentence clarity and passage organization were manipulated by Goetz, Palmer and Haensley (1983) in a study which found that college students were sensitive to text variables. Because the poor readers had difficulty determining which text factor was causing problems, ability level became a factor as the conceptual level increased.

Text, task, learner characteristics, strategy application, reading ability and age all appear to be factors which affect metacognitive ability. In general, better and older readers are more capable of dealing with these factors in their metacognitive awareness. In
addition, there is a significant connection between the ability level of students and their understanding of the reading requirements. Although several studies demonstrate that most readers possess metacognitive abilities, these abilities are not automatically employed.

This study was conducted with a population of poor readers classified as learning disabled. Previous studies found that older and better readers were more adept at recognizing and using metacognitive constructs. This study investigated the effectiveness of instruction in a self-monitoring strategy on the functional reading ability of poor readers. In addition, since the ability level of a student may affect his or her understanding of the reading requirements, this study provided explicit instruction in determining requirements for reading everyday reading materials.

Training Cognitive Skills Studies

The paradigm shift in learning psychology away from behaviorism back to reasoning and thinking, has led to the recent interest in metacognition (Kendall & Mason, 1982). A number of studies in this area have investigated the effect of strategy training on metacognitive abilities. Brown and Palincsar (1982) identify three categories of training studies as blind, informed and self-control. The factors that effect the labeling of the study as one
of these three types include the reasons for conducting the research, the time of the study (historically), evaluation criteria used and the nature of the interaction between the experimenter and the subject.

Blind training studies refer to those studies in which the subjects are not told why the particular activity they are engaging in is important. Historically, blind training studies were conducted first (Brown & Palincsar, 1982). Blind training studies may be effective in helping people learn a specific set of materials, but there is usually no generalization of the process. In general, blind training procedures lack durability (maintenance of skills) and transfer (generalization of other strategies) (Brown & Campione, 1978).

Informed training studies are those in which students are told about the strategy they will be using (Brown et al., 1981). The significance of the trained activity is explained to the subjects based on the assumption that the instructed rehearsal of the strategy is more likely to be maintained. Informed studies conducted with retarded students resulted in substantial maintenance of the targeted behavior in appropriate settings (Kendall, Borkowski & Cavanaugh, 1980; Burger, Blackman, Holmes & Zetlin, 1978). Kennedy and Miller (1976) showed that instructed rehearsal in a strategy resulted in better maintenance of the strategy if the students understood why
the strategy was important.

Brown, Campione and Day (1981) identify studies which include explicit training of general "executive skills" (planning, checking and monitoring) as self-control studies. Self-control training studies differ from informed training studies because informed training studies provide information about the activity and its effects while self-control studies include this same information and in addition, instruct subjects on methods of overseeing the activity. The transfer of skills in self-control training studies would apparently be greater than in either of the other two conditions. Brown and Palinscar (1982) identify the three components of an ideal training package as: (a) instruction related to the significance of the strategy; (b) practice in the use of the strategy; and (c) instruction in the control and monitoring of the strategy.

Palinscar and Brown (1982) developed a skills package that taught the skills of summarizing, predicting, questioning and clarifying. Students in various studies were reminded to perform these skills activities as they read, and they were told not to continue until they did so, constituting self-regulation. The students were also made aware of the importance of these activities as procedures that could improve comprehension and then they
were shown evidence of how their comprehension did improve.

Three studies were conducted by Palinscar and Brown utilizing this cognitive skills training package. Evaluation in each of the studies was based on evidence of: (a) independent proof that improvement occurred in the trained strategies; (b) reliable improvement on training tasks; (c) durability of the training effects; (d) generalizability of the effects; and (f) transfer of effects to novel tasks.

In an attempt to mimic natural learning, Palinscar and Brown developed a procedure in which seventh and eighth grade students were taught to use comprehension strategies as they engaged in an interactive learning game with the researcher. Palinscar and Brown referred to this procedure as Reciprocal Teaching as the students and teachers took turns leading a dialogue about each section of the text. The text was read silently by the subject and teacher, and then the leader (either the teacher or the student) would paraphrase the main idea, discuss classification of information read, predict possible questions, hypothesize about remaining content, comment on problems or confusions, and then suggest ways of resolving them. Performance scores of the students increased during the course of the study and improvement was maintained as long as six months after the study.
Palincsar and Brown (1983, 1984) conducted similar studies, only they used small groups of students rather than individuals. They also utilized teachers rather than trained investigators. Reciprocal teaching was found to have durable, reliable and transferrable effects in both studies. The researchers attributed the success in all three studies to the facts that the students were told the reasons why the activities were so important and how they could be generalized to other areas. Success was also attributed to the fact that subjects received training in self-regulatory activities.

Brown et al. (1981) and Day (1980) found that self-control training was effective with junior college students who had diagnosed writing and reading disabilities. The students of differing abilities were assigned to one of three conditions to learn rules for summarizing texts. The control treatment students were instructed to summarize main ideas and to be economical with words when summarizing (traditional summary writing instructions). In the second condition, demonstration of and practice with rules similar to those in the first condition was provided. In the third condition, self-control training in the form of providing rules and direct instruction in management and overseeing of the rules was provided. Informed training was sufficient for
students with no learning problems, but those with identified problems needed self-control training before improvement was shown.

Most instructional strategies focus on comprehension monitoring strategies to improve reading comprehension. Training research, to a large extent has as its object a subset of specific skills or a general metacognitive level (Brown & Palincsar, 1982). Long term effects of training studies in this area would be difficult to determine due to the relative newness of interest in this area.

Kendall and Mason (1982) suggest that the following approaches can improve students' metacognitive strategies: (a) encourage students to integrate prior knowledge with text; (b) teach students how to predict outcomes and regulate their involvement in the reading process; and (c) train students to self-question during reading to improve monitoring strategies. Kendall and Mason also caution that poor readers must be constantly reminded to monitor their understanding of the complete text. When comprehension failure occurs, the teacher should help the student retrace steps and seek solutions to the comprehension problem.

Brown, Campione and Day (1981) developed instructional guidelines for developing metacognitive awareness and training strategy use such as providing training in a relevant skill, giving the student feedback
on his/her performance and explaining the applicability of the skill. Transfer of use of a strategy to different situations is more likely to occur if students in the strategy training program are informed of relevance and applicability of the strategy (Raphael & Pearson, 1982).

Babbs (1983) investigated the effect of a program designed to increase fourth graders ability to use comprehension monitoring strategies. Students in the experimental groups used reading plan sheets and monitoring cards in the study. The plan sheets were designed to remind the students that reading is a thinking process and to help the students determine a goal, evaluate text difficulty and identify strategies for reaching the goal. Control groups were given no training in comprehension monitoring techniques. Babbs used reading times, oral recalls and interview questions to evaluate the students, and found that children can be taught a strategy that will improve reading comprehension. Use of the monitoring cards improved the performance of the experimental group over the control group. When the cards were not used, however, performance of the two groups was about the same, indicating that students do not necessarily use the strategy spontaneously.

Andre and Anderson (1978) conducted two separate studies with high school seniors in an effort to determine
if generating good comprehension questions while studying prose was an effective study technique. A self-questioning training booklet taught students how to identify the main idea and how to use those questions to guide their reading. Students were also taught how to make up questions related to new instances of paraphrased content or sentence ideas. Students were encouraged to write higher level questions rather than literal level comprehension questions, and then their questions were rated on a scale of 0-4 based on the rules established in the training booklet. Seventy-five percent of the questions generated by the students were considered to be "good" comprehension questions based on the scale. Low verbal students benefited more from the self-questioning techniques, perhaps indicating that high ability students use this strategy spontaneously.

Raphael and Pearson (1982) designed a study with students ability and developmental levels in which questions, task demands and resources varied. The researchers utilized the model of Brown et al. (1981) in which skills instruction, corrective feedback and instruction concerning applicability were provided in hopes that use of strategy would transfer to other situations. A method for improving students' ability to answer comprehension questions was developed based on the Pearson and Johnson (1978) taxonomy which emphasizes the
relationship between the text, the question and the reader's prior knowledge. This categorization method, QAR (Question/Answer/Relationship), involves three specific types of questions. Based on this taxonomy, questions can be classified as text explicit, text implicit or script implicit depending on the source of information. Text explicit questions can be answered within a single sentence in the text while text implicit questions require the reader to integrate information across sentences, paragraphs or pages. Script implicit questions are those that can be answered by using prior knowledge and textual material.

Raphael and Pearson (1982) taught subjects the three QAR classifications, gave them practice in identifying the questions and then provided instruction in the applicability of each type of question in terms of task demands. Results of the study indicated that students cope better with text based QARs than with script based QARs and that training facilitated performance across ability levels.

Cohen (1983) taught third grade students how to generate their own questions while reading a short story in an effort to improve their comprehension. Programmed instructional material was designed to train students to generate "who", "what", "when", "where", "why" and "how"
questions at the literal level. Significant gains were noted in all experimental groups, indicating that third graders can be trained to generate literal level questions.

A Four Step Instructional Procedure was designed by Davey and Porter (1982) to improve poor readers' comprehension. Training sessions that lasted six weeks focused on: (a) enhancing meaning orientation to print; (b) directing attention to meaning during silent reading; (c) establishing criteria for understanding; and (d) developing fix-up strategies. The students who received the training reported that the strategies were helpful, but that they did not use the strategies with other content material.

In summary, many strategy training studies have been conducted with students of different ability and age levels. For the most part, these training studies have been effective with both good and poor readers when direct instruction is provided and when the importance of the strategy is explained.

This study included explicit training of the executive skills of planning, checking and monitoring, which qualified it as a "self-control" training study according to the classification system of Brown, Campione and Day (1981). Self-control studies were found to be effective with low verbal ability high school students
(Andre & Anderson, 1978) and with junior college students with reading and writing disabilities (Brown et al., 1981; Day, 1980). Other self-regulation studies (Palincsar & Brown, 1983, 1984) with positive findings report that telling students the importance of the activities and how the activities can be generalized to other areas was as important as the training in the self-regulatory activities. The students in this study were provided instruction related to the significance of the study, practice in the use of the strategy and instruction in how to monitor their comprehension (Brown & Palincsar, 1982).

Summary

Reading ability, and more specifically, functional reading ability is often used as an indicator of literacy and functional literacy. In an attempt to produce a nation of readers, an effort must be made to reach all persons and offer them the opportunity to be able to read at least well enough to survive.

Recently, the construct of metacognition has been examined in an effort to determine if reading comprehension ability can be improved. Studies have utilized specific metacognitive instructional strategies and techniques with students of all ages using a variety of narrative and content texts. The applicability of metacognitive constructs with functional reading materials
was previously an area that had not been investigated.

Findings of many of the metacognitive studies indicated that good readers often use metacognitive strategies on an unconscious level. Conscious reflection and planning occurs when the good reader encounters complex text, or when comprehension failure is evident. In instances such as these, the good readers spontaneously use these metacognitive strategies.

Poor readers, on the other hand, often do not have strategies available to use when difficulty arises. In addition, poor readers may not even be aware of comprehension failure. In many instances, more time is spent by the poor reader on the decoding aspect of reading, which often interferes with comprehension.

Training poor readers, including learning disabled students, in specific metacognitive self-monitoring strategies might afford these readers the opportunity to successfully read and comprehend more of the print that surrounds them in their environment. The ability to deal successfully with everyday reading materials would at least enable these readers the opportunity to be included as a functionally literate person in our society.
Chapter 3

METHODS AND PROCEDURE

This study was designed to determine the effect of direct teacher instruction in a metacognitive self-monitoring strategy on the functional reading performance of high school learning disabled students. Subjects were not only provided instruction in the metacognitive self-monitoring strategy, they were also provided time to practice the procedure in small group interactions. Emphasis was placed on the importance of using the strategy to better comprehend any type of reading material, but especially, functional reading material. Important aspects of the design of the study are descriptions of: (1) sample, (2) pilot study and its findings, (3) materials, (4) procedure, and (5) data analysis.

Description of the Sample

Approximately 34 ninth- and tenth-grade learning disabled students who were enrolled in public high schools in Ascension Parish in Louisiana were randomly selected and comprised the sample for the study. The subjects lived in a rural area and came from average to low average income homes. Parental permission was obtained prior to students participation in the study.

The students working toward a high school diploma met
the criteria set forth in Louisiana Bulletin 1508 for mild/moderate handicapped students. All students used in the study were classified as learning disabled. In order to receive a high school diploma, these students must receive the same number of Carnegie hours as regular education students, and achieve passing grades in a minimum number of classes.

Of the original 34 subjects, 31 remained for the duration of the study. Two students were dropped from the study because they were in the In School Suspension Program (ISSP) for four days during the instructional period. A third subject quit school during the instructional phase. The subjects were unequally divided, 16 were in the experimental group and 15 were in the control group.

Materials

All materials used for the study were copied, adapted from commercial materials or were researcher-constructed. The materials consisted of the testing instrument which was used for the pre-, post-, and delayed testing and the instructional training materials developed by the researcher.

Description of the Instrument

The test constructed for this study was used to determine the effectiveness of the instruction provided to the subjects. The instrument developed by the researcher,
included items from the CTB/McGraw Hill *Everyday Skills Test* as well as from the National Assessment of Educational Progress (NAEP, 1979 & 1984).

The instrument consisted of 40 items which assessed the performance of learning disabled students who were required to read and glean significant information from functional reading materials utilizing graphic materials, reference materials, written directions and general information sources.

Items designed to measure reading and gleaning significant ideas from written directions assessed such ability as reading and completing job applications, income tax forms and other materials which involved reading directions of two or more steps. Reading and interpreting graphic materials such as charts, graphs, maps, forms and logos was included on the test and consisted of graphic materials from which the students were to glean important ideas. Reading and interpreting reference materials such as telephone directories, magazines, newspapers and other general information sources was also included.

In selecting the instrument for use in the study, the researcher was unable to locate a published instrument that met the criteria for functional reading assessment of reading and gleaning significant ideas from functional materials. Most standardized instruments assess general
knowledge, spelling or phonetic ability or overall reading ability based on reading narrative materials with little emphasis on functional reading. Therefore this instrument was developed using selected items to meet this objective.

The reliability of the testing instrument used for the pre-, post-, and delayed testing was evaluated before the data was analyzed. In examining the instrument, the pretest of each student was used, and an item analysis was undertaken. Using the Kuder-Richardson 20 formula, the reliability value was determined to be .68. It should be noted however, that in evaluating the pretest, values were assigned for correct and incorrect responses only. On the pretest, several students were unable to answer all of the questions, thus their responses were marked as incorrect. On the post- and delayed-test, all subjects completed all items on the test.

In addition, the instrument was evaluated by ten high school resource teachers who worked with learning disabled students on a daily basis. The teachers were asked to evaluate each item on the instrument according to the following criteria: (a) wording (clear and concise), (b) number of possible correct responses, (c) content measured by the item (gleaning important ideas from functional material), (d) appropriateness of the item for high school learning disabled students, (e) difficulty level of the
question, and (f) overall rating of the item. The compilation of the results from the teacher rating of content validity can be found in Appendix A. Appendix B contains samples of the items on the test. Because, the researcher signed a non-disclosure release with the National Assessment of Educational Progress in order to obtain the item pool, the number of NAEP items that can be included in Appendix B is limited. The number of items from the CTB/McGraw Hill Everyday Skills Test included in Appendix B was also limited by the publisher.

Strategy Training Materials

Students in the experimental group were provided direct instruction in reading to glean the most significant ideas from functional reading materials as well as receiving direct instruction in how to monitor their comprehension. In addition, the students were taught the significance of the content and the strategy, and how the information could be generalized to other areas. The students were taught to focus and monitor the mental processes used when reading to glean significant ideas from functional reading materials.

The materials used to provide instruction in the metacognitive self-monitoring strategy were adapted from other strategies, or copied from other sources. Different functional reading materials and "What I Know" sheets
(adapted from Heller, 1986) were used by the experimental group on a daily basis.

The "What I Know" sheets were used by the students to: (a) activate prior knowledge, (b) formulate questions to guide reading, (c) monitor comprehension while reading, and (d) practice the task appropriate strategies. (See Procedure section for details) These sheets also gave students the opportunity to reinforce their learning by incorporating writing in the specific task as they completed the worksheet. Appendix C contains a copy of the "What I Know" sheet used by the students.

In selecting the materials to be used during the instructional phase of the study, the researcher was cognizant of the interests of high school students. An effort was made to select interesting graphic, reference, general information and written direction materials that the students would be most likely to encounter in daily life situations. An effort was also made to select materials that would stimulate discussion since the students were going to be describing their comprehension monitoring of the materials to other students in the group. Appendix D is comprised of examples of the functional reading materials used in the study which included newspaper articles, warranties, record club membership applications, first aid information, coupons, driver's license manual information and recipes.
Students in the control group received normal resource instruction during the course of the study, so no special materials were needed. Researcher observation of the students in the control group during their assigned resource periods revealed that the students mainly received tutoring assistance with assigned work from other classes while in the resource room. The students in the control group were in contact with the researcher only during the pre-, post- and delayed-testing situations.

Procedures

The experimental procedures used were developed to improve functional reading ability of high school learning disabled students. The metacognitive self-monitoring strategy utilized was selected for several specific reasons. The strategy was such that it provided a highly structured framework which was thought to be beneficial to learning disabled students. Also, providing direct instruction in the metacognitive self-monitoring strategy allowed for skills training, self-regulation training and awareness training. The strategy also emphasized the importance of reading to glean the most significant ideas from the functional materials, so that the students learned to distinguish the more important from the less important information.

The following schedule was followed during the course
of the study:

<table>
<thead>
<tr>
<th>Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pretesting</td>
</tr>
<tr>
<td>2-8</td>
<td>Strategy Training, Strategy Practice and Strategy Application</td>
</tr>
<tr>
<td>10</td>
<td>Posttesting</td>
</tr>
<tr>
<td>25</td>
<td>Delayed Testing (Two weeks after instruction)</td>
</tr>
</tbody>
</table>

**Experimental Group.** The instruction provided to the students in the experimental group lasted for approximately 50 minutes per day for a period of eight days, during the students regularly assigned resource times. The eight days of instruction were distributed over a three week period so fatigue would not become a factor. The researcher provided all instruction to the 16 subjects in the experimental (instructional) group, as well as administering the pre-, post- and delayed test.

Instruction provided by the researcher was specifically designed to increase functional reading ability by making the students aware of reading processes. Emphasis was placed on the processes used while reading so students would learn to be aware of: (a) what they already knew about the topic before they began reading, (b) how they went about getting the most important information from what they read, (c) what they did if they did not understand what they read, and (d) how they could use what they were learning with other types of reading. The strategy had teacher modeling,
teacher and student questioning, direct explanation by the
teacher of the reading comprehension process and a
combination of writing and a directed reading lesson
format as components.

The general procedure for strategy training included
the following steps: (a) activating prior knowledge about
the functional reading topic; (b) explaining the
importance and applicability of the strategy under
consideration; (c) providing appropriate instruction and
modeling the self-monitoring strategy for the students;
and (d) providing opportunities for the students to
practice and apply their learning.

Strategy training began each day with the researcher
telling the students what the functional reading topic was
for the day. The "What I Know" sheets were distributed to
the students as the topic was being introduced. The
students were instructed to copy the topic name from the
board and write the topic next to the words "Reading
Topic" on the sheets. Prior knowledge was then activated
as the teacher asked the students probing questions about
what they already knew about the topic at hand. The
importance of "thinking about what you already know"
(activating prior knowledge) was stressed on a daily basis
so the students could realize how much knowledge they
already possessed, and feel some degree of confidence
before reading the materials.

During this period of activating background knowledge, vocabulary development was also stressed. Terms or phrases the students identified as related to the topic were written on the board and discussed as a group. Specific vocabulary development skills were dealt with as needed.

Daily, the researcher stressed the role of questioning in reading materials. Direct instruction in writing questions was provided, followed by teacher modeling of developing questions. Emphasis was placed on developing questions that could help the students obtain the gist of the information and guide their reading, as opposed to writing trivial questions. Instruction and modeling was also provided by the researcher on how to glean the most important information from functional reading materials by writing good questions.

Students were then directed to write the purpose for reading on the "What I Know" sheets. The purpose had to be in the form of a question that could help the students glean the most important information from the texts. The students were not asked to contribute to question development until the third day of instruction. Researcher modeling of question development during the first two days appeared to be sufficient, as the students began to make suggestions for "good" questions to guide
the reading on a daily basis.

The researcher provided direct instruction in how to use the "What I Know" sheets to monitor reading comprehension. Overhead transparencies reinforced how the sheets were to be used, and demonstrated the applicability of the strategy in other areas. Modeling was also provided so the students could learn that Column A contained the information they already knew, Column B contained the information that they learned from reading, and Column C contained the words or information that they did not know or understand after reading. The researcher modeled the comprehension monitoring process for the students for the first three days of the study until the students felt comfortable with the procedures.

Basically, a think aloud strategy was employed whereby the researcher verbalized exactly what she was thinking as she read the functional material. Explanations were given on: (a) how the researcher determined in which column to place the information, (b) what the researcher did when she encountered problems while reading (comprehension failure and "fix-up strategies"), and (c) how the researcher gleaned the most important information from the material and thus answered the purpose for reading question.

The subjects spent the last ten minutes of each
instructional period in small groups discussing the reading processes by reading the functional material and sharing what they thought about while reading. Discussions centered on how to glean the most important information from materials, how questions can guide reading by giving the learner a purpose for reading, what strategies can be employed when the reader does not understand, and how learning to think about what one knows as well as how one learns can help one become a better reader. The students also discussed their answers to the purpose question for reading and explained how they came to answer the question as they did. Each session ended with questions the students might have related to monitoring their comprehension, or related to a particular strategy.

Control Group

The control group received normal resource instruction for the duration of the study. Most instruction consisted of one-to-one tutoring provided by the resource teacher. In several cases, the students played games on the computer or sat in their desks and read magazines. Students either worked independently or asked the teachers for help with their assignments, usually their homework assignments due the next day.
Pilot Study

This study was designed to determine if direct teacher instruction in a metacognitive self-monitoring strategy would enhance the functional reading scores of two groups of special education students. It was hypothesized that those students who received instruction in the metacognitive strategy would perform better on a measure of everyday reading ability because: (a) direct instruction was provided; (b) teacher modeling of the applicability of the strategy occurred on a daily basis, and (c) students were provided instruction in a variety of "fix-up" strategies. The researcher was also interested in assessing if the strategy was perhaps more useful to one group than the other.

This pilot was undertaken to determine the efficacy of conducting a similar study with a larger sample of subjects. The researcher was also interested in determining if any procedural or methodological adjustments were needed before the larger study was undertaken.

Subjects

High school special education students identified as mild/moderate generic were used in the pilot study. Students addressing requirements for a high school diploma as well as those students working toward a Certificate of Achievement (an alternate to a high school diploma)
comprised the subjects in the two groups. Once permission was obtained from the parents, the students were randomly assigned to either the experimental group or the control group. There were eight students in each group when the pretest was administered.

Materials

Many commercially devised tests on the market today claim to measure functional reading ability. Upon closer examination of these instruments the researcher determined that no one of the tests alone actually measured functional reading competencies using material encountered in daily life situations. Therefore, the researcher developed an instrument utilizing items from the National Assessment of Educational Progress minimum competency test pool and from the CTB/McGraw Hill Everyday Skills Test.

The materials used in the instructional phase of the pilot study were taken from sources of everyday reading materials. Specifically, students read a section of a driver's license handbook, a warranty, first aid directions and coupons.

Procedures

Four days of instruction in the metacognitive self-monitoring strategy was provided to students in the experimental group. Students in the control group
received their regular resource instruction from their classroom teachers.

**Experimental Group.** The students in this group were given a pretest on the first day of the pilot study. Instruction began two days after the pretest. Instruction provided to the students in the experimental group centered on the "What I Know" sheets adapted from Heller (1986). (See Appendix C) The teacher provided a direct explanation of the strategy and its use to the students. Immediately after the instruction, the teacher modeled the strategy for the students. The students were also told that they would be expected to participate in the explanations and discussions in the upcoming sessions. A posttest followed four days of instruction.

**Control Group.** The control group took the same pretest and posttest as the experimental group. This group received no specific instruction in the metacognitive self-monitoring strategy; instead, they remained in their resource rooms for typical resource instruction.

**Results and Discussion**

Results from the pilot study were very helpful in designing methodological and procedural changes for the main study. There were no significant differences between groups. However, several factors that contributed to the non-significance were identified through qualitative
analysis.

Of the original eight subjects in the experimental group when the pilot study began, none, were present for all four days of instruction, and only two students participated in three days of instruction. Three of the students were suspended for two weeks during the course of the study and another quit school. Of the four students who remained, attendance patterns were erratic at best. The researcher encountered difficulty in administering the posttest to the subjects in the control group because their attendance in school was also irregular.

The following changes in the design and materials used in the research study were made after the pilot study.

The instrument used in the pilot study was re-evaluated, and the number of items assessed was reduced. The original test assessed ability to glean significant ideas from graphic materials, written directions, and general information sources. The original intent was to examine performance in each of these areas; however, the test was too long. Consequently the students completed less than 50% of the items on the pre- and posttest. Therefore, a panel of high school resource teachers was asked to rate the items on a number of criteria, and those items that received the highest
ratings for gleaning significant ideas from functional materials were used. (See Appendix A)

The researcher also met with each of the teachers of the students in the follow-up study to determine their patterns of attendance. Although nothing specific could be done to control for absenteeism, the researcher felt that words of appreciation to those students who made the effort to attend the sessions might be effective with some students. A high absenteeism and drop-out rate was not a problem in the main study.

Finally, although the attendance patterns of the subjects was far from ideal, those who came to school and participated had positive comments about the types of materials they were learning to read. It was determined from these comments and classroom observations, that everyday materials that focusing on obtaining a driver's license, purchasing a piece of electronic equipment with a warranty, or joining a record club were all important to the students.

Experimental Design

The design for this study was a 2 (group: experimental or control) x 3 (time-of-test: pre-, post- or delayed-test). The between-subject variable was group membership, and the withing-subject variable was time-of-test. The dependent variable was the score of the test of functional reading. Data was analyzed
utilizing the overall scores on the pre-, post-, and delayed-tests.

A mixed analysis of variance (Kirk, 1982) was used to determine if the experimental treatment had an effect on the functional reading scores of the subjects. The analysis compared the between group variance of the variable of group. The within group variable of time was examined to determine if a main effect existed, as well as to determine the interaction of group by time. Data was analyzed at the .05 level of significance.

Summary

This study was designed to determine the effect of providing direct instruction in a metacognitive self-monitoring strategy on the functional reading ability of high school learning disabled students. The study took place over a five week period of time using students in Ascension Parish, Louisiana. There were 16 students in the experimental group that received the treatment and 15 students in the control group.

Both groups were given a pre-, post-, and delayed-test of functional reading ability. The experimental group received instruction in a metacognitive self-monitoring strategy while the control group received normal resource instruction. A mixed analysis of variance
was used to analyze the data at the .05 level of significance.
Chapter 4

Results

A test of functional reading ability was administered to the subjects in the study and the data was analyzed in an effort to determine the effect of providing instruction in a metacognitive self-monitoring strategy on students' functional reading ability. The test was designed to measure functional reading ability, and the same instrument was used as a pre-, post-, and delayed-test measure. Test results and data analysis are outlined in this chapter.

It was hypothesized in this study that increases in the scores of the experimental group could be attributed to instruction in the metacognitive self-monitoring strategy. A mixed analysis of variance (Kirk, 1982) was used to analyze the data. In the study, the between-subject factor, instructional group, and the within-subject factor, time-of-testing (pre-, post-, and delayed-test) were examined.

All variables in this study were held constant except for the treatment provided. For this reason, between group variance was analyzed to determine if providing instruction in the metacognitive self-monitoring strategy was more effective than the regular resource instruction provided to the control group. Analysis of variance of
the between-subject variable tested the main effect of group (instruction versus control). In addition, the within subject variable of time was examined to see if there was a significant main effect for time, as well as the interaction of Group (instructional versus control) X Time (pre-, post-, delayed-test). Results of the data analyses are presented below.

Analysis of Variance Results

Between-Subjects Effect. Pre-, post-, and delayed-test results were analyzed in terms of raw scores obtained on each measure. The mixed analysis of variance revealed the main effect for instruction (group) was not significant at the .05 level of confidence, $F(1, 29) = 1.30, p < .27$. The mean scores and standard deviations of groups by time-of-test are presented in Table 1. The difference in the mean score of the experimental group ($M = 18.94$) and the mean score of the control group ($M = 20.33$) was only 1.39 points on the pretest. On the posttest, the difference in the mean scores of the groups was 5.58 points (Experimental $M = 23.31$, Control $M = 17.73$). On the delayed test, the difference in the mean scores was 2.06 points (Experimental $M = 20.06$, Control $M = 18.00$).
Table 1

**Functional Reading Test Means (and Standard Deviations) by Instructional Group by Time-of-Test**

<table>
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<th></th>
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<tr>
<td>(n=16)</td>
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<td></td>
<td>4.20</td>
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<td><strong>Cont. Grp.</strong></td>
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<td></td>
<td>6.08</td>
<td>8.02</td>
<td>7.21</td>
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Within-Subject Effect. Within subject effects were analyzed to determine if there was a main effect for time, as well as to determine if there was a Group x Time-of-Test interaction. Using the .05 level of confidence, the within-subject analysis did not reveal a significant main effect for time-of-test, \( F(2, 58) = 1.06, p < .36 \).

There was however, a significant effect for Group x Time-of-Test interaction, \( F(2, 58) = 5.75, p < .006 \). A Scheffe post hoc comparison indicated that the Group x Time interaction was a result of the differences of the means from pretesting to posttesting for the two groups. At the posttest, there was a significant difference between the means of the instructional group (\( M = 23.31 \)) and the control group (\( M = 17.33 \)) at the .05 level of confidence. On the delayed-test, there was no significant difference between the means of the instructional group (\( M = 20.06 \)) and the control group (\( M = 18.00 \)). The effect of this interaction is illustrated in Figure 1. In this study, although there were no significant main effects for either group or time, the group (instructional or control) by time-of-test (pre-, post-, delayed-test) interaction was significant.
Figure 1

Functional Reading Test Means - Group by Time Interaction
Summary

A mixed analysis of variance procedure was used to analyze the data obtained from the pre-, post-, and delayed-tests of functional reading. The main effects that were examined included the between-subject factor of group and the within-subject factor of Time-of-Test. Although neither of the main effects were found to be significant at the .05 level, there was a significant interaction effect of Group x Time-of-Test.
Chapter 5

CONCLUSIONS AND IMPLICATIONS

The purpose of this study was to determine the effect of direct teacher instruction in a metacognitive self-monitoring strategy on the ability of high school learning disabled students to perform on a measure of functional reading. The experimental group received eight periods of instruction in the self-monitoring strategy, while the control group received regular resource instruction. A significant difference in the scores of the two groups was anticipated at the posttest level if the instruction was effective. The group by time-of-test interaction would only be effective if the two groups did not differ significantly at the pretest level. A mixed analysis of variance procedure was used to analyze differences both between and within the groups. This chapter includes a summary of the analysis with discussions of the effectiveness of the study, the limitations of the study and implications for researchers as well as classroom teachers.

Effectiveness of the Study

The mixed analysis of variance procedure used in this study did not reveal significant main effects for group or time-of-test. There was however, a significant Group x
Time-of-Test interaction. There was no significant difference in the means of the instructional group and the control group at the pretest level. However, at the posttest level, the instructional group performed significantly better than the control group indicating that instruction in the metacognitive self-monitoring strategy was effective. At the delayed test level, there was no significant difference in the means of the instructional group and the control group.

Although qualitative analysis was not addressed in the hypotheses of this study, the researcher noted some positive changes in the learning disabled students related to group and age during the course of the treatment. The students' verbalizations of their thoughts while reading increased throughout the study. It is interesting to note that the students' hesitancy to admit comprehension failures decreased as the researcher modeled the reading process and identified points of comprehension failure in reading. In group discussions, as time progressed, students were more likely to suggest "fix-up" strategies to each other.

In summary, the significant interaction of Group x Time-of-Test, however, indicates that the eight days of instruction in a metacognitive self-monitoring strategy had a positive effect on the functional reading ability of the students who received the instruction.
Implications for Future Research

Recent research into metacognitive abilities has shown that instruction in metacognitive strategies has been effective in improving reading comprehension abilities (Armbruster, Echols & Brown, 1983; Babbs & Moe, 1983; Brown, 1981; Brown & Palincsar, 1982; Palincsar, 1984a, 1984b). This investigation was prompted by this knowledge as well as by Brown & Palincsar's (1982) suggestion that learning disabled students learn cognitive strategies best when skills training, self-regulation training and awareness training are provided. The significant interaction of Group x Time-of-Test indicated that direct instruction in the metacognitive self-monitoring strategy had an effect on functional reading ability. Suggestions of methodological and procedural changes that should be considered in future research follow.

Conducting a study with high school learning disabled students limits control of certain variables. Although the subjects were randomly assigned to either the experimental group or the control group, there was no way of controlling for the severity of the subjects' specific learning disabilities. All students in the study were classified as learning disabled, all had reading disabilities, and all received resource assistance on a
daily basis. The generic label of "learning disabled" made it impossible to distinguish between those students who received resource assistance for one hour per day and those students who received assistance for two or three hours per day. Hence, although all students were impaired in reading, the impairments of some in written language, oral language and listening comprehension could have contributed to the poor performance of some students on the test. Future research with learning disabled students might focus only on students with an identified learning disability in reading.

Another problem with using high school resource subjects was that the students relied on the resource period as a time to be tutored with homework or class assignments from the regular classroom. At the beginning of the study, all of the students were enthused about participating in the instruction. However, toward the end of the three week instructional period, even though the lessons had been spaced to prevent students from tiring of the activities, several students were concerned about falling behind in homework assignments. Future research in this area might focus on providing instruction once a week for eight weeks or at a time which does not conflict with the period of study used by the students to keep up in school.

Management problems typical to high schools, and
specifically to learning disabled students were also noted. Several subjects were dropped from the study due to repeated suspensions and in one case, expulsion. Although learning disabled students are often noted for behavior problems due to their inability to attend to a task for any long period of time, this was a problem on only one occasion. On the last day of instruction, two students from different classes who were randomly assigned to the experimental group got into a fight in the classroom. The posttesting had to be delayed at both schools for a couple of days in order to allow the other students in the instructional group at the time of the fight to settle back into their normal school routine. Although there are no definite strategies that can be implemented to assure that problems such as these do not arise in future research, it is a factor to consider in selecting a sample and providing group instruction.

Scheduling periods of instruction was also a difficult task in this study. All students in the instructional group had to be taught during their assigned resource times. Once randomization was complete, there was no way to control for the time that the instruction was provided. Future researchers might consider drawing from only morning resource classes or obtaining permission to schedule a time that all students could be brought
together for instruction.

An original area of interest in this study was to examine the differences in performance of boys and girls. The small number of girls in Ascension parish with identified learning disabilities, combined with randomizing the sample, made this comparison impossible. Future research might examine differences in functional reading ability of boys and girls by stratifying the sample so that an equivalent number of girls and boys are assigned to each group. While the comparison can be easily made if this is done, the researcher must consider that true random sampling does not occur.

Another area of interest that was omitted from the design of the study due to logistics, was the inclusion of a second experimental group that would have received instruction in the self-monitoring strategy in a passive rather than active mode. The instruction could be provided in written form to the second experimental group and then comparisons could be made to determine if any differences existed. A limitation of this written procedure is the reading difficulty inherent with many of these learning disabled students.

An area of specific need for future research centers on the development of an instrument that assesses functional reading ability. As mentioned previously, most instruments examined were not usable because they did not
measure functional reading ability, the instrument was no longer in print or no reliability or validity data was available. Most available items come from criterion-referenced tests with no information on reliability or validity. Thus, a standardized test to measure functional reading ability should be developed using materials read in the course of a typical day, including items utilizing graphic materials, written direction materials, general information and reference source materials.

Strategy training could be enhanced in future research with the development of a checklist for use in qualitative analysis. Although the researcher kept daily anecdotal notes on, a checklist which allowed for noting participation in the questioning and discussion phases of the instruction would have been helpful. Also, successes or failures with the fix-up strategies could be noted for future instructional purposes. Verbalizations of the students could be categorized for analysis.

Future research might also examine the effect of providing metacognitive self-monitoring instruction to younger learning disabled students. New measures would have to be developed to assess gains, as a test of functional reading may not be appropriate for younger students. The materials of instruction used in this study
were selected based on the assumption that high school students would have frequent contact with functional materials, whereas younger students might not have been exposed to the materials. The "What I Know" strategy used in this study is applicable to all types of materials, so studies could be designed with learning disabled students to determine if direct instruction in the self-monitoring strategy could improve performance with content area or other types of materials.

The efficacy of utilizing metacognitive strategies with learning disabled students is an area that needs to be further investigated. Recommendations for refining procedural and methodological factors before replication of a study of this type include:

1. Determine the feasibility of stratifying the sample of learning disabled students so that those students diagnosed as learning disabled in reading only are used.

2. Limit instruction to one resource period per week or another time period so students do not feel that their one-to-one tutoring time is being infringed upon.

3. Attempt to provide instruction on a rotating basis so students receive instruction at different periods of the day in each of the schools used in the study. If this were the case, time-of-day could be added as a variable that could be examined in terms of
interactions with other main effects.

4. Comparisons in the performance of boys and girls should be examined to determine if differences do exist.

5. The effect of passive versus active instruction in the metacognitive self-monitoring strategy may be studied to determine if instructional implications exist.

6. An instrument that measures functional reading ability needs to be developed with the following characteristics: (a) can be group administered, (b) measures functional reading using materials found in daily life situations, (c) provides reliability and validity data.

7. A checklist for qualitative analysis of instruction is needed to allow for the study of the metacognitive process used by this population of students.

8. Studies to determine if this strategy is effective with a younger sample of learning disabled students would yield valuable information for the classroom teacher.

9. Studies are needed to determine if this strategy would improve content reading comprehension of learning disabled middle school and high school students.
10. Studies comparing this metacognitive self-monitoring strategy with another strategy would provide possible alternate methods for classroom teachers.

Recommendations for Classroom Teachers

Informal qualitative analysis of anecdotal records as well as researcher observation revealed that direct instruction in the metacognitive self-monitoring strategy was beneficial in a number of ways that can be easily implemented in the classroom. Direct instruction in any skill is obviously more beneficial than passive instruction or no instruction at all (Duffy and Roehler, 1982). This is particularly true for learning disabled students who learn best in highly structured environments (Brown & Palincsar, 1982). Teachers often assume students know how to perform the various tasks they must face in the course of a typical day. More often than not, learning disabled students are unable to perform task requirements without direct instruction. Teacher modeling and explanation of how and why a task is completed in a certain manner can be very beneficial to the learning disabled student.

Classroom teachers must also attempt to activate the prior knowledge of learning disabled students before requiring them to complete a task. Activating a student's prior knowledge gives them confidence that they can
perform certain tasks because they already possess general knowledge about the task. Many teacher operate under the assumption that students have knowledge of much of what is found in everyday reading material. This is frequently not the case. For example, teachers may assume that students know what a "warranty" is and how it is used. One of the subjects in this study said a warranty "... was what police used to arrest you with", while another said it was "the box in the wall that you plug things in to".

Classroom teachers can also improve the metacognitive self-monitoring strategies of learning disabled students by requiring the students to develop questions to guide their reading. More often than not, the classroom teacher provides the students with a list of questions to answer after reading materials. These questions may or may not be meaningful to the student. In this study it was found that when students developed their own questions to guide their reading, they read carefully and answered the questions correctly more often, than when the questions were provided for them.

Finally, the classroom teacher can encourage learning disabled students to monitor their comprehension by modeling the process for them. Students are more likely to admit comprehension failure when they recognize that
the teacher can identify when comprehension failure occurs and what s/he does to enhance understanding of what is being read.

Summary

This study examined the effectiveness of a metacognitive self-monitoring strategy on the ability of high school learning disabled students to perform on a measure of functional reading. The significant interaction of Group x Time-of-Test indicates that the instruction may have been effective in improving functional reading ability. In addition, researcher observations noted positive changes in the approaches to reading of the students in the experimental group who received instruction. The results of the pre-, post-, and delayed-test measures used with the experimental and control groups was analyzed using a mixed analysis of variance procedure.

Data gathered and analyzed in this study led to implications for future research in the area of metacognitive strategies that can be successfully employed with learning disabled readers. Replications or modifications to the original design of this study should yield important information in the areas of metacognition and learning disabilities. In addition, future findings
may have generalizable results in the area of literacy, and more specifically, the area of functional reading.
REFERENCES


### APPENDIX A

**Resource Teachers' Evaluation of Instrument**

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Appendix B

Sample Test Items

Read the directions from a can of insecticide spray and answer the questions 1 and 2 below. Fill in the space beside the correct answer.

ABC Bug Spray

Kills -- Spiders, roaches, ants and most other crawling insects.

Directions: Spray surface over which insects may crawl: doorways, window ledges, cracks, etc. Hold can approximately 10 inches from surface. Do not use near uncovered foods or small children. Toxic.

1. Which of the following will probably NOT be killed by the spray?

a. Ants
b. Caterpillars
c. Flies
d. Roaches
e. Spiders

2. How far from surface to be sprayed should you hold the can?

a. 2 inches
b. 6 inches
c. 10 inches
d. 1 foot
e. 2 feet
Read the passage and complete the sentence which follows it. Fill in the space beside the correct answer:

NOTICE

This film will be replaced with an equivalent amount of unexposed Filmo film if found defective in manufacture, labeling, or packaging, or if damaged or lost by us or any subsidiary company even though by negligence or other fault. Except for such replacement, this film is sold and will be accepted for processing or any other purpose without warranty or liability. Since color dyes may change in time, this film will not be replaced for, or otherwise warranted against, any change of color.

9. The film will not be replaced for any change in color because
   a. color dyes never change
   b. color dyes change in time
   c. the film is not color film
   d. the company does not do the coloring itself

10. According to the part of the Driver's Handbook shown at the right, which picture means that you can pass on only one side of a two-way road?
   a. Broken Line
   b. Single Solid Line
   c. Double Solid Line
   d. Solid and Broken Line

   **BROKEN LINE** is used to define traffic lanes. Permits crossing if ample passing distance exists and opposing lane is clear of traffic.

   **SINGLE SOLID LINE** is used to separate opposing streams of traffic. When yellow it prohibits passing another vehicle. When white it discourages passing another vehicle.

   **DOUBLE SOLID LINE** is used to prohibit crossing line. Traffic should not cross either side except to enter or leave driveway on the opposite side of roadway.

   **SOLID AND BROKEN LINE** is used to control passing. Permits crossing from one side only if ample passing distance exists and opposing lane is clear of traffic. Pass only if broken line is on your side of highway.
A FOREST'S FUTURE IS IN YOUR HANDS

Every tree, every shrub, and all our wildlife depend on you to help prevent forest fires. So please follow Smokey's ABC's: Always hold matches till cold. Be sure to drown all campfires, stir the ashes, and drown them again. Crush all smokes dead out.

Please! Only you can prevent forest fires.

16. The name of the bear pictured in the advertisement is
   b. Forest.
   c. Public Service.
   d. Smokey

17. The purpose of this advertisement is to get you to
   a. enjoy camping.
   b. enjoy the wildlife.
   c. protect the forests.
   d. plant trees properly.
Questions 19-21 refer to the coupon below. Read the coupon answer the questions.

Mr. Dealer: To redeem this coupon mail it to KOLA, Box 5000, Hamtramck, Mich. 48035. You will be paid the face value of this coupon plus 26 for handling. Customer must pay any sales tax and bottle deposit. Invoices proving purchases of sufficient stock to cover coupons presented for redemption must be shown upon request. Offer expires October 1, 1970.

19. Was this coupon good only for a 6-pack carton of the product?
   a. Yes
   b. No

20. Could someone have used this coupon on November 10, 1970?
   a. Yes
   b. No

21. If this coupon were still valid, how much could the dealer be paid for the coupon?
   a. Nothing
   b. 12 cents
   c. 13 cents
   d. 15 cents
Questions 28-30 refer to an ad from a national magazine. Read the advertisement and then answer the questions based on it.

SCOUPT BOOK CLUB
P. O. Box 170
Allentown, Michigan 13074

Please enroll me in your Scoup Book Club. In accordance with your offer, please send FREE, as an enrollment gift, the two books: "The Top News Stories of 1979" and "Joe Cooke Looks at 1980," worth $12.95. Also send the book "Sports—Past and Present" (regularly $4.95) as the first selection, billing me at the membership price of $3.50 plus a small mailing charge. If not pleased I may return these books in 10 days and owe nothing, otherwise continue to send a new book each month at the same price. In the future I may return any selection which I am not pleased with, paying only the postage. I may cancel membership any time after I have bought six additional monthly selections.

Your name ____________________________
Address ______________________________ Zip
City___________ State________ Code_______
Signature ______________________________

Canadian orders will be shipped from Canada at a slightly higher price.

28. How much will the shipping costs be if you live in Canada?
   a. $1.49
   b. Lower than if you lived in the United States
   c. The same as if you lived in the United States
   d. Higher than if you lived in the United States
   e. I don't know.

29. What money should you send with the order for the books?
   a. $1.49 plus shipping fees
   b. $3.50 plus shipping fees
   c. $14.00 plus shipping fees
   d. No money until billed
   e. I don't know.
Read the article and then answer questions 25-27.

NATIONAL NEWS

The Snail Darter is a three-inch long fish. There are only a few in the entire world. They were just discovered three years ago. The only place they are known to live is in the Little Tennessee River in Tennessee.

They swim near the spot where a large dam is being built. People have worked on the dam for eleven years. It has cost $116 million. The dam is needed to prevent floods and supply electricity.

Recently, the United States Supreme Court in Washington, D.C., ruled the dam could not be completed because it would kill the Snail Darters. There is a law that protects animals such as the Snail Darter that are in danger of being destroyed. It is called the Endangered Species Act.

Some people are happy the dam won't be finished. But others, including some members of Congress, say they will change the law.

They say the dam is more important than a three-inch long fish.

25. What is a Snail Darter?
   a. A snail
   b. An insect
   c. A fish
   d. A bird

26. According to the article, why is the dam needed?
   a. To provide water for the Tennessee farmland.
   b. To protect endangered species.
   c. To prevent floods and supply electricity.
   d. To give a place for the Snail Darter to live.

27. Why did the Supreme Court rule the dam could not be completed?
   a. Because the dam cost too much money.
   b. Because the dam would kill the Snail Darter.
   c. Because the dam was not being built properly.
   d. Because some members of Congress disliked the dam.
Appendix C

"WHAT I KNOW" Sheet

<table>
<thead>
<tr>
<th>Reading topic:</th>
<th>Purpose for reading:</th>
<th>Column A</th>
<th>Column B</th>
<th>Column C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>What I already knew:</td>
<td>What I now know:</td>
<td>What I don't know:</td>
</tr>
</tbody>
</table>

Answer to the purpose question:
Reading is an important part of nearly everything we do in life. We almost always have to read something at least once during the course of a day. We read street signs, directions, magazines, newspapers and many other materials other than books in school.

Today, we are going to learn a way that will help us become better readers of all materials. One way that we can become better readers is to think about everything we already know about whatever it is that we are going to read. By using the information we already have in our minds, we can read new materials with less trouble.

Now, I'm going to show you exactly what I'm talking about. Today, we are going to read a warranty, (WRITE THE WORD WARRANTY ON THE BOARD) and I'm going to show you how to describe what you know and don't know about a warranty. (PASS OUT THE WHAT I KNOW SHEETS TO THE STUDENTS).

The paper coming around to you now is called a WHAT I KNOW sheet and it will help you in a number of ways. Look at the top of the WHAT I KNOW sheet and find the words Reading Topic:. Next to the words, Reading Topic: I want you to write the words "Reading A Warranty". (WRITE
"Reading A Warranty" on the board for the students to copy.)

Now, let's continue. Why don't we spend a few minutes talking about what we already know about warranties. Who can tell me what a warranty is? (ALLOW STUDENTS TO RESPOND, AND IF NO CORRECT ANSWERS ARE GIVEN, OFFER THE FOLLOWING SUGGESTION: "A warranty is a written statement from a seller to a buyer that a product will be taken care of if it is defective or does not work for some reason.")

"How many of you have ever heard of a warranty?"

"Can you tell me something that might come with a warranty?"

"Why are warranties important?"

"Why don't we get warranties with everything we buy?"

"What do you think we should do when we receive a warranty with a product?"

Now, let me make sure you understand the difference between a warranty and the set of directions that come with the product. The directions tell you how to set up and use the product, while a warranty tells you what to do when something goes wrong with the product. Do you see how much you already know about a warranty, and we haven't even read the first warranty.

Before we actually read a warranty, let me make sure
that you are familiar with some of the words you are likely to come across in the warranty. (DEFINE EACH OF THE FOLLOWING TERMS:)

- **authorized** - something that is officially approved
- **guaranteed** - promised to be in good working order
- **labor** - the charge made by the person who actually fixed the product
- **parts** - the charge for any of the actual parts needed to fix the product
- **defective** - something defective is something that does not work

(Encourage the students to discuss or add to the definitions of the terms.) (PASS OUT A COPY OF THE WARRANTY TO THE STUDENTS)

The paper coming around to you now is a copy of the warranty that we are going to read. I want you to think about everything we've talked about so far, and listen while I develop a question that we can use to guide our reading of this warranty. We try to answer questions everyday in one way or another, and if we have a well developed question to guide our reading, it will help us focus on the most important parts of what we are reading. This is what we want to try to do, no matter what material we are reading. Since many questions begin with the words who, what, when, where, why or how, I want us to
start our question with one of these words. Now the idea is for me to come up with a question that we can all use to guide our reading. I'll show you how to write a question, and in a few days, you will be writing questions of your own. Listen to this question: "What are the important parts of a warranty that we need to understand to correctly use the warranty?" Does this sound like a good question to all of you? Does anyone want to make any changes? O.K., then I'll write the question on the board, and I want each of you to copy the question on your sheets next to the part that says Purpose for reading: (WRITE THE QUESTION ON THE BOARD AND GIVE THE STUDENTS TIME TO COPY THE QUESTION ON THEIR PAPERS.)

So now we have our purpose for reading. Reading to try to answer this question should make your job a little easier. But there are other things than can help you while you are reading. If you look on your paper, you see that there are three columns printed there. Look at Column A which is called the "What I Already Knew" column. Before we read a warranty, I want you to write down everything you already knew about warranties. By writing down what you already know, you will probably be able to answer the purpose question. You can write any of the terms that we talked about before, in this column. Begin to fill in this column now.
While you are reading, you may very well come across some other words or phrases that you already knew, but you didn't think about at the time. For example, when you read the warranty you will see the word guarantee (POINT TO THE WORD ON THE BOARD). If you already know what it means to guarantee something, you can add this to column A. While you are reading, if you learn any new words, sentences or ideas, you should write them in column B which is the "What I Now Know" column. Make sure you understand any words or phrases you write in this column because these will also help you understand the purpose question. Column C is the "What I Don't Know" column. This is where you write any of the words, phrases or sentences that are making reading difficult or confusing for you. Remember, column A is where you write the things you already knew, column B is where you write what you learned from reading, and column C is where you write any words or ideas that give you problems.

While you are reading and filling out your WHAT I KNOW sheets, I will be doing the same. When everyone is finished, I will explain to you exactly what I did while I was reading and why I did it. I will also tell you exactly what I was thinking about. When you finish reading, I want you to answer the purpose question on your paper at the bottom of the page. The page is marked
"Answer to the purpose question."

(GIVE THE STUDENTS TIME TO READ THE WARRANTY AND COMPLETE THE WHAT I KNOW SHEETS.)

Now, I want us to look at the warranty together. I am going to explain to you what I was thinking about while I was reading and trying to answer the purpose question. I want you to look at your WHAT I KNOW sheets and see if you had any of the same problems or ideas that I had. Your paper does not have to look at all like mine, because you were supposed to be doing this as you were reading, just as I completed my sheet while I was reading.

"As I began reading the warranty, I thought about the word guarantee that we talked about before we began reading. I also thought about what types of problems products might have. I had already written the words guaranteed, labor and parts on my paper in column A, because I knew what each of these meant. I thought about the purpose question "What are the important parts of a warranty that we need to understand to correctly use the warranty?" I noticed as I continued reading, that the person who wrote the warranty was telling me the conditions that had to be met before I could use the warranty.

"As I read on, I came to the word AUTHORIZED, and I saw that it was underlined. From reading other types of materials, I knew that any time a word was underlined, it
was an important word. The warranty said that the names of authorized service dealers were listed on the back of the warranty, so I wrote AUTHORIZED SERVICE DEALERS under Column B because I understood what an authorized service dealer was. I didn't write it under column A, because I didn't know what an authorized service dealer was until I read the warranty. I realized that if something was wrong with the dryer, I would have to call one of the people listed on the back of the warranty if the guarantee was going to be good.

"Then, I came to the part that said that the warranty did not cover problems caused by tampering. I became confused because I didn't know what tampering meant. I wrote tampering in column C. As I continued reading, I saw that the person who wrote the warranty defined tampering in the very next sentence.

"When I finished reading the warranty, I went back and read the warranty again. I noticed the word defective again, and I realized that the word would have caused me problems if we hadn't discussed it before we read. Once I read through the warranty a second time, I felt that I could answer the purpose question.

"I want us to break up into groups now and talk about how we answered the question, and how we came up with the answer. I also want you to identify those parts of the
warranty that gave you trouble, and I want to tell you about some things we can do when we have problems.

Warranty

Smith Dryer Company, Inc.

Smith Dryers are guaranteed to be free from defective workmanship and materials. Should any defect be found within one year from the date of purchase, Smith Dryer Co. will repair the dryer if an authorized service dealer listed on the back of this warranty is contacted. Free labor and repair or replacement of parts will be made by an authorized dealer. This warranty does not cover damages due to tampering on the part of the owner. Tampering is defined as anyone other than an authorized dealer opening the dryer and trying to make repairs or replace parts.
Appendix D - continued

Functional Reading Material

Joining a Record Club

Anytime you can get 11 records or tapes for a penny—that's a steal! And that's exactly what you get if you join the Columbia Record & Tape Club under this offer. To get any 11 of these records or tapes right away, simply fill in and mail the application together with your check or money order for $1.86 as payment (that's 1 for your first 11 selections, plus $1.85 to cover shipping and handling). And if you also fill in the bonus box, you'll get an extra album FREE. In exchange, you agree to buy 8 more tapes or records (at regular Club prices) in the next three years and you may cancel your membership at any time after doing so.

How the Club operates: every four weeks (13 times a year) you'll receive the Club's music magazine which describes the Selection of the Month for each musical interest, plus hundreds of alternates from every field of music. In addition, up to six times a year you may receive offers of Special Selections usually at a discount off regular Club prices for a total of up to 19 buying opportunities.

If you wish to receive the Selection of the Month or the Special Selection, you need do nothing—it will be shipped automatically. If you prefer an alternate selection, or none at all, fill in the response card always provided and mail it by the date specified. You will always have at least 10 days to make your decision. If you ever receive any Selection without having had at least 10 days to decide, you may return it at our expense.

The tapes and records you order during your membership will be billed at regular Club prices, which currently are $7.98 to $9.98—plus shipping and handling. (Multiple unit sets and Double Selections may be somewhat higher.) And if you decide to continue as a member after completing your enrollment agreement, you'll be eligible for our money-saving bonus plan.

10 Day Free Trial: we'll send details of the Club's operation with your introductory shipment. If you are not satisfied for any reason whatsoever, just return everything within 10 days for a full refund and you will have no further obligation. So act now!
Special Start-Your-Membership-Now Offer: You may also choose your first selection right now — and we'll give it to you for at least 60% off regular Club prices (only $2.99). Enclose payment now and you'll receive it with your 11 introductory selections. This discount purchase reduces your membership obligation immediately.
Appendix D - continued

Funcional Reading Material

Driver's License Requirements

Who must have a driver's license

You must have a Louisiana driver's license if you are a resident of Louisiana and want to drive a motor vehicle on public streets and highways. Always carry your license with you when driving. You are required to show it to any police officer, or any officer or agent of the department who may ask to see it.

exceptions

You do not need a Louisiana driver's license if:
- You are a non-resident and possess a valid license issued by another state. You are permitted to drive in this state for a period of 90 days.
- You are a student and possess both a valid driver's license issued by your home state and a current student ID card.
- You are operating a farm tractor, farm implements or road machinery temporarily on the highway.
- You are a member of the Armed Forces driving a U. S. Government vehicle while on official duty.

new residents

When you become a Louisiana resident, you must get a Louisiana driver's license. You must pass an eye test, a traffic signs test, and a written test on Louisiana traffic laws and safe driving habits. If your out-of-state license has expired, you will also be required to take a driving test.

If your driver's license from another state is expired 60 days or lost, you must get a letter of clearance from that state stating your license is not suspended or revoked. If your out-of-state license is lost, you will need to submit proof of identification in addition to your letter of clearance.

You must turn in any other driver's license you may have.
It is unlawful in Louisiana to have more than one driver's license.

How to get a license

requirements

You must be a legal resident of Louisiana and have a valid Louisiana residence address.

You must prove who you are and your date of birth to get a driver's license. Two or more of the following proofs of your full name and date of birth must be submitted.

Primary documents

1. Certified copy of Birth Certificate, Birth Registration Card
2. Passport
3. Certificate of Citizenship or Alien Registration Card
4. Louisiana ID card
5. Current out-of-state operator's license

Secondary documents

1. Student ID card with photo (college or university)
2. Diploma
3. Marriage license
4. Military records (DD214, ID card)
5. Certificate of Baptism
6. W-2 form
7. Union book or card, employee ID card with photo

If you are married and want to use the last name of your spouse on your driver's license, you must bring your marriage license as proof.

If you completed a Driver's Education Course, you should bring your certificate and have it recorded on your application.

If you are a minor, one parent must sign your application for a driver's license, and certify that vehicles to be used are insured.
MINOR BURNS
1. Run cold water over burn or soak in cold water.
2. If skin shows redness, either leave alone or cover with clean dry bandage.
3. If blisters show, do not break.
4. Call doctor if fever or pain occur.

MAJOR BURNS (Medical Care Needed)
1. If clothing is on fire, smother flames with blanket or coat.
2. Keep victim lying down.
3. Carefully cut clothing away from burned area.
4. Never remove anything sticking to burn.
5. Never clean burn.
6. Cover with dry, clean cloth.
7. Immediately call a doctor, the fire department, or police for medical help.

GIVING FIRST AID TREATMENT FOR MINOR BURNS AND SCALDS
Cover burned area with cold running water or soak in a pan of cold water. If this is not possible, soak clean cloths or bandages in cold water. Apply gently to burn. Keep coverings wet and cold.
If skin becomes very red or blistered, do not break blisters.

Call for a doctor or other medical assistance if redness continues or if pain or fever occur.
War on drinking by teens escalates

Teen-age drinking has become a disturbing nationwide problem, authorities say.

Four of every 10 high school seniors get drunk at least once every two weeks, according to Dr. Robert L. DuPont, president of the American Council for Drug Education and past director of the White House Special Action Office for Drug Abuse Prevention.

And Baton Rouge hasn't escaped the problem of under-age drinkers, local authorities say.

The Metropolitan Council last month agreed to reactivate a task force on teen-age drinking after hearing from a group of citizens who said such problems have reached epidemic proportions in East Baton Rouge Parish.

In Louisiana, a person must be 18 to obtain alcoholic beverages legally, and it's illegal for adults to purchase liquor for anyone 17 or younger. In addition, a city-parish ordinance makes it illegal for minors to possess liquor — covering both the purchase and consumption of alcoholic beverages.

In an October Listen magazine article, "Awash in Alcohol," DuPont points out that part of the teen-age drinking problem is that American parents "don't realize that their kids are breaking the law when they drink, or that parents are breaking the law by giving their kids alcohol."

"Most American teen-agers have never heard the argument that they shouldn't drink alcohol at all or at least not until they are the legal drinking age," DuPont says.

He notes that youths are encouraged to drink by the common but misguided concept that alcohol use is easily controlled.

This concept is especially disturbing because more than 10 percent of those aiming to be social drinkers "actually lose control of their drinking and become alcoholics," DuPont points out.

DuPont adds that if alcohol were discovered today and sent to the U.S. Food and Drug Administration for approval for mass distribution, it would be classed as a drug with "high abuse potential and no therapeutic indication."
Appendix D—continued

Functional Reading Materials

Coupons

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**STORE COUPON**

**FRANK 'N STUFF**

GROCER: Hormel will redeem this coupon for amount indicated plus 8¢ handling provided you and your customer have complied with the terms of this offer. Any other application constitutes fraud. Invoices showing purchase of sufficient stock to cover coupons redeemed must be shown on request. Coupon void where prohibited, taxed or restricted. Customer must pay any sales tax. Offer valid only in U.S.A. To redeem coupon, mail to: Processed Products, R.O. Box 1641, Clinton, Iowa 52734. Cash value 1/20¢. TO CONSUMER: Caution! This coupon may be redeemed only with purchase of the items called for. Any other use constitutes fraud. Your grocer may not redeem coupons without your proper purchase. LIMIT ONE COUPON PER PURCHASE. EXPIRATION DATE: 12/31/85.

**CONSUMER:** Don't trim your deals! Help to redeem this coupon! Cut it out and mail to Processed Products, R.O. Box 1641, Clinton, Iowa 52734. Cash value 1/20¢. V •. Don't break the Law! Use this coupon only with purchase of the item(s) called for. Any other use constitutes fraud. Any other use constitutes fraud. Limit one coupon per purchase. EXPIRATION DATE: 12/31/85.

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**Save 15¢**

**WHEN YOU BUY**

**ONE ANY SIZE**

**CREAMY OR CRUNCHY**

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CONSUMER: Don't trim your deal! Help to redeem this coupon! Cut it out and mail to Processed Products, R.O. Box 1641, Clinton, Iowa 52734. Cash value 1/20¢. V •. Don't break the Law! Use this coupon only with purchase of the item(s) called for. Any other use constitutes fraud. Limit one coupon per purchase. EXPIRATION DATE: 12/31/85.

---

**Save 30¢**

**WHEN YOU BUY ONE ANY FLAVOR,**

**12 OZ. OR LARGER PACKAGE**

**Duncan Hines**

CONSUMER: Don't trim your deal! Help to redeem this coupon! Cut it out and mail to Processed Products, R.O. Box 1641, Clinton, Iowa 52734. Cash value 1/20¢. V •. Don't break the Law! Use this coupon only with purchase of the item(s) called for. Any other use constitutes fraud. Limit one coupon per purchase. EXPIRATION DATE: 12/31/85.
Karen Ortego LaCroix was born and reared in Baton Rouge where she attended high school at St. Joseph's Academy and obtained her bachelor's and master's degree from Louisiana State University. Her bachelor's degree, with a double major in education of the mentally retarded and the elementary grades, has enabled her to work with regular as well as special education students for the past six years as a teacher with the East Baton Rouge Parish school system. After receiving her master's degree, Karen also taught undergraduate reading and language arts courses at Louisiana State University for a year and a half while completing residency requirements for her doctorate. Currently, she is employed as a resource teacher at Parkview Elementary School in Baton Rouge where she teaches reading, language arts and math to learning disabled students in grades K through 5.

Karen has made a presentation at the World Congress of the International Reading Association, three presentations at national Reading and Special Education conferences, as well as several presentations at regional conferences. She has a publication in the National Reading Conference Yearbook of 1984.

Married to Delwin LaCroix, Karen has resided with her family in Prairieville for the last seven years. She and her husband have an eleven year old son, Brandon, and a nine year old daughter, Ashley.
Candidate: Karen Ortego LaCroix

Major Field: Education

Title of Dissertation: The Effect of Instruction in a Metacognitive Strategy on Functional Reading of Learning Disabled Students

Approved:

[Signatures]

Major Professor and Chairman
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

July 16, 1986