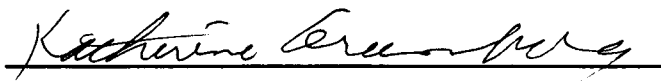
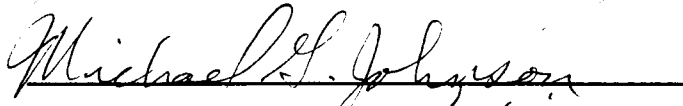
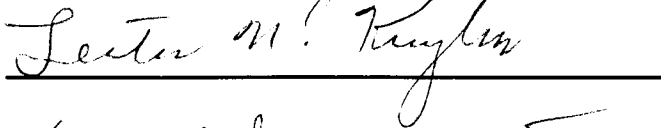


To the Graduate Council:

I am submitting herewith a dissertation written by Cynthia Miller Gettys entitled "The Development of Structural Cognitive Modifiability Through Focused Mediated Learning Experiences: The Initial Implementation of the COGNET MLE Instructional Approach with Whole Group Reading Instruction." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Education.


J. Estill Alexander, Major Professor

We have read this dissertation
and recommend its acceptance:


Accepted for the Council:


Vice Provost
and Dean of the Graduate School

THE DEVELOPMENT OF STRUCTURAL COGNITIVE MODIFIABILITY
THROUGH FOCUSED MEDIATED LEARNING EXPERIENCES: THE
INITIAL IMPLEMENTATION OF THE COGNET MLE INSTRUCTIONAL
APPROACH WITH WHOLE GROUP READING INSTRUCTION

A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Cynthia Miller Gettys

August 1990

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DEDICATION

I wish to dedicate this research study to my husband Don, who has supported me financially and emotionally every step of the way and to my grown children Jim, Lisa, and Robby. It is my desire that they will be inspired to pursue their own educations, set their own goals, and be equally rewarded. I join with Paul in saying, "I have fought the fight, I have finished the course, I have kept the faith", and I love each one of you for letting me be myself.

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In the course of dissertation research, a number of scholars have assisted me generously. In particular I am indebted to Estill Alexander, my major professor, and Don Dessart, Kathy Greenberg, Mike Johnson, and Lester Knight, who served as my committee. With their consultation, criticism, and encouragement, I was able to achieve results that I am proud to publish. It has been a pleasure to work with them at the beginning of my research career.

I hereby acknowledge with thanks the COGNET research staff for their enthusiastic support, and Linda Fleming for her computer expertise. In addition I wish to acknowledge the principals, the teachers, and the students involved with this research without you this would have been an impossible task.

ABSTRACT

This research investigates Reuven Feuerstein's Theory of Structural Cognitive Modifiability (SCM) as achieved during the Initial Implementation of the COGNET MLE Instructional Approach, developed for use with Whole Group Instruction by Katherine H. Greenberg (1988). During its Initial Implementation, the **COGNET MLE Instructional Approach** was utilized as a teaching methodology during Whole Group Reading Instruction, with grades one through three, at an elementary school located in rural eastern Tennessee.

According to Feuerstein, et al. (1974)

Learning occurs either by direct exposure from the individual's encounters with random stimuli or by a Mediated Learning Experience in which the child is exposed to information presented by an adult who interposes him or herself between the child and the world and intentionally mediates the information to the child. Mediated Learning Experience involves modification of the information in such a way that the learning individual can register it meaningfully.

The Initial Implementation of the **COGNET MLE**

Instructional Approach was studied using field observations, interviews, and questionnaires. The qualitative observations, interviews, and questionnaires were triangulated and analyzed thematically. Descriptive statistics were used to explain the findings of the DeFord Theoretical Orientation of the Reading Process (TORP)

Profile and the Heathington Primary Reading Attitude Scale.

Following involvement in the Initial Implementation of the COGNET MLE Instructional Approach during Whole Group Reading Instruction, the teachers participating in this study demonstrated a theoretical understanding of the theory of MLE upon which this teaching methodology is based and showed a change in their attitudes toward teaching and their expectation levels of students' abilities to learn. In addition, these teachers have changed in their theoretical orientation to the teaching of reading as measured by the DeFord Theoretical Orientation of the Reading Process (TORP) Profile (1985). The group of teachers, when treated as a whole, have moved away from a Skills Approach and in the direction of a combined Phonics and Whole Language Approach for the teaching of reading.

The results of the Heathington Primary Reading Attitude Scale showed interesting differences in the students attitudes. These differences were demonstrated primarily in the area of the students' attitudes toward their own abilities to learn to read during Organized Reading Instruction.

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PREFACE

Chapter I of this dissertation introduces the importance of teacher attitudes, teacher expectations, student attitudes, and level of initial implementation as related to whole class instruction. It also includes definitions of cognition and explanations of how cognitive processes aid in the acquirement and manipulation of knowledge. This chapter presents the Background of the Problem, the Statement of the Problem, the Purpose of the Study, et al. as listed in the Prospectus Guidelines issued by the Curriculum & Instruction Department of the College of Education, University of Tennessee at Knoxville.

Chapter II of this dissertation includes the Review of Related Literature and identifies the Theoretical Framework on which this research study was based. Chapter II is divided into four parts to allow for adequate presentation of the related research. In Part I, **Implementation Procedures for Instructional Approaches**, various areas that need to be taken into consideration when developing a plan for successful implementation will be addressed. In Part II, **Cognitive Theories of Learning**, several well known cognitive learning theorists and their theories are presented, contrasted and compared. In Part

III, **Learning How to Learn**, a synthesis of the literature which incorporates research into the real teaching world where formal learning takes place is presented. Part IV, **Instructional Models for Developing Reading Comprehension**, presents a synthesis of the most recent research of reading comprehension instructional approaches. This section also makes the connection between the teaching of reading skills, cognition, and the student's attitude toward the reading act itself while identifying the implementation stages that are essential to assure successful implementation of a new instructional approach.

Chapter III presents the methods and procedures that were followed in producing this work. Included in the Appendices of this document are samples of all instruments described in Chapter III.

Chapter IV presents a curriculum overview of the COGNET MLE Instructional Approach Curriculum. Chapter V presents a Summary of the Findings of this research Study, included in this chapter are tables which present the Findings graphically. A Discussion of the Findings is also included at the end of this chapter. Chapter VI presents the Conclusions of this Study and includes Implications for Further Research in the areas of Initial Implementation of a new program as well as in the area of Structural Cognitive Modifiability and the Mediated Learning Experience, and with the COGNET MLE Instructional

Approach, a teaching methodology developed for use by teachers in Whole Group Instructional Settings.

CHAPTER I

INTRODUCTION

According to Tharp and Gallimore (1988), if teachers suffer from lack of preservice opportunity for learning how to teach, they find things no better once the doors of their first classrooms close behind them. As now organized, schools do not provide for professional development or for the introduction of innovations in teaching practices. This is clearly demonstrated by Rosenholtz (1986) in his studies of teachers of varying lengths of service showing that

most experienced teachers who work in isolation from peers continue to do the same thing they did when they first entered teaching 10, 15, or 20 years ago and now find their jobs to be monotonous and unchallenging....Beginners develop initial skills by trial-and-error learning and begin to deplete their fund of ideas after about the fifth year of teaching.

Although social and behavioral research has never had much effect on the practice of teaching and schooling, a potential basis to guide change is now discernable (Tharp & Gallimore, 1988). It is an emergent contextualist and interactionist view of human development that draws from the achievements of 20th-century English-speaking social science and from what we refer to as "neo-Vygotskianism" (Minick, 1987, Moll & Diaz, 1985, Tharp, Gallimore, &

Calkins, 1984, Vygotsky, 1978, Fischer & Bullock, 1984). This view has profound implications for teaching, schooling, and education.

"Educational change is a process that can be understood, managed and valued as positive results are acknowledged" (MacRae-Campbell, 1990). As teachers become facilitators of change, it is important for them to be knowledgeable about the change process and to also understand that restructuring requires new skills for all that are involved.

Perhaps the greatest reward for those implementing educational change is not what they achieve because of it, but rather what they become because of it.

Changes in teaching practices precede changes in teachers' attitudes and beliefs. Guskey (1986) cites a study of dissemination efforts supporting school improvements that examined efforts to implement sixty-one innovations in one hundred and forty-six school districts nationwide. Outcomes were poor in those cases where teacher commitment to innovative practice was sought prior to implementation. "The new practices typically lost their effectiveness because they were altered by teachers beyond recognition" (Crandall et al., 1982, p. 8). In the successful cases, teachers became committed to the practices only after implementation: In effect, the attitudes of veteran teachers are shaped by experience

with practice in the classroom. When innovations work, they are liked.

Attention is once again being directed at teachers and their attitudes and expectations of student performance in relationship to what is taking place in classrooms today. The role of the teacher in promoting student learning is being emphasized (Brophy & Good, 1986). Teachers cannot merely provide learning experiences. Instead, they must help students become observant, they must help them activate prior knowledge, they must help them to construct meaning by sharing meaning, and they must help them organize this new information (Jones, 1986). Teachers need to teach their students how to think, so that the students can become involved in learning experiences. It is important for students to learn how to learn so they will desire to learn.

Cognition is currently receiving much attention and is considered by some authorities to have considerable power in explaining why children do not read as well as they should. Thinking is an important aspect of cognition. Thinking involves "the process(es), or product(s), of cognition" (Harris & Hodges, 1981). Students need thinking or problem-solving skills as they attempt to decode and comprehend text. Athey (1982) has linked thinking and reading by stating that to "promote thinking is to promote reading." Others point out that literacy

instruction cannot logically be separated from the thought processes and that thinking is a prerequisite and concomitant of reading at any level. Furth (1978) has noted that while "The development of intelligence proceeds spontaneously, it can be helped or hindered by the environment." Environment and experiences can influence cognitive development. Teachers can play an important role in establishing the proper environment to foster the development of thinking. Feuerstein's theories on thinking also have significant implications for reading instruction. He does not believe that cognitive functioning is "set" but rather that there are things which parents and teachers can do to improve thinking skills. Feuerstein calls for Mediated Learning Experiences to improve students thinking skills (1979).

Early approaches to assessing the effects of experience on intelligence used human institutionalization studies, demonstrating that intellectual functioning can be seriously impaired under conditions of physical and social deprivation. It was assumed that the effects of such deprivation were permanent, many still feel the same way about deprivation today. Most early investigators also assumed that parents and significant others affected the child, but they ignored the child's own role in his or her development. This unidirectional approach to intelligence which was not subject to change has been

replaced with a transactional approach to development, which emphasizes the interactive and bidirectional relationships of children and their environments, and their ability to change. This transactional approach to development has just begun to happen and carefully documented research is necessary to validate this change.

Studies of socioeconomic status (SES) have examined the effects of class on the development of intelligence. Differences in intelligence as a function of a child's SES have been reported for decades, with recent evidence pointing to the transaction between the caretaker (teacher) and the child as an important mediator of SES-related differences in intelligence.

Although the effects of early deprivation were once assumed to be permanent, research has indicated that early environmentally induced retardation can be reversed under certain conditions. Similarly, children from intellectually impoverished, low-income homes who receive cognitively enriched early experience through intense compensatory education display immediate gains in IQ scores. However, follow-up data indicate that many of the gains manifested by these children are lost after the program ends. Once intellectual accomplishments have been established, they must be maintained by subsequent environments. If the contexts of early, middle, and later childhood are highly similar, the relative level of

intelligence is likely to be comparable across these years. Modifications in environment and experience can foster modifications in intellectual attainments, for better or worse (Bjorklund, 1989, Feuerstein, 1985).

Some of the most widely accepted ideas are those of Piaget. He said that we develop cognition by interacting with many things in our environment. As we look, touch, taste, hear, and smell our world, we begin to notice that some things are alike and some things are different. In other words, we piece together relationships between things and, at the same time, learn how to form new relationships.

Cognition refers to the processes or faculties by which knowledge is acquired and manipulated. Cognition is usually thought of as mental. That is, cognition is a reflection of the mind. It is not directly observable, but we can infer what is going on in the mind by assessing certain aspects of behavior that are observable. Cognition is never measured directly but is inferred from the behaviors we see. Behaviors themselves are seen as secondary. What is important and what needs to be understood are the mechanisms that underlie performance. By discovering the mental factors that mediate intelligent behavior, we can better understand that behavior and its development, which in turn can yield a better understanding of cognitive development (Bjorklund, 1989).

Cognition includes not only our conscious and deliberate attempts at solving problems but also the unconscious and nondeliberate processes that are involved in routine daily tasks. We are not aware of the mental activity that occurs when we recognize a familiar tune or even when we read a story, and yet, much in the way of cognitive processing is going on. Reading for most of us has become automatic or nearly automatic. We can't drive by a sign without reading it. It is something we do without taking time to think about it. But the mechanisms involved in reading are complex, even in the well-practiced adult.

Cognition involves mental activities of all types. It includes activity that is geared toward acquiring, understanding, and modifying information. Cognition includes such activities as developing a plan for solving a problem, executing the plan, evaluating the success of the plan, making modifications as needed and starting the cycle all over again. Both the macro-mechanisms involved in strategy deployment and the micro-mechanisms involved in the initial registration and evaluation of a single stimulus are examples of cognition.

Background of the Problem

Mediated Learning Experience as described by Reuven Feuerstein has been used by parents and clinicians in one-

on-one and in small group situations (1979). The use of Feuerstein's Mediated Learning Experience (MLE) has recently been expanded as an Instructional Approach (teaching methodology) for classroom use by Katherine H. Greenberg of the University of Tennessee (1990). This adaptation created a need for exploratory research to determine how effective the initial implementation of the COGNET MLE Instructional Approach was, as a teaching methodology, when it was utilized during whole group reading instruction in regular classroom settings. Another question which needed to be addressed was, which aspect(s) if any, of the COGNET MLE Instructional Approach need to be refined for this method to be effective for whole group instructional purposes? For the purpose of this research the use of a Mediated Learning Experience has been tied to the teaching of reading in whole group settings, grades one through three.

Statement of the Problem

The study of the initial implementation of an instructional approach that was designed to aid **cognitive development** involves an examination of how children's thinking developed over time. The purpose of this research was to measure the initial implementation of the COGNET Mediated Learning Experience Instructional Approach, and what, if any changes took place in teacher

attitudes toward teaching and expectations of student learning once they have had been trained to utilize this teaching methodology.

The problem which this study addressed was the lack of research and detailed information available concerning the interactions of teachers and students in classrooms as related to whole group reading instruction as well as the use of the COGNET Mediated Learning Experience Instructional Approach, being defined for the purpose of this research as a teaching methodology, to aid in the accomplishment of this cognitive task.

The COGNET Mediated Learning Experience Instructional Approach was currently undergoing initial implementation as a teaching methodology to provide classroom intervention for normal school populations taught by regular classroom teachers in grades one through three, in rural eastern Tennessee. The purpose of this study was to make research information available on the initial implementation of this instructional approach which was based on both qualitative and quantitative data. An Observational and Quasi-Experimental Research Design were developed to measure the differences as seen within and between classrooms where focused MLE was identified as a teaching methodology.

Purposes of the Study

The first purpose of this study was to make initial implementation information available based on both Observational Data and a Quasi-Experimental Research Design relating to what, if any, changes occurred in the teacher's attitudes regarding their teaching once they had been trained to use the MLE Instructional Approach. A second purpose of this study was to measure what changes, if any, appeared in teacher expectations regarding the learning levels of their students once they had been trained in the theories of SCM and MLE. A third purpose of this study was to determine what, if any, correlation existed between the level of implementation and/or attitudes regarding teaching and expectations of learning. A final purpose of this study was to determine what, if any, effect the initial implementation of this teaching methodology, when implemented with whole group reading instruction, had on the individual student's attitude toward reading within and between classrooms where focused MLE had been identified as a teaching methodology. A comparison was also made between the experimental and control sites for what, if any, difference existed in attitudes toward reading, with both groups receiving whole group instruction in reading.

Questions to be Answered by this Study

For purposes of this study, the following questions have been addressed:

1. To what extent are the teachers implementing an instructional approach based on the theory of the Mediated Learning Experience during Whole Group Reading Instruction?
2. What, if any, changes have occurred in teachers attitudes toward teaching and expectations of student learning, after their involvement in the Initial Implementation of the Mediated Learning Experience instructional approach during Whole Group Reading Instruction?
3. Among teachers who have been involved in the Initial Implementation of an innovative instructional program based on the theory of Mediated Learning Experience in the classroom, what is the relationship among the following variables?

The teachers' level of implementation of MLE.
The teachers' attitudes towards the program.
The teachers' expectations of student learning.
The teachers' demonstration of a theoretical understanding of the theory of MLE.

4. What, if any, differences occur in individual students' attitudes towards reading when their teachers have been involved in the Initial Implementation of an instructional approach based on the theory of MLE during Whole Group Reading Instruction?

Importance of the Study

This study was important because the researcher established a research base for the Initial Implementation of the COGNET Mediated Learning Experience Instructional

Approach. The design of this study added to its importance in that it combined a Quasi-Experimental Research Design and Ethnographic Observational Data while it linked the use of the COGNET Mediated Learning Experience Instructional Approach with Whole Group Reading Instruction in grades one through three, at a time when the attention of the nation was focused on the "cognitive" developmental aspects of learning. This research shed light on the Initial Implementation of the COGNET Mediated Learning Experience Instructional Approach and identified areas of the instructional plan which needed refining to translate focused MLE into it's most effective methodological form for use by regular classroom teachers during Whole Group Reading Instruction.

A need for this study can be best summarized by stating that teachers need an instructional approach that utilizes the cognitive development levels of their students. The COGNET MLE Instructional Approach, which was designed to promote cognitive development and independent learners, needed to be researched during its Initial Implementation so that it could be fully developed for Whole Group Instruction at a time when educators were looking for programs without pullout components to help at-risk students develop to their full potential in a cooperative learning setting.

Assumptions of the Study

For purposes of this study, the following assumptions were made:

1. That the students enrolled in the control and experimental sites were typical of students enrolled in similar schools across rural eastern Tennessee.
2. That the data from the attitude scale were interval data.

Limitations and Delimitations of the Study

The two schools chosen as the control and experimental sites for this research study were the most compatible schools within a school district in rural eastern Tennessee, as determined by local county school administrators. This decision was arrived at by determining the numbers of Head Start students currently enrolled at schools within this school district and then choosing the two schools with the most similar numbers of Head Start Students currently enrolled to become the experimental and control sites for this research. All students enrolled in first through third grades at both sites were included in the study, except for the transition classroom between kindergarten and first grade at the control site. Because of the location of the sites

in a rural eastern Tennessee, the results could not be generalized to other population types.

This study was delimited to all first through third graders enrolled at the control and experimental site schools when the baseline data was collected with the exception of those children at the control site that were enrolled in a transition class between kindergarten and first grade.

Definition of Terms

BUILDING BLOCKS OF THINKING are adaptations of Feuerstein's "Deficient Cognitive Functions". As presented in the COGNET Mediated Learning Experience Instructional Approach these Building Blocks are the cognitive functions basic to all thinking, and are necessary aspects of teaching when Cognitive Enrichment is being provided for students.

COGNET MEDIATED LEARNING EXPERIENCE INSTRUCTIONAL APPROACH is an approach for classroom instruction which emphasizes **Learning How to Learn**, as outlined in the Cognitive Enrichment Network Teacher Workbook (1989), which adapts Reuven Feuerstein's theory of Mediated Learning (1979) for use with whole group instruction in the elementary school setting. The COGNET MLE Instructional Approach (1988) was developed by Katherine H. Greenberg of the University of

Tennessee at Knoxville for use with the COGNET Follow Through Project # 030913 in Early Elementary Classrooms. This instructional approach utilizes the three essential elements of MLE: intentionality (intent), transcendence (going beyond), and meaning in a focused Mediated Learning Experience by capitalizing on naturally occurring situations and emphasizing the need for specific cognitive functions (termed "Building Blocks of Thinking") and for independent learning (termed "Tools for Independent Learning"). An overlay curriculum has been developed that emphasizes both areas, it includes the ten **Building Blocks of Thinking** and the eight **Tools for Independent Learning**. The **Mini Lesson Plans for School Age Children** contains 240 Mini Lesson Plans which provide suggestions for mediating each of the 18 Building Blocks and Tools as well as suggestions for connecting the blocks and the tools. These Mini Lesson Plans are to be adapted by classroom teachers for use with the curriculum that is already in place. See Appendix A for a copy of the COGNET MLE Instructional Approach.

COGNITION refers to the activities of knowing, gathering, organizing, and making use of knowledge. Anything that involves either perception, memory, learning or thinking is a part of cognition, which means that just about everything anyone ever does has at least one cognitive component.

COGNITIVE DEVELOPMENT is how children's thinking changes over time and for the purpose of this research how teachers can help students to develop cognitively.

INITIAL IMPLEMENTATION pertains to the beginning, to putting into effect by means of a definite plan or curriculum procedure, following training in the theoretical basis of the implementation plan.

INTENTIONALITY (INTENT) is selecting and focusing the child's attention on the mediation by getting across to the child some point that you (mediator) have in mind to share with him/her. Several techniques for achieving this are: stating a goal, making a plan, stating an aim, and listing an objective.

LEVEL OF IMPLEMENTATION is the degree to which the program operating in the classroom matches how its designers intended for it to operate.

MEANING is sharing a subjective or objective value with the child which gives power to the insight by making it significant, by exhibiting excitement or by sharing some other value concerning the situation. The mediator displays this meaning through expression that lends power to the interaction by sharing or displaying excitement, enthusiasm, and/or caring through affective behavior.

MEDIATED LEARNING EXPERIENCE (MLE), as proposed by Feuerstein, is a modality by which the organism interacts with its environment. By a MLE, Feuerstein refers to the kind of interaction in which an experienced, intentioned adult interposes himself or herself between a child and some external stimulus and alters the stimulus prior to its perception by the child. The stimuli impinging upon the child are no longer random and accidental. They now reflect the intentionality of the mediating adult who makes some stimuli more meaningful by repeating and reinforcing them, while ignoring or discontinuing others. Each focused MLE contains three essential components: intentionality (intent), transcendence (going beyond), and meaning.

METACOGNITION is the knowledge of and awareness about one's own cognitive processes. Metacognition is an intriguing process because one is using his/her own cognitive processes to contemplate his/her own cognitive processes.

MINI LESSON PLANS are COGNET MLE Instructional Approach Curriculum materials consisting of 240 Mini Lesson Plans which provide suggestions for mediating each of the 18 Building Blocks and Tools as well as for connecting them with each other. Each Mini Lesson Plan takes one to five minutes to implement. The plans focus on the need for

children to use the Building Blocks and Tools in four different types of learning activities: (a) Initial Instruction, (b) Group Practice and Review, (c) Instructions for Independent Work, and (d) Functional Living Skills. Teachers are free to select the activity in which they will implement each Mini Lesson Plan so that it fits into their existing curriculum.

SKILLS, according to Fischer, are sets of actions (both physical and mental) by which children exercise control over sources of variation in their own behavior. These skills are jointly defined by the organism and the environment thus, only skills that are exercised in the most supportive of environments will be developed to their highest level.

STRUCTURAL COGNITIVE MODIFIABILITY (SCM) is the change that Feuerstein refers to, which results from Mediated Learning Experiences and direct exposure. The SCM theory is anchored deeply in the active-modification approach, advocating the continual mobilization of environmental resources in order to enhance not only the individual's potential but his capacity to become modified.

STRUCTURES, according to Piaget, refer to unobservable, mental knowledge that underlies intelligence and intelligent behavior. Structures are most simply viewed as some enduring knowledge base by which children

interpret their world.

TOOLS FOR INDEPENDENT LEARNING are adaptations of Feuerstein's parameters of Mediated Learning Experience (MLE). They are qualities which are nurtured in children through focused MLE which facilitate Structural Cognitive Modifiability (SCM) at the highest level: independent learning.

TRANSCENDENCE (GOING BEYOND) is helping the child gain insight beyond the immediate needs of the situation by referring to previous or anticipated events and showing how they relate to the immediate situation. This can also be done by presenting a principle (generalizable rule), forming relationships between the topic of the interaction and something else, or to parts of the topic itself; and/or by engaging a student in reflecting on the activity.

WHOLE GROUP READING INSTRUCTION or total class grouping is where the students have been grouped for reading instruction with basal readers. Typically, such grouping is done on the basis of reading ability with three groups being formed: high, average, and low. For the purpose of this research study all of the students at each grade level at the experimental site in rural eastern Tennessee were placed in one of the three groups and then changed classrooms for an hour a day of whole group reading

instruction with the entire group being assigned to the same basal for the purpose of reading instruction.

ZONE OF PROXIMAL DEVELOPMENT (ZPD) which Vygotsky defined as the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. The zone of proximal development defines those functions that have not yet matured but are in the process of maturation, functions that will mature tomorrow but are currently in an embryonic state. These functions could be termed the "buds" or "flowers" of development rather than the "fruits" of development (Vygotsky, 1978, p. 86). Vygotsky's point was not simply that children differ in how efficiently they learn, but that children differ in their current state of development in ways that cannot, in principle, be assessed by techniques that are limited to analyzing children's performance when they are working alone. The ZPD analyzes the children's performance when they are working with someone who can guide or lead them to further development.

CHAPTER II

REVIEW OF RELATED RESEARCH

Introduction

Effective learning is central to successful school performance. Only when students can readily acquire and apply needed skills in all learning situations they be able to function independently and, consequently, successfully in the school setting. Therefore, programs that wish to engender or nurture these skills in children must address cognitive development issues in order to exploit every opportunity on the children's behalf to help them learn how to learn effectively.

Historically static measures of learning potential came into wide use because they were thought to provide a means of selecting personnel for educational, military, and industrial placement in a way that would maximize the return on a given investment in training or instruction. In this context, the difference between an individual's current level of mental functioning and an individual's ultimate potential for learning is often not the primary consideration. The fact that two individuals have a similar potential for development may be less important than the fact that there are differences in the levels of performance they currently manifest. This is not the case

where the primary concern is that of helping children realize their full developmental and educational potential. When faced with a child who performs poorly in school, the educator wants to know whether these difficulties are a function of the child's ultimate potential for learning, the child's current level of readiness as defined by previous learning opportunities, or other factors associated with the social context of schooling. Moreover, the educator wants a qualitative assessment of the child's current level of functioning and some indication of the kinds of instruction that might facilitate development.

The current interest in dynamic learning situations has seen a move away from experimenter-controlled, or teacher-controlled, instruction of the traditional kind towards a concentration on interactive processes. It is through interactions with a supportive, knowledgeable adult that the student is led to the limits of his/her own understanding. The teacher does not tell the student what to do and then leave him/her to work on unaided; instead the teacher enters into an interaction where the child and the teacher are mutually responsible for getting the task done. As the child adopts more of the essential skills initially undertaken by the teacher, the teacher relinquishes control.

The Review of Related Research that sets the theoretical framework for this proposed research study is divided into four main sections. First, **Implementation Procedures for Instructional Approaches** which are necessary for successful implementation of new procedures and teaching methodologies will be presented based on recent research findings. Second, **Cognitive Theories of Learning** that are relevant to this study will be introduced and discussed. Third, in the section entitled **Learning How to Learn** recent research on learning strategies has been summarized. Finally, the fourth section presents research on **Reading and It's Relationship to Thinking**. This final section also contains a summary of recent comparative studies that have been done in the areas of **Reciprocal Teaching** (Brown & Campione), **Graduated Prompt** (Michael & Bransford), and **Mediational Dynamic Assessment** (Symons & Vye). All three of these studies emphasize teaching methodologies that provide good beginning studies in which elements similar to Feuerstein's **mediation** that is central to the **COGNET MLE Instructional Approach** (Greenberg, 1989) are implemented. Each of the these three studies falls short of reaching the intended goal of teaching for transfer which necessitates the additional research as is contained in this dissertation which researches the initial implementation of the **COGNET Mediated Learning Experience**

Instructional Approach, which was recently developed for use with whole class instruction by Katherine H. Greenberg, of the University of Tennessee, Knoxville.

Part I:

Implementation Procedures for Instructional Approaches

Introduction

Several factors have been identified that are important to the successful implementation of new programs. There are a set of basic considerations which can serve as a frame of reference before initiating proposals for change. There are procedures for implementing new programs that have proven to be successful. Hopefully, these examples will be helpful to others who may be involved in the development and implementation of new programs (Bellon & Bellon, 1982).

Commitment

Before a new program is initiated, the level of commitment by the board of education and superintendent must be determined. Their commitment must not just be verbalized but should become a matter of record. This is done through formal action taken by the board and superintendent (Bellon & Bellon, 1982, Lovell & Wiles, 1983).

There are several approaches used by school systems to verify the commitment of key decision makers. In some school systems the board of education establishes several important high priority goals to be achieved in long range plans. The highest priority goal could be to improve instruction throughout the system. The superintendent develops a plan to achieve the goals and submits it for board approval. The board adopts the plan with a unanimous vote. The commitment will have been clearly established and will become a matter of public record. The successful implementation of instructional plans is due in a large part to a strong commitment of the superintendents and their boards of education.

Although there are several important factors associated with successful change, an initial procedure would be to determine the actual commitment of those responsible for the success of all programs in the school system. Their support is essential to the long term success of program changes and improvements.

Planning

One of the generalizations made about successful change in the literature was related to the careful planning needed to install a new program. A comprehensive plan should be developed to give direction to any significant change effort. The plan should be based on

goals or expectations which have been clearly identified and agreed upon by all appropriate personnel.

A comprehensive plan should include all major activities necessary to implement the program. Whenever possible the major activities should be delineated into specific tasks to be accomplished. Realistic target dates need to be established for all tasks and activities. It is very important for adequate time to be given to accomplish each task or activity. Those who will be responsible for conducting the major activities need to be identified.

There are several approaches to long range planning which have proven to be successful. It is very clear that when the school systems have not planned well, the implementation process has not been successful. Planning after a program is being implemented requires more time, effort, and resources than if a plan had been properly developed prior to the implementation activities (Bellon & Bellon, 1982).

Staff Development and Teacher Workshops

When personnel are not properly prepared, it is difficult, if not impossible, to successfully implement a new program (Bellon, Bellon, & Handler, 1982). This is one of the important generalizations about factors which cause new programs to succeed. The capability of a school

system to provide proper development and renewal programs must be considered prior to the implementation of new or revised programs. Experience has shown that school systems with the capability to provide staff development programs must also carefully plan to support high priority school goals.

Staff development for a new program can begin before the program has been formally adopted. A school system can involve a number of their teachers and administrators in examining a program for instructional improvement and evaluation. Teams of educators can be sent to workshops to look new programs over (Lovell & Wiles, 1984). This will give them an opportunity to fully understand the new program. The participants considering the program will be able to develop reports for their own systems based on their collective experiences at the workshop. By attending workshops and evaluating programs, participants feel that they are engaged in a worthwhile staff development activity. A majority of those attending the workshop can become key participants when the new program is implemented in their school. This is consistent with prior research showing that effective in-service programs must offer teacher assistance that can be efficiently used in their own classrooms.

Staff development is a crucial component of any major change effort. When the support for development

activities is inadequate long term success of a program is highly problematical. School systems that have been successful in implementing instructional improvement programs have carefully planned long term staff development activities to give continuing support and assistance to the participants.

Monitoring

Many programs have been successfully initiated only to suffer problems over a period of time. Programs that are worthwhile, carefully planned, and supported with adequate resources are among those that have ultimately failed. One of the problems has been a lack of attention to the programs after their initial installation. Someone must be given the responsibility to oversee or monitor programs, so that the original expectations are fulfilled (Bellon & Bellon, 1982).

A successful system for monitoring instructional improvement programs can be put in place by systems with trained teams of persons to serve as program monitors (Brophy & Good, 1986). The teams can be made up of members who have considerable expertise in the new program prior to its full implementation because they have taken part in initial staff development programs, because they have excellent backgrounds in instruction practice, and because they are already recognized as leaders among their

colleagues. After the first staff development program they will engage in further training and development activities. When the new programs are installed they will be well prepared to take responsibility for overseeing the program and giving it follow up support.

When a new program is well planned and successfully installed, procedures for monitoring and follow activities should be given a high priority. Resources are often wasted on initial start up activities when there is not a plan for continuing assistance with implementation. Monitoring a new program can provide invaluable support to the participants. Successful monitoring programs can be developed by school systems ranging from the very large and complex to those consisting of one or two schools. In all cases the monitoring is an important factor in the long term success of the new program (Brophy & Good, 1986).

Program Relationships

The successful installation of one program for improvement will often affect other major educational programs. The personnel evaluation program is affected by instructional supervision procedures. The supervisory process can also have a direct effect on curriculum planning and development. School systems that have successfully installed instructional improvement programs

have found that they must also given considerable attention to their evaluation and curriculum programs (Bellon & Bellon, 1982).

The data generated by the supervision program is very useful in the teacher evaluation program. Observations for instructional improvement are one aspect of formative evaluation. The information is used to improve the instructional process. The instructional process is, of course, a central focus for teacher evaluation. The total observation data for the year can be synthesized as a part of the year end evaluation process. The relationship of supervision and instructional improvement to personnel evaluation is very clear.

School systems begin to develop new personnel evaluation programs to parallel the implementation of a new instructional improvement program. They should organize committees of teachers and administrators to review and analyze their current personnel evaluation procedures. Their analysis process can help them to relate their philosophy, procedures, and instrumentation to the new observation and data gathering processes. Wherever there are discrepancies, they will be noted and become a part of their information to be used for future planning.

When the new evaluation programs have been completed they will be implemented on a one year trial basis.

During the first year the programs will be evaluated and information gathered about concerns and problems faced by the participants. This information will be used to make appropriate revisions in the guidelines and procedures. The following year the evaluation program will be fully implemented. There will be a continuing opportunity to give feedback about the effectiveness of the program. Information generated during the second year will be used to make final program revisions. By the third year the programs should be well accepted and congruent with both the supervision and instructional improvement programs (MacRae-Campbell, 1990).

Summary

There are several common problems facing those who attempt to make major program changes. The most prevalent problems include: confusing program means with expected outcomes, a lack of commitment from key personnel, inadequate planning, and insufficient attention to the development and preparation of the personnel expected to implement the instructional program. These problems should be resolved before attempting to initiate program changes.

Several basic considerations can serve as a frame of reference for those who are interested in initiating instructional improvement programs. Current goals and

priorities of the entire organization need to be reviewed and assessed to determine if they are congruent with the new program expectations. A new program should not be initiated unless it has a high priority in the school or school system. Current program goals and expectations need to be understood before priorities can be established for proposed programs.

Leadership behavior will have a significant influence on attempts to institute program changes. Proactive leadership is needed if major program revisions are to be made. The leadership behavior of those expected to institute new programs should be an important consideration when making program implementation decisions.

Current organizational processes need to be considered prior to the initiation of major programs revisions. Role, responsibility, and authority must be understood by all personnel. Communication processes and procedures should be effective for sending and receiving information.

A complete description of existing curriculum and instruction programs will generate important information about their status. The status information should be carefully considered before new program proposals are adopted. It may be necessary to correct current curriculum and instructional problems so that future program changes will be successful.

Part II:

Cognitive Theories of Learning

Introduction

The following theories as well as many other contemporary approaches to cognitive development base their starting point on many of the observations and assumptions laid down by Piaget. Rather than viewing new theories of children's thinking as radical departures from Piaget's, it is more appropriate to view them as modifications and extensions of his approach. Not all new theories are neo-Piagetian. But few contemporary approaches ignore Piaget, making an understanding of Piagetian theory a necessary beginning for an appreciation of the modern theory of cognitive development.

Piaget's Stages of Development

Jean Piaget (1896-1980) has had a greater impact on the field of developmental psychology than any other theorist in the brief history of cognitive science. Trained as a biologist, the self-proclaimed experimental philosopher formulated a theory of intelligence that made children themselves, rather than their environments or their genetic constitutions, the primary force in the development of thoughts. Piaget changed the way we look at children (Bjorklund, 1989). Following Piaget, we no longer view the young child as an incomplete adult.

Piaget taught us that children's thinking at any given age reflects a unique way of interpreting the world.

Development is more than the simple acquisition of skills and knowledge. In addition to qualitative differences in what they know, there are qualitative differences in how they know it. As a result of Piaget's work, it is difficult for us to conceive of the child as a passive organism, shaped and molded by environmental pressures. At any given developmental level, children are seekers of stimulation who act on their environment as much as their environment acts on them. They determine to a large extent what experiences they will have and, thus, how their individual development will proceed.

Most contemporary theorists start with Piaget's theory and attempt to build upon the edifice he and his colleagues established in nearly 60 years of work. Many cognitive developmentalists hold great reverence for Piagetian theory because of the impact it has had and will continue to have well into the next century on the field of developmental psychology. A familiarity with this theory is essential for an understanding of cognitive development as it is studied today (Bjorklund, 1989).

Piaget was a stage theorist. He believed that cognition develops in a series of discrete stages, with children's thinking at any particular stage being qualitatively different from that which preceded it or

that which would follow it. In other words, he did not view cognitive development as a gradual accumulation of knowledge or skills. Rather, he saw it as a series of transformations, with children's thinking going through some relatively abrupt changes over relatively brief periods of time. Despite the discontinuous nature of changes in children's thinking, Piaget believed that the functions underlying cognitive development were continuous. New abilities did not just pop up but emerged from earlier abilities. Piaget hypothesized transitional or preparatory phases between stages, brief times when a child could have one foot in two qualitatively different cognitive worlds.

One concept central to Piaget's theory is that of **structures**. According to him, cognition develops through the refinement and transformation of mental structures (Piaget & Inhelder, 1969). Structures refer to unobservable, mental knowledge that underlies intelligence and intelligent behavior. In a sense, all cognitive psychologists are concerned with unobservables and use behavior only to achieve an understanding of what goes on "in the mind". Structuralism, however, is a specific orientation within cognitive psychology, and an appreciation of what Piaget meant by structures is essential for understanding his theory. Structures are most simply viewed as some enduring knowledge base by

which children interpret their world. Structures, in effect, represent reality. Children know their world in terms of their structures. Structures are the means by which experience is interpreted and organized.

Fischer's Levels of Development

Fischer (1980, Fischer & Bullock, 1981, Fischer & Pipp, 1984) has developed a theory of cognitive development that adopts many of the assumptions of Piaget's theory while incorporating many of the assumptions of traditional behavioral theories such as Skinner. Fischer takes as his starting point the position that development is jointly defined by the organism and the environment. Piaget, of course, made the same assumption; but he gave the environment only a small role in affecting development. It is the child in active interaction with the environment who, for Piaget, is the principal "cause" of development. Fischer takes the environment more seriously than did Piaget. The consequence is a theory that is more equally weighted with respect to the contributions of the child and the environment in influencing development and one that predicts greater heterogeneity of cognitive functioning than was proposed by Piaget.

Fischer theorizes that children develop skills, which are sets of actions (both physical and mental) by which

they exercise control over sources of variation in their own behavior. An important aspect of Fischer's theory is that skills are jointly defined by the organism and the environment. Thus, only skills that are exercised in the most supportive of environments will be developed to their highest level. To the extent that a child's environment is heterogeneous, however, with some skills being exercised more consistently or receiving more support than others, development will be relatively uneven.

Fischer's Levels versus Piaget's Stages

Contrasts between Fischer's and Piaget's theories can most readily be made with respect to the basic structure of their theories: skills and schemes. **Schemes** are structures by which the child knows the world. They are based on action and, for Piaget, are the things that do the assimilating and accommodating. Schemes develop from earlier schemes (Piaget's epigenetic position) and have a high degree of generality in that they are integrated with one another (structures of the whole) and thus result in a high degree of homogeneity of cognitive functioning. Skills are also structures by which a child knows the world, and, like schemes, they are based in action and develop from earlier acquired skills. Similarly, skills are relatively well integrated and are characterized by the type of variations a child can control (sensorimotor,

representational, abstract). Unlike schemes, however, most of all of a child's skills are **never** at the same level at a given time. Development of skills is induced by the environment in interaction with the child, and only skills that are induced most consistently operate at a child's optimal level. Skills are not generalizable but are specific to particular objects and tasks. Thus, unevenness of developmental function is the rule and not the exception.

Both schemes and skills are viewed as developing from simple to more complex states of organization. For Piaget schemes are organized into stages, whereas for Fischer skills are organized into levels. The major difference between the two theorists is that Piaget's stages reflect a high degree of generality and characterize the child. A child is a concrete operational thinker or is in the sensorimotor period. In contrast, levels characterize skills that are specific to particular objects and tasks. In Fischer's theory, children are not described as being at Level 4 or at Level 7. One can specify the optimal level of performance that a child is able to achieve, but this does not reflect a classification of the child. Accordingly, the range of expected behaviors for a given child is very broad, especially in comparison with the high degree of generality predicted for children at a particular state in Piaget's theory.

Vygotsky's Zone of Proximal Development

Assisted performance defines what a child can do with help, with the support of the environment, of others, and of one's self. For Vygotsky, the contrast between assisted performance and unassisted performance identified the fundamental nexus of development and learning that he called the **zone of proximal development (ZPD)**. The distance between the child's individual capacity and the capacity to perform with assistance is the ZPD, which is "the distance between the actual developmental level as determined by individual problem solving and the level of potential development as determined through problem solving under adult guidance or in the collaboration with more capable peers. The **zone of proximal development** defines those functions that have not yet matured but are in the process of maturation, functions that will mature tomorrow but are currently in an embryonic state. These functions could be termed the 'buds' or 'flowers' of development rather than the 'fruits' of development" (Vygotsky 1978, p.86, boldface represents italics in original).

In contemporary neo-Vygotskian discussions, the concept of the ZPD has been extended to a more general statement, in which the "problem solving" of the preceding quotation is understood to mean performance in other domains of competence (Cazden, 1981, Rogoff & Wertsch,

1984). There is no single zone for each individual. For any domain of skill, a ZPD can be created. There are cultural zones as well as individual zones, because there are cultural variations in the competencies that a child must acquire through social interaction in a particular society (Rogoff, 1982). Whatever the activity, in the ZPD we find that assistance is provided by the teacher, the adult, the expert, and the more capable peer. Through this assistance, "learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers. Once these processes are internalized, they become part of the child's independent developmental achievement" (Vygotsky, 1978, p. 90).

Vygotsky's point was not that children differ in how efficiently they learn, but that children differ in their current state of development in ways that cannot, in principle, be assessed by techniques that are limited to analyzing children's performance when they are working alone. Many of the successful training studies that are now being reported have been influenced by the Vygotskian notion of guided learning within a student's **zone of proximal development** (Vygotsky, 1978).

Vygotsky (1978) has argued that many cognitive activities are initially experienced in interactive

settings, but, in time, the activities of the teacher are adopted by the child to form part of his/her own repertoire of skills; that is, they become **internalized**. Initially, the supportive other acts as the model and interrogator, leading the child to use more powerful strategies. The interrogative, regulatory role becomes internalized by the child during the interactive process and the child becomes able to fulfill some of these functions for himself/herself via self-regulation and self-interrogation (Binet, 1909, Brown, 1985).

Like Luria, Budoff, and their colleagues, Brown and Campione share Vygotsky's conviction that analyzing how the child responds to instruction provides diagnostic information that is inaccessible through more traditional assessment procedures (Minick, 1985). In outlining the concept of the **Zone of Proximal Development**, however, Vygotsky's point was not that "children differ in how efficiently they learn" (Campione, 1984) but that children differ in their current state of development in ways that cannot, in principle, be assessed by techniques that are limited to analyzing children's performance when they are working alone. This difference between the child's mental ages, this difference between the child's actual level of development and the level of performance that he achieves in collaboration with the adult, defines the **zone of proximal development**.

Feuerstein's Structural Cognitive Modifiability

In order to attempt a more complete explanation of the etiology of differential cognitive development, Feuerstein proposes the fundamental assumption that cognitive processes are developed through two modalities by which the organism interacts with its environment: through direct exposure to stimuli and through a **Mediated Learning Experience (MLE)**. This assumption is not intended to disregard the contribution of constitutional and maturational factors to differences in intellectual development, but rather serves to highlight the significance he believes should be attributed to more specific forms of interaction between organisms and their environment (Feuerstein, Hoffman, Jensen, & Rand, 1985).

The first and most pervasive interactive modality through which the human organism becomes modified is by direct exposure to sources of stimulation. The changes that accompany the individual's direct exposure to his or her environment reflect the constitutional equipment and biological drives the organism brings to the interaction as well as the maturational processes that are part of its neurological substrata. When bringing about more or less lasting modifications in the individual's behavioral repertoire, such changes may be equated with learning. Learning by direct exposure is a continuous process throughout the individual's life-span, provided the

stimuli to which he or she is exposed are sufficiently novel and unfamiliar to require adaptation (Segal, Chipman, & Glaser, 1985).

In the direct exposure modality, individuals are exposed to stimuli impinging on their sensory apparatus and entering their systems in a largely randomized, accidental, unaltered, and unselected way. Reaching the organism this way, the stimuli will produce such changes as may follow from stimulus familiarity. Direct exposure learning will usually affect how the individual goes about perceiving and interacting with the environment to gratify already existing motives and needs systems, such as, for example, biological needs.

The modality of learning by direct exposure, however, cannot by itself account for the development of human intelligence and what may be considered the ultimate characteristic of human beings, their modifiability. For this, the second modality of organism-environment interaction must be invoked. This modality, which Feuerstein terms a **Mediated Learning Experience**, or MLE, is proposed as the proximal determinant of both the development of cognitive processes in humans, in general, and the phenomenon of differential cognitive development in particular.

By a MLE, Feuerstein refers to the kind of interaction in which an experienced, intentioned adult interposes

himself or herself between a child and some external stimulus and alters the stimulus prior to its perception by the child. In this process of mediation, which typically operates from the beginning of the neonate's life, the adult mediator selects, frames, and filters the stimuli, interpreting them for the child. By scheduling, sequencing, and grouping, the adult organizes the stimuli, regulating their intensity and ordering their appearance. In other words, the stimuli impinging upon the child are no longer random and accidental. To the contrary, they now reflect the intentionality of the mediating adult who makes some stimuli more meaningful by repeating and reinforcing them, while ignoring or discontinuing others. By relating discrete stimuli in terms of their spatial and temporal aspects, and by producing anticipatory behavior in the child, the mediator imposes a spatiotemporal structure on the child's universe, thereby expanding it to areas inaccessible to the child by the sheer activation of sensory processes.

Figure 1 illustrates the concept of MLE. The large **S** stands for **Stimuli** (bits of information) that surround the **Organism, O**, the child, in this case. The large **R** stands for the child's **Response**. Notice the straight lines which represent small sets of stimuli. Some are going around and some are going through the little **H**, which stands for the **Human Mediator**. Those stimuli that pass through the **H**

come out in a different form because the mediator (H) has selected and organized them for the child (O), by literally coming between the child and the stimuli. Many stimuli change while inside the child as the bits of information, whether being mediated or not, form new relationships among themselves and other information already stored in the brain. This change is what Feuerstein refers to with his term **Structural Cognitive Modifiability**. Notice also that the smaller H reappears between the O and R. The mediator once again comes between the child and some of his or her responses due to an intent to transcend (go beyond) the immediate needs of the situation.

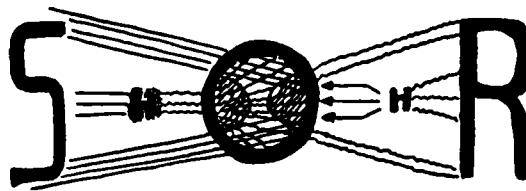


Figure 1. Mediated Learning Experience (MLE) (Feuerstein, 1985, Instrumental Enrichment Training, Jerusalem, Israel).

When a child is exposed to MLE frequently, he or she begins to anticipate relationships between objects and events in the environment. According to Feuerstein (1980), the child develops "approaches to mentally organizing, manipulating and acting upon information which is gathered from memory as well as new sources." As a

result the child becomes an active participant in learning (Greenberg, 1989).

In addition to building into the child the modalities of interaction with stimuli at the input phase, the mediator also interposes himself or herself between the organism and the response. The mediator thus affects the way the child responds to a stimulus by the regulation of his or her behavior. A direct result of the mediational process will be the control of impulsivity, the imposition of a tempo and rhythm to the response, and the choice of appropriate modalities for articulate responses.

Mediational processes at the output phase are a combined function of the nature of the task and the level of the child's competency (Feuerstein, 1985).

Some children need more of this special interaction than others. Children that have problems may not get as much out of this special kind of interaction and, therefore, need more of it. On the other hand, if the child spends most of his time around people with problems, he or she will probably not be offered as many of these interactions. Those who do not get a sufficient amount will have difficulty learning. But there is good news. In most cases where learning difficulties have occurred, a more intensive version of this special interaction can make all the difference (Greenberg, 1989).

When one performs a mental act, such as solving a problem, one progresses through three stages of information processing: input, elaboration, and output. Some authorities break the stages into even more parts. Mayer, (1988), for example, describes a more involved system of information processing including Sensor Memory, Short Term Memory, and Long Term Memory which are facilitated by attention, rehearsal, encoding and retrieval.

These stages have an intricate relationship and greatly overlap one another as the thinking process occurs. Quite often we consider that a child cannot or did not think well when his or her response is inaccurate. It is very possible, that his or her difficulty lies not in thinking but in gathering the wrong information or expressing the response impulsively. Usually by asking a few questions about an incorrect response, you can determine if the problem is occurring in the input or output states. The consequences of wrongly assuming that this child is not a good thinker, at least in that learning situation, can be devastating because it lowers our expectations for the child.

Figure 2 shows the relationship among factors affecting the stages of the mental act. As the figure demonstrates the affective motivational factor relates to each state.

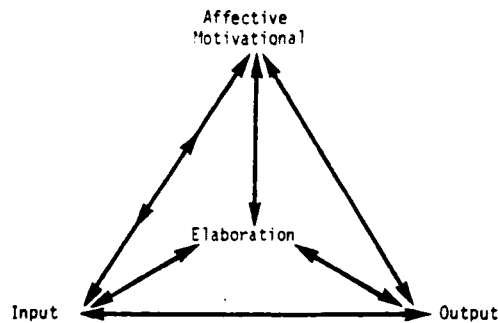


Figure 2. Relationships among the three stages of the mental act (Feuerstein, Rand, Hoffman, & Miller 1980, p. 75.)

MLE typically starts at a very early stage in interactions between a mother figure and a child. Despite the young child's limited verbal communication skills, mediational interactions during this early period can have a very powerful effect. Later on, the mediational process is accomplished through growing reliance on verbal and symbolic representations. MLE is normally offered to the child throughout infancy and early childhood and may extend into later phase of childhood, revolving around areas novel to the child. The remarkable receptivity of early childhood, however, makes this an optimal period for the provision of MLE. A sharp distinction must be made between optimal versus critical periods.

Not all adult-child interactions have a mediational value. Above and beyond the specific operations undertaken by the mediator in a particular situation, there are three essential characteristics that describe

and define all Mediated Learning Experience interactions. These are intentionality, transcendence, and meaning. Intentionality marks MLE mother-child interactions from the earliest stage of the child's development. By transcendence, reference is made partly to the character and partly to the goal of the interaction. The goal of MLE is always more than the production of a behavior in order to respond to an immediate need. The interaction goes beyond the specific situation or need that elicited it and reaches out to goals that may be only slightly or even not at all related to the original eliciting situation. The particular eliciting event becomes a carrier or means leading to more distant goals. The third characteristic of MLE is the meaning the interaction lends to certain stimuli and events. In the interaction, the object or event presented to the child is not neutral, but has affective, motivational, and value-oriented significance. Meaning that is assigned cannot be grasped by the senses alone. Experiences are thus turned into the components of broader systems of needs whose establishment and perpetuation in the individual may be far removed and even devoid of connection with the needs systems determined by his or her biological substrata.

The relationship can be formulated between learning by direct exposure, Mediated Learning Experience, and cognitive modifiability in the following way: The more

MLE interactions an individual has received, the greater is his or her capacity to benefit from direct exposure to stimuli, to make efficient use of experiences, and to be cognitively modified. Conversely, the fewer MLE interactions, the less the child's cognitive modifiability and hence the smaller his or her capacity to benefit from and make efficient use of the modality of direct exposure to stimuli.

Feuerstein's theory of **Structural Cognitive Modifiability** (SCM) includes an intervention program, **Instrumental Enrichment** (IE) which is designed to help its recipients learn to learn and to reach higher levels of thinking. IE is designed for a widely varied population of "retarded performers." In Feuerstein's use of the term, "retarded performers," he carefully distinguishes between an individual's potential and his or her manifest or observed low level of functioning, and includes a wide range of individuals who fail to learn from direct exposure to stimuli and thus are unable to benefit from formal and informal learning experiences. In defining retarded performers as "individuals who have a reduced level of modifiability when they are directly confronted with new stimuli," he is classifying retarded performance on the basis of its structural characteristics, rather

than on the basis of either extrinsic or psychometric criteria.

Feuerstein and Vygotsky

Vygotsky's conception of the ZPD, together with the system of theory and research of which it is part, has a great deal to offer developmental psychology generally and the dynamic assessment movement in particular. The analysis of a child's activity in the ZPD could be extremely useful in producing a qualitative assessment of the strengths and weaknesses of a child's mental activity and in identifying the types of assistance that are needed to move the child to more advanced levels of development. In many respects, the work of Feuerstein and his colleagues has demonstrated the utility of this general approach.

Feuerstein et al., (1981) have argued that to

...the extent that assessment is regarded as an integral part of intervention and not as an end in itself, the necessity to understand the nature of the processes that produce cognitive change becomes imperative.

Their approach assumes that instruction, social interaction, and other means of organizing and reorganizing the child's psychological activity through MLE can play a key role in the process of cognitive development and change. The work of Vygotsky and the subsequent work of colleagues and students (Minick, 1985, Wertsch, 1981, 1985) provides a powerful theoretical

framework for understanding the mechanisms in socially organized forms of interaction and activity that can lead to change in the child's psychological functions. In this respect, as a component of Vygotskian developmental theory, the concept of the ZPD has tremendous potential for enhancing our understanding of why certain children experience difficulty in school and for facilitating the development of forms of remediation that may enable them to overcome these difficulties.

Summary

Piaget's theory, although immensely influential, suffers from significant problems: (1) children develop at least the beginning forms of complex thinking much sooner than Piaget thought; (2) children show much more complex levels of thinking in areas in which they are extremely knowledgeable than in less-familiar areas, making developmental change look more like accumulating experience than structural change; and (3) children do not show consistent levels of performance on tasks that appear to demand the same levels of cognitive skill. Theorists, such as Fischer and Vygotsky, have proposed theories that avoid some of these problems, but in general the idea of broad, structurally coherent stages of cognitive development is no longer widely accepted. The apparent validity of sequences of development and the relative

failure of the stage concept has been one force pushing psychologists toward a broad information-processing approach to cognitive development. Theorists such as Feuerstein, focus not on existing structure, but on the development of basic information-processing processes that make up any cognitive activity, such as decoding, encoding, remembering, planning, analyzing. He focuses on the individual differences in the efficiency of these basic processes and strategies and emphasis the use of the Mediated Learning Experience as the method of instruction when helping students develop these cognitive skills.

Cognitive development appears to be a transactional and, hence, sociocultural process (Vygotsky, 1978). Indeed, a sizeable body of literature has documented the relationship between certain variables of adult-child interactions and cognitive development (Lidz, 1987). This research indicates that effective learning opportunity is related to the quality and quantity of transactions children have with adults (Haywood & Wachs, 1981). A particular type of transaction, termed a Mediated Learning Experience (MLE), is, according to Feuerstein and Rand (1974), essential to children's cognitive development and makes possible effective learning through direct exposure.

Part III:
Learning to Learn

Introduction

The task of helping people learn to learn is a major challenge for cognitive science and educators in particular as we enter the decade of the 90's. This topic is extremely important because it suggests that efficient learning and high intelligence might involve sophisticated skills that some people have developed and others can develop (Bartlett, 1932). This assumption about skills is apparent in a number of approaches to education; for example, in books designed to help people develop memory skills (Cermak, 1976, Higbee, 1977, Lorayne & Lucas, 1973) and in books discussing general strategies for problem solving (Newell & Simon 1972, Polya, 1957, 1968, Whimbey, 1976, Wickelgren, 1974). There is a great need for more detailed theory and research on this question, however. For example, much of the work on problem solving involves presenting people with a problem and then suggesting some strategies for solving it. In many learning situations however, people don't even realize that they are faced with a problem; for example, they don't realize that they have failed to adequately understand and master information. If people think they have understood and learned, they will not perform additional activities like asking question, rereading, or studying in new ways

(Bransford & Nitsch, 1978). How do people develop the ability to know when they have understood and learned and when they have not? An important aspect of helping people learn to learn involves the development of internal criteria that can guide their processes of self-evaluation.

Good and Poor Learners

Benjamin Bloom, writing in 1976 provided a perceptive account of different theoretical perspectives toward learning. Bloom, a Distinguished Service Professor of Education at the University of Chicago, has made important contributions to the fields of education and psychology. The preface to his 1976 book provides an excellent illustration of different theoretical orientations, as well as the importance of the theoretical orientation that one holds. In this preface, Bloom notes that when he first entered the field of educational research and measurement, there was a prevailing assumption that "there are good learners and there are poor learners" (p. ix). This is similar to the idea that people have fixed capacities for learning. For example, Bloom notes that "it was believed that good learners could learn the more complex and abstract ideas, while poor learners could learn only the simplest and most concrete ideas" (p. ix). He also suggest that those assumptions had important

effects on educational systems. If one really believes that people have fixed capacities, the best thing to do is create an educational system that selects the most talented. This is different from a system designed to help people develop talents that they did not already.

Faster and Slower Learners

Bloom continues his preface by discussing an alternative theoretical perspective that was stressed by another important educational researcher, John Carroll (1963). This perspective assumes that "there are faster learners and there are slower learners" (Bloom, 1976 p. ix). This is different from the preceding assumption. For example the first assumption regarding "good" and "poor" learners included the belief that "good" learners could master complex and abstract materials whereas "poor" learners could master only simple and concrete materials. In contrast, Carroll's (1963) emphasis on "fast" versus "slow" learners assumes that nearly all people can master complex and abstract materials. Slow learners simply need more time to achieve their goal. Note once again that the latter assumption has important implications for education. As Bloom (1976) notes, many educators varied the amount of time that people were allowed to spend on certain types of materials. When this was done, it became

clear that "slow" learners were capable of mastering materials that were abstract and complex.

Favorable Learning Conditions

Bloom also proposes a third orientation toward questions about individual differences in learning abilities. He suggests that "most students become very similar with regard to learning ability, rate of learning, and motivation for further learning -- when provided with favorable learning conditions" (1976, p.x). Note that this third perspective differs from the second because even the rate or speed of learning is not assumed to be a fixed characteristic of the individual. Instead, a person's ability to learn (including the speed of learning) is assumed to depend on the quality of the instruction that he or she receives. The argument here is that we should not simply evaluate learners on the basis of their abilities to adapt to pre-set systems of instruction; we must also evaluate systems of instruction in terms of the degree to which they help people learn. Bloom therefore emphasized the importance of learning environments, arguing that slow learners can become faster learners when the instructional environment is appropriate. The more we understand about learning processes, the greater the probability of designing effective learning environments. Similarly, a better

understanding of effective learning environments can provide important clues about processes of learning.

Learning Problems Can Be Modified

Training studies (Owings, Petersen, Bransford, Morris, & Stein, 1980, Whimbey, 1976) suggest that many learning problems can be modified; they don't solve the problem of learning to learn, however. That people may employ newly learned strategies in a particular series of experiments or with a particular set of materials does not mean that they will do this in new contexts and with different materials. Under these conditions the benefits of teaching particular strategies are very limited.

As an illustration of the preceding problem, consider once again the task of teaching new strategies to educable retarded children. Campione and Brown (1985) note that these children can be taught to use learning strategies, but most training studies find that the children fail to transfer or generalize these strategies to new situations. When faced with a new task or context, the children frequently fall back upon their earlier (pre-training) methods. Needless to say, such finds are very discouraging. It is possible that educable retarded children are simply unable to generalize; perhaps this ability is what we really mean by intelligence. Another possibility is that we need a better understanding of what

it means to "teach new strategies." Perhaps researchers have approached this problem in less than optimal ways. Campione and Brown (1985) argue that this is so (see also Feuerstein et al., 1979, 1980).

Campione and Brown suggest that children must be helped to realize the limitations of their own information processing systems and to see how various strategies can help them overcome these limitations. If a list of items exceeds their short-term memory capacity, for example, children need to recognize this to be able to do something about it. They also need to realize that they can test their own memory for the items, so that they will know when it is appropriate to continue studying. In short, children need to learn to evaluate a task's difficulty relative to their current knowledge and skills. Note that this discussion emphasizes the importance of developing metacognitive awareness or knowledge about one's own knowledge. This orientation has important implications for the types of training tasks one should employ. For example, it is one thing to tell people to rehearse items in order to remember them, and to show that this can improve their performance; it is another matter to help them recognize when lists exceed their short-term capacity and to teach them how to evaluate their memory by means of self-testing.

Metacognition is the knowledge of and awareness about our own cognitive processes. Metacognition is an intriguing process, because we are using our cognitive processes to contemplate our cognitive processes. Metacognition is also an important process, because our knowledge about our cognitive processes can guide us in arranging circumstances and selecting strategies to improve future cognitive performance.

Learning Strategies and Problem Solving Skills

The problem of learning to learn is just beginning to be tackled by cognitive scientists. It is a very complex problem, but it is no less challenging than it is complex. The work of Brown, Campione, and colleagues (Brown, 1977, 1977, 1978, Campione and Brown, 1985) is excellent. Whimbey's book *Intelligence Can be Taught* (1976) includes provocative ideas and many references. Bloom and Lahey (1978) provide an outstanding discussion of language intervention programs. The approach of Mediated Learning through Dynamic Assessment adopted by Feuerstein (1979, 1980) is very promising as well. Numerous studies involving learning strategies and problem solving skills are also extremely relevant to the problem of learning to learn (Reif, Larkin, & Brackett, 1976). There is a need to consolidate information from various literatures, and to encourage communication across various fields.

The Affective Domain

An attempt to understand the problem of learning needs to take many things into account. For example, people's feelings of self-worth can affect learning and vice versa. An analysis of learning to learn therefore necessitates a concern with the social environments in which people live and act (McDermott, 1974).

Cognitive Modifiability

An emphasis on learning to learn also represents a potential challenge to capacity theories of intelligence. In this context, it is interesting to note that the concept of learning to learn is most frequently discussed with reference to Harlow's (1949) work on "learning sets" in monkeys. This research was very important, because it illustrated that monkeys could learn to learn. Note, however, that subsequent researchers used the ability to form learning sets as a criterion for attempting to measure the intellectual capacity of various species (Tarpy & Mayer, 1978). The static concept of capacity still dominated people's thinking. The challenge of work on **cognitive therapy** (Whimbey, 1976) or **cognitive modifiability** (Feuerstein, et al., 1979, 1980, 1985) is that it represents a potential alternative to notions of static capacity. A momentary assessment of someone's intelligence involves measurements at one point in

development. The possibility of significantly modifying development is an exciting idea to pursue.

There have, of course, been attempts to modify intelligence. Operation Head Start is a case in point. More often than not, the beneficial effects of such programs have been only temporary (Whimbey, 1976). However, both Whimbey (1976) and Feuerstein (1979, 1980, 1985) argue that such programs have been based on naive ideas regarding development. For example, an emphasis on enriched environments is important yet insufficient. Unless people can be helped to develop the skills necessary to learn from experiences, exposure to enriched environments may do little good. The failure of previous attempts at cognitive modifiability should therefore not be taken as evidence against the potential importance of the concept. However, these failures should provide a challenge for more precise theorizing and research.

Motivation

It is a commonplace, but nonetheless important observation that no instructional program will truly succeed in the absence of student motivation. If the students do not care to learn, they won't. And often they don't. In most settings, one cannot simply count on students' being motivated. Hence, one must build motivational aids into the program of instruction. This

is true for any instruction, but it is especially true for instruction based upon cognitive theories, because such theories, in themselves, are usually wholly cognitive and hence contain no direct implications for how students can be motivated to learn their principles, or according to their principles. The most successful training programs of any sort are those that take the issue of student motivation seriously. For example, Feuerstein's (1980) Instrumental Enrichment Program (IE) seems to be most effective in its raising of student self-esteem and motivation to succeed (John Bransford, personal communication). The extremely effective motivational aids built into the program are probably even more important than the cognitive theory underlying it.

Student motivation may be either intrinsic, extrinsic, or a combination of both. In some cases, extrinsic rewards will need to be built into a program in order to motivate students to perform at all (B. Sternberg, 1977). However, it is important to take into account the fact that extrinsic reinforcers tend to undermine intrinsic motivation. What is worse, when the extrinsic rewards are taken away, as inevitably they are at some point during a student's career, the student may be left with no motivation at all to perform well on the tasks that were formerly extrinsically reinforced (Greene, B. Sternberg, & Lepper, 1976).

Summary

The aspect of the learning problem that represents a major challenge for the cognitive scientists and educators today is the problem of helping people learn to learn, or learn how to learn. How do people develop the ability to plan and regulate their own learning activities? What kinds of experiences can help them learn to learn or learn how to learn? How can we prompt learners to evaluate new materials in the light of their exiting knowledge and then to employ efficient learning strategies as they deal with new learning tasks? Ultimately they need to progress to the point where they do this spontaneously, and in a wide variety of tasks. In other words, the problem of how to learn to learn, or learning how to learn, involves the development of the affective domain and the utilization of learning strategies and problem solving skills as well as other general skills such as self-regulation, motivation, and behavior planning techniques that will permit transfer to a wide variety of new learning situations.

The notion of interdisciplinary communication is particularly important here because the problem of learning to learn is not simply a problem for cognitive psychology, educators, linguistics, or computer science. First and foremost, learning to learn is a developmental problem (Bransford, 1979).

PART IV:
Instructional Approaches for Developing
Reading Comprehension

Introduction

Reading has been viewed from many perspectives and conceived of variously as a series of neurological reactions (Holmes, 1953), as "thinking" (Thorndike, 1917), as a hierarchy of subskills (Samuels, 1976), as a linear process (Gough, 1972, La Berge & Samuels, 1974), as a collection of simultaneous, interrelated process (Just & Carpenter, 1980, Kintsch & van Dijk, 1978, Rumelhart, 1977), and as a psycholinguistic process (Goodman, 1967, Smith, 1971). Reading has been fragmented into dozens of specific skills and subskills, analytic abilities, perceptual and cognitive acts, and developmental stages, and then reassembled into various models and heuristic devices which are modified and rearticulated as new information becomes available through reading research.

The results of this theoretical activity sometimes influences the very practical enterprise of teaching people to read as research finds application in reading pedagogy. Instructional practices come and go in response to shifting perspectives on reading research. Certain constants emerge from these changing trends in reading instruction. One practice which has been virtually unchallenged as a way to improve reading ability (Downing

& Leong, 1982) and one whose positive benefits have been well substantiated by research (Bamburger, 1976, De Cecco & Crawford, 1974, Samuels, 1976) is simply that of persistent performance of the reading act. Practice has been shown to be a highly significant factor in acquiring literacy and in developing mature reading skills.

Reading Comprehension

Our concept of reading comprehension has changed quite radically over the past few years, along with our methods of studying it. It is hypothesized that knowledge is stored in schematic structures (Anderson, Spiro, & Anderson, 1977, Rumelhart & Ortney, 1977), and **comprehension** is the process(es) involved in forming, elaborating, modifying or integrating these knowledge structures (Rumelhart, 1977). Degree of comprehension of a text can be considered in terms of the creation, modification, elaboration, and integration of the relevant knowledge structures. That is, it refers to the extent of the interrelationships among and within the structures.

Reading comprehension is considered to be a complex behavior which involves conscious and unconscious use of various strategies, including problem-solving strategies, to build the meaning assumed to have intended by the writer. The meaning is constructed using schematic knowledge structures and the various cue systems which the

writer has given to generate hypotheses which are tested using various logical and pragmatic strategies. Most of this meaning must be inferred, since text can never be fully explicit and, in general, very little of it is explicit because even the appropriate intentional and extensional meanings of words must be inferred from their context.

It is the purpose of this section to highlight research which studies instructional intervention as a means to improve students' understanding, recall, and integration of information stated in or inferable from specific text passages, commonly measured as reading comprehension of text. Note that I have drawn a distinction between activities or strategies based upon when intervention takes place. This distinction might be characterized in the following ways: building background knowledge, activating readers' existing background knowledge and attention focusing before reading; guiding reader/text interactions during reading; and providing review, mediation, prompting, or cognitive stimulation after reading.

Most reading lessons include a prereading activity which provides a bridge of sorts between a reader's knowledge base and the text. Most lesson frameworks used in conjunction with basal readers and content-area textbooks consider this step a preparatory one in which

purpose setting and concept development are primary goals. In principle, most of these activities are directed at the reader's background knowledge; implicitly, they reflect at least tacit acceptance of the role of background knowledge and the importance of building and activating readers' knowledge before reading.

Comprehension strategies can be defined as those cognitive activities which good readers engage in to foster comprehension (Tierney & Cunningham, 1984). Specifically, comprehension strategies might include: engaging background knowledge, goal setting, identifying task demands, allocating attention, evaluating content, self-appraisal, self-correction, predicting, and/or self-questioning. While the pursuit of these strategies seems a rather obvious goal of any comprehension instructional program, my review of instructional research and programs has found only a few attempts to develop deliberate use of such strategies by readers.

Direct Cognitive Instruction

Direct instruction of thinking strategies helps students develop awareness and control over their thought processes. Direct cognitive instruction has been defined as "(1) explicit strategy or skills instruction, namely teacher explanations regarding what the strategy is and when, where, and how to use it as well as why it should be

used; and (2) the gradual transfer of responsibility of learning from the teacher to the students" (Jones, 1986). Many high achieving students have a repertoire of learning strategies. Very young students and poor readers may not develop these strategies. Direct cognitive instruction helps top students refine and polish their strategies and fosters development in less able students. Gersten and Carnine (1986) list the components of direct cognitive instruction as:

- (1) instruction on explicit step-by-step strategy (when this is not possible or necessary, model effective performance);
- (2) student mastery of each step in the process;
- (3) strategy (or process) corrections for student errors;
- (4) gradual fading from teacher-directed activities toward independent work;
- (5) adequate, systematic practice for students, using a range of examples;
- (6) cumulative review; and
- (7) teaching formats that anticipate ("pre-correct") potential errors.

Direct cognitive instruction helps students integrate a wide range of examples under one strategy. They learn different ways to organize and relate information. Another major advantage is that teachers can provide students specific feedback about their use of the strategy. There is a shared language to discuss student misconceptions. Without this shared language and a

specific set of steps, teachers may say "think again" or give the answer themselves (Gersten & Carnine, 1986). As tasks become more difficult and complex, students may feel that the instruction is more ambiguous and risky.

Consequently, they will exert pressure on the teacher to go back to familiar memory or procedural tasks. Teachers who feel the stress and resent the slowdowns may return to memory or routine assignments (Doyle, 1983). Direct instruction in higher level strategies reduces this ambiguity and risk by providing structural support and a sequential process.

Direct cognitive instruction can be used to teach comprehension skills. Four steps for teaching comprehension have been identified by Baumann (1986). They are: (1) telling the students what the reading skills is, (2) telling the students why the reading skill is important to learn, (3) giving direct instruction in using the skill by modeling or demonstrating how the skill works, and (4) providing conditional knowledge by telling the students under what conditions the skill should be used. These four steps have been used to teach problem solving strategies in mathematics (Herrmann, 1986). Qualitative differences were found in the explanations of more explicit teachers. They made specific statements about the tasks to be learned, and presented the tasks as real life situations. The immediate usefulness of the

strategies was emphasized. In addition, more explicit teachers included information about how to follow mental steps in a sequence flexibly and adaptively. When students are taught both what to do and why, they can more easily apply skills to new tasks. Understanding the meaning of procedures helps students remember them longer. This reasoning process supports continued learning (Burns, 1986).

Reciprocal Teaching of Comprehension Strategies

Brown and Palincsar's (1982, 1984, and 1985) research on guided cooperative learning and expert scaffolding embodied in a procedure known as **reciprocal teaching** was designed to provide a simple introduction to group discussion techniques aimed at understanding and remembering text content. Expert scaffolding was provided by a teacher who attempted to modulate the children's discussion. They believed that if they could establish a very simple routine that could be handled by average teachers and less than average students, then it would be possible at some future date to build upon the simple routine and provide practice in more complicated argument structures of premise, justifications, warrants, and backings.

Reciprocal teaching takes place in a cooperative learning group that features guided practice in applying

simple concrete strategies to the task of text comprehension. The basic procedure is simple. An adult teacher and a group of students take turns leading a discussion on the contents of a section of text they are jointly attempting to understand. The discussions are free-ranging but are constrained by the requirement that the discussion leader ensure that four strategic activities are practiced routinely: **questioning, clarifying, summarizing, and predicting.** The dialogue leader begins the discussion by asking a question on the main content and ends by summarizing the gist. If there is disagreement, the group rereads and discusses potential candidates for question and summary statements until they reach consensus. Summarizing provides a means by which the group can monitor its progress, noting points of agreement and disagreement. Particularly valuable is the fact that summarizing at the end of a period of discussion helps students establish where they are in preparation for tackling a new segment of text. Attempts to clarify any comprehension problems that might arise are also an integral part of the discussions. And finally, the leader asks for predictions about future content. Throughout, the adult teacher provides guidance and feedback tailored to the needs of the current discussion leader and his/her respondents.

The procedure was designed to embody both expert scaffolding and cooperative learning features. The group is jointly responsible for understanding and evaluating the text message. All members of the group, in turn, serve as learning leaders, responsible for orchestrating the dialogue, and learning listeners (Yeager, Johnson, & Johnson, 1985), whose job it is to encourage the discussion leader to explain the content and help resolve misunderstandings. The goal is joint construction of meaning; the strategies provide concrete heuristics for getting the procedure going; teacher modeling provides examples of expert performance; and the reciprocal nature of the procedure forces student engagement. Like a coach, the teacher is always monitoring the discussions and is ready to step back and relinquish control or step forward to take up the reigns again when necessary. Reciprocal teaching was consciously modelled after naturally occurring expert scaffolding procedures.

Mediation Procedure

The **Mediation Procedure** (Burns, 1983) was based on instructional principles specified by Feuerstein and colleagues (Feuerstein, Rand, & Hoffman, 1979); this should not be confused with the COGNET Mediated Learning Experience Instructional Approach. This procedure was designed to teach general as well as task-specific

strategies and incorporated three instructional phases: familiarization, rule-teaching, and feedback. It was a child-contingent teaching procedure that emphasized adaptation of instruction to meet the needs of individual students. During the **mediation procedure** the teacher's instruction was contingent upon the student's error.

Teachers who use this procedure are free to instruct students at any point in order to meet the individual needs. The goal is to present instruction that will bridge the gap between students' present level of performance and the level of performance required to complete the task successfully. Feuerstein (1980) believes the style of instruction that underlies Burns' model will (a) alter student's thinking processes, (b) transcend the specific task to more abstract concepts, (c) emphasize the meaning and purpose of learning tasks, (d) motivate students by stressing successful learning strategies, and (e) encourage students to think about the specific task.

Graduated Prompt Procedure

Brown, Campione, and colleagues developed the zone of proximal development procedure, the **graduated prompt**, to identify children at risk for academic failure. These researchers have attempted to improve classification by developing a measure of learning ability that can

effectively supplement and predictive power of static measures.

The **graduated prompt procedure** (Brown & Ferrara, 1980) consists of a predetermined script that the teacher adheres to throughout instruction. The script consists of a series of prompts that are graduated in the levels of explicitness and are designed to teach the child the specific rules and strategies for performing the task at hand. The prompts are provided whenever students make errors. A more explicit hint is provided each time the child fails to provide a correct solution. The scripts include a total of nine prompts ranging from general hints to a demonstration of the task.

Vygotsky's (1978) theory of sociocultural cognitive development forms the theoretical basis of this procedure. The prompting procedure is an attempt to measure the **zone of proximal development**, which Vygotsky has defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). The width of the zone is operationalized in terms of learning speed, that is, the number of prompts required to reach a predetermined performance criterion. Research is currently being

conducted on tasks in the curriculum areas of mathematics and reading (Symons & Vye, 1988).

COGNET MLE Instructional Approach

The COGNET MLE Instructional Approach that was designed to use with the Cognitive Enrichment Network (COGNET) Follow Through Program, provides a natural method for helping children "learn school" (Greenberg, 1989). It is an instructional approach designed for classroom instruction which emphasizes **Learning How to Learn**, as outlined in the Cognitive Enrichment Network Teacher Workbook (1989). It adapts Reuven Feuerstein's theory of Mediated Learning (1979) for use with whole group instruction in the elementary school setting. The COGNET MLE Instructional Approach (1988) was developed by Katherine H. Greenberg of the University of Tennessee for use with the COGNET Follow Through Project # 030913 in Early Elementary Classrooms. This instructional approach utilizes the three essential elements of MLE: intentionality (intent), transcendence (going beyond), and meaning in a focused Mediated Learning Experience by capitalizing on naturally occurring situations and emphasizing the need for specific cognitive functions (termed "Building Block of Thinking") and for independent learning (termed "Tools for Independent Learning"). An

overlay curriculum has been developed that emphasizes both areas.

The **COGNET MLE Instructional Approach** focuses on the ways of interacting with students that most "good" teachers already use naturally. However, several of the instructional standards involve expanding lessons in a way that teachers may never have done before simply because they did not realize it was necessary to do so to allow for transfer of learning to other areas of school and life.

With the **COGNET MLE Instructional Approach** teachers can use focused mediation to **transcend** (go beyond) the lesson in three important ways. First, they can help children connect domain specific knowledge (content knowledge) within the lesson to larger schemata to which it belongs in the real world. Second, they can help children make connections between the domain specific knowledge of the lesson and cognitive processing knowledge variables of how to learn. In addition, teachers can **transcend** (go beyond) by connecting one or more cognitive processing variables needed in the lesson to their need in all learning environments, i.e. in school, home, work and social settings. These connections of one or more cognitive processing variables are made to a natural use for them outside of school through a process called **bridging** (Feuerstein, et al. 1979). Through the use of

the three teaching strategies to **transcend** (go beyond) the learning situation, children will gain a clearer understanding of how learning takes place in and out of school.

This overall perspective of learning and teaching should always be considered when providing **mediated learning experiences** in the classroom. Without it, mediated learning will have little meaning, but such a perspective is not enough. There are three teaching strategies that have a powerful effect on the quality of mediated learning in the classroom. These teaching strategies are called **bridging, clustering, and modeling**.

Bridging

This teaching strategy will help children make connections between school tasks and their use in the real world. Bridging means to build a bridge--or make a connection--from the present situation to other applicable areas of life. Every bridge needs a structure to hold it up. Therefore, bridging must always be based on a **principle** or a **generalized rule**, derived from the present situation, but stated in a manner that makes it possible to apply it to most other types of situations thus allowing for transfer of cognitive processing variables. Children will be asked to think of examples from the following four major environments in which people live:

1. **School**--other learning situations at school including previous and anticipated lessons in the same subject areas as well as other subject areas.
2. **Home**--any aspect of home life including taking care of a house; buying, cooking, and eating food; as well as health needs of family members.
3. **Work**--any aspect of the work world in any field from ditch digger to scientist.
4. **Social**--any aspect of interpersonal relationships, especially getting along with others in any of the above environments.

Children must learn to make connections between the present situation and others--so they can transfer their learning to new situations. These connections do not have to distract from the objectives of the lesson. It takes only a few minutes, sometimes less than two, to make such connections. However, without such connections, transfer will be much less likely to occur (Perkins & Salomin, 1989). They also must learn to derive principles from what they are studying--so they can learn other things on their own and become independent learners.

Clustering

The second teaching strategy used with the **COGNET MLE Instructional Approach** involves creating a connection between an idea from within the given instructional situation to ideas outside the given instructional situation. The purpose of clustering is to help the individual relate the new idea to its place within a

larger framework. Therefore it is important to connect a broader, more encompassing concept to several aspects of it, i. e. a superordinate concept to subordinate concepts.

It is important to note that the idea taken from the given instructional situation may be the broader concept itself or one of several aspects of the broader concept. Your goal is to help the children get the "big picture".

Modeling

The third teaching strategy used with the **COGNET MLE Instructional Approach** effects the quality of mediated learning is modeling. This strategy is probably used more than any other by every teacher: demonstrating what the teacher wants the children to do. The children will understand the **Building Blocks of Thinking** and the **Tools of Independent Learning** much better when they are demonstrated and discussed while being used by the teacher. In addition to simply demonstrating this is an excellent place for the teacher to transcend the classroom situation and bridge to his/her own personal life experiences to illustrate the connection between learning in school and learning in the real world.

Classroom Atmosphere Enhances Mediated Learning

When a classroom atmosphere is established where every child is expected to learn and all students are respected

for thinking no matter how much room they may have for improvement--then wrong answers are considered a challenge for everyone and are approached as something for all students to work on together until the problems are solved. In this atmosphere, everyone is expected to change and become a better learner. Right answers are not rewarded or respected in and of themselves. Thinking that leads to good answers is rewarded and the classroom is treated as a laboratory for learning and thinking (Greenberg, 1989).

Summary

Instruction in higher level activities is a complex process. Brophy and Good (1986) stress the fact that higher level skills cannot be taught by presenting simple algorithms to be imitated. Recent research has focused on the way students think and learn. The role of the teacher in promoting student learning of higher level skills is being emphasized. Schema theory has helped identify the active and constructive process that students play as they attempt to comprehend a text, solve a problem, or revise concepts and ideas to accommodate new information (Jones, 1986). Wittrock (1986) reports that the distinctive characteristic of the research on student thinking is that teaching affects achievement only through student thought processes. Learning is not the result of memorization.

Instead, students actively process the information. They incorporate new information into familiar frameworks. When students participate in a deeper level of mental processing, they are more successful at both immediate and delayed recall. Teachers cannot merely provide the learning. Instead, they must help students observe, activate prior knowledge, construct meaning, and organize information (Jones, 1986).

Brophy and Good (1986) have identified behaviors common to teachers who are effective in teaching higher level thinking. Developing apt analogies or examples helps students relate new material to their prior knowledge. Examples, particularly those from their own lives, make abstract ideas more concrete. Other behaviors Brophy and Good list are: identifying key concepts that help to organize complex bodies of information, modeling problem solving processes that involve judgment and decision making under conditions of uncertainty, and diagnosing and correcting subtle misconceptions in students' thinking.

Reading is more appropriately described as **learning** by reading, and teaching reading is more appropriately described as **teaching learning** by reading (Downing & Leong, 1982). Simply put, the amount of cognitive learning which takes place during the reading act is measured and recorded as the student's level of reading

comprehension. Research demonstrates that certain instructional approaches aid in the development of reading comprehension skills. As we approach the twenty-first century more research is needed to determine which instructional approaches are the most successful in developing reading comprehension skills.

CHAPTER III

METHODS AND PROCEDURES

Introduction

In making this information accessible, the researcher presented data and analyzed it, using a framework based on Observational Research Methodology for the qualitative data while also utilizing a Quasi-Experimental Research Design for the quantitative data collected on the teacher's Theoretical Orientation to Reading Profile and the student's attitudes to reading as measured by the Heathington Primary Reading Attitude Scale. A Quasi-Experimental Design was selected for this research to allow for a comparison of groups where the subjects were not randomly assigned. The typical experimental design in education involves the selection of a sample of subjects; random assignment of these subjects to experimental and control groups; the exposure of the experimental groups to a treatment that is withheld from the control group; and finally, the evaluation of the two groups on the dependent variable, that is, the variable that we are attempting to measure, i.e. the level of initial implementation of an instructional approach.

The initial implementation was evaluated three ways, first by a qualitative observational analysis of change in

teacher behaviors i.e. attitudes toward teaching and/or expectation of students learning levels as recorded in observational fieldnotes, interviews, and questionnaires. Second, through a qualitative analysis of a pre-training and post early and initial implementation interviews which measured the teacher's use of the COGNET Mediated Learning Experience Instructional Approach as a teaching methodology. Third by a qualitative measurement of changes in attitudes towards teaching and towards individual student learning potential as revealed through teacher questionnaires.

Descriptive Data

Selection of School Sites

The two schools chosen to be the control and experimental sites for this research were judged, by local county administrators, to be the most compatible elementary schools within a given school district in rural eastern Tennessee. The decision was arrived at by determining the number of Head Start students currently enrolled at all elementary schools within this school district and then by choosing the two schools with the most similar numbers of Head Start students currently enrolled as the control and experimental sites for this research study.

Description of Control Site Location

The control site school was located in a medium sized rural town in eastern Tennessee. This rural town had two state highways passing through it and was located six miles from Interstate 40. This rural town was comprised of three small shopping malls (with five or less stores at each mall), three drug stores, four grocery stores, three factories, five fast food establishments, three restaurants, and a private four-year liberal arts college. Five apartment complexes, dormitories at the college, and single family dwellings provided for the housing needs of the populace living within the town limits. Doctors' offices, clinics, dentists' offices, an optometrists' office, a nursing home, and a small general hospital were also located within the town limits.

Description of Control School Site

The control site elementary school was located on a track of land that contained both the elementary and middle school facilities. Both facilities were built in the 1950's, but were kept in very good condition. The elementary school wasn't large enough to accomodate the growth of the city so several attatched trailers were added to house the band program and the Gate (gifted and talented) program. All of the classrooms were undersized for the number of students that were housed in each room.

All classrooms had an outside wall and windows allowed for adequate ventilation and natural sunlight.

The elementary school building housed grades kindergarten through fourth grade and had a staff of twenty classroom teachers, three special education teachers, eight teacher assistants, and eight Chapter 1 teachers and/or teacher assistants. The sixteen teachers involved in this research study, all first through third grade teachers, had an average of nineteen years of teaching experience. The teacher with the least teaching experience had taught for five years and the teacher with the most teaching experience had taught for thirty-four years, she retired at the close of the 1989-1990 school year. This school had recently undergone a change in administration with the local high school football coach becoming the new principal prior to the beginning of the 1988-1989 school year. The former principal became the assistant superintendent for this rural eastern Tennessee school system. Because of the contrast in managerial styles between principals, this change resulted in a lower level of consistency in leadership than had previously existed at the control site elementary school.

Description of Experimental Site Location

The experimental school site was located in a small rural town in eastern Tennessee. This town was accessible

from Interstate 81 to the west and Interstate 40 to the south. The school site was located within four miles either direction of these interstate highways. A state highway went through the town passing directly in front of the school building site. The town itself was located one-half mile east of the school building site and was comprised of one grocery store, one variety store, one hardware store, one video/TV store, one country style restaurant, one drug store, one funeral parlor, and one furniture store. There were four churches within a mile of the school all located within the town limits. A low-income housing project; a community swimming pool, ball diamond, and track; along with single family dwellings completed the description of this rural town. The old school building that was condemned was located one-half mile north of the shopping area, about one mile from the site of the new elementary school building.

Description of Experimental School Site

The experimental site elementary school housed all students grades kindergarten through eighth grade in a very modern school plant that was completed in 1986. The classrooms were large and roomy, and all had outside exposure to provide natural ventilation and sunlight. The roof was made of modern corrugated steel.

The experimental site school had a stable school staff consisting of twenty-four teachers, four teacher assistants, four Chapter 1 teachers/and or teacher assistants, and one special education teacher, that had been under the leadership of the same principal for the past five years. The principal grew up in a neighboring community and was an educational product of the local county school system. The nine teachers, teaching grades one through three, that were involved in this research study, had a composite average of sixteen years of teaching experience. The teacher with the least amount of experience had four years of classroom teaching experience and the teacher with the most years of experience had twenty-seven years of teaching experience.

Training for Observational Data Collection

The semester prior to the initial implementation of the COGNET MLE Instructional Approach teaching methodology the qualitative evaluation component of this study began with intensive training sessions for graduate assistants who would be responsible for data collection in the classrooms at the experimental site. These training sessions provided the graduate assistants with background knowledge about the theoretical perspectives of qualitative research as well as practice in the specific skills of data collection. Since qualitative research

attempts to gain an understanding of phenomena from the point of view of the participants in the study, we were concerned with understanding the way this group of teachers initially implemented the COGNET MLE Instructional Approach into the daily lives of their classrooms. In order to understand how the COGNET MLE Instructional Approach was initially implemented and to be able to measure what, if any change took place it was necessary to collect the baseline data by participant observation prior to the teacher training workshop.

One of the core elements in qualitative research is that researchers collect data as unobtrusively as possible in the natural setting of the participants. These training sessions were used to acquaint the graduate assistants with methods to observe and record data precisely with particular focus on the interactions between teachers and students in the classrooms. It was emphasized that exact quotations of classroom dialogue were needed for a complete evaluation to take place.

Baseline Observational Data Collection

Following these training sessions, each researcher was responsible for the collection of baseline data in one of the nine classrooms, located at the experimental site. All first through third grade classrooms located at this site were involved in the study. During the months of

November and December, each of the classrooms were observed six times during the portion of the school day that included all of the Language Arts Instruction, and whole group reading instruction in particular. The fieldnotes of the researchers contained approximately two hours of student-teacher dialogue for each observation, which was also backed up by audiotapes made during each observation. In addition, samples of classroom assignments were collected, and careful records were kept as to what basal textbooks were being used, and what page(s) were covered during the participant observation. Each teacher also completed a **Theoretical Orientation of the Reading Process Survey (TORP) Profile** (DeFord, 1985) which provided information on their current theories about how children learn to read.

Early Implementation Observational Data Collection

During the months of April and May, 1989, the graduate research assistants returned to collect qualitative data in the classrooms they had been participant observers in during November and December 1988. The collection of data duplicated what had been done in the fall with each researcher spending six mornings in a first through third grade teacher's classroom during the Language Arts Instructional Period, which included whole group reading instruction, fieldnotes on teacher/student dialogue were

made and backed up by audiotape. The purpose was to collect data which was examined for changes in the ways teachers interacted with their students after they had completed the COGNET MLE Instructional Approach Teacher Training In-Service Workshop. The observations took place rather late in the spring so that the teachers had an opportunity to become familiar with using the COGNET MLE Instructional Approach Curriculum and focused mediated learning experiences.

Initial Implementation Observational Data Collection

Qualitative data collection which took place during the spring of 1990 was preceded by another short training session for the graduate research assistants. This training session reviewed the data collection methods for those who had collected data during the 1988-89 academic year and also provided necessary information for new graduate research assistants. It ensured that the fieldnotes would continue to focus on the direct quotations of students and teachers as they were involved in their typical classroom interactions with each other. It also ensured as complete a body of information as possible. These observations were also backed up by audiotape.

One major change was made in the methodology used for the collection of these fieldnotes, rather than having

each graduate research assistant assigned to the same teacher over the course of the observations, different graduate research assistants were assigned to each teacher each of the four days they were observed. This initially caused a bit of uneasiness with the teachers, but since they had all met all of the graduate research assistants during a staff meeting in January, this uneasiness subsided, and it provided the researcher with a more reliable body of fieldnote data. A memorandum was sent to each teacher notifying them of the dates of their observations and the name of the graduate research assistant that would participate in the observation on that day.

Interview Data Collection

An open-ended, loosely structured, interview designed by the researcher in collaboration with Katherine H. Greenberg was conducted with each of the nine COGNET MLE Instructional Approach teachers following the collection of the initial implementation qualitative fieldnote data. See Appendix F for a copy of the Interview Guide. This Interview Guide was developed to better understand the perceptions of the ways in which the COGNET MLE Instructional Approach had impacted their program and to gather suggestions for ways to better support their needs in the implementation of the curriculum. Each interview

took approximately thirty minutes of each teacher's time and was backed up on audiotape. These interviews were completed during planning periods while the students were out of the classroom so that the interviewer had the full attention of the interviewee.

Specific Procedures Used in the Research

Observations

During six visits to the individual classrooms prior to teacher training in the use of the COGNET MLE Instructional Approach, six visits following early implementation of the COGNET MLE Instructional Approach, and four times after the initial implementation of the COGNET MLE Instructional Approach a **participant observer** was present in each of the experimental classrooms. One of the core elements in qualitative research is that researchers collect data as unobtrusively as possible in the natural setting of the participants. The **participant observers** observed and recorded data precisely with particular focus on the interactions between teachers and students in the classrooms. Exact quotations of classroom dialogue were collected to allow for a complete evaluation. The fieldnotes of the researchers contain approximately two hours of student/teacher dialogue for each observation, and were backed up by audiotapes. In addition, samples of classroom assignments were collected.

See Appendix D for two sample sets of fieldnotes, one from before the training (November/December, 1988) and one following early implementation (April/May, 1989) that were collected by the researcher.

Questionnaires

The **Greenberg/Bennett Teacher Questionnaire** developed by Professors Katherine Greenberg and Kathleen Bennett (1988) was used as an interview guide two times during the period that this initial implementation research was being conducted. The first time it was prior to the experimental site Teacher Training In-Service Workshop where the experimental site teachers were instructed in the use of the COGNET MLE Instructional Approach. See Appendix B for a copy of the questionnaire. The items from this questionnaire were used as an interview guide by the ethnographic observers as their last function as participant observers in December 1988. A more detailed description of the participant observations and resulting fieldnotes is provided further in this text. Two interviews took place, the first one was prior to the introduction of the teachers at the experimental site to Reuven Feuerstein's Theory of Structural Cognitive Modifiability and the Mediated Learning Experience. The baseline data fieldnotes were collected at this time. Following the initial implementation of the COGNET MLE

Instructional Approach a second interview was conducted to measure what, if any, changes took place during initial implementation of the COGNET MLE Instructional Approach, in teacher attitude and/or teacher expectation level of students. Initial implementation fieldnotes were also collected by participant observers at the time the second interview took place.

De Ford Theoretical Orientation of the Reading Process (TORP) Profile

The DeFord Theoretical Orientation of the Reading Process (TORP) Profile was filled out by the teachers at the experimental site twice. See Appendix C for a copy of this profile. This profile was filled out during a teacher's meeting prior to the initial Teacher Training In-Service Workshop on Reuven Feuerstein's theory of Structural Cognitive Modifiability and the Mediated Learning Experience. This profile was administered again at the conclusion of the initial implementation of the COGNET MLE Instructional Approach.

Teacher Training In-Service Workshop

During a thirty-five hour Teacher Training In-Service Workshop, the experimental site teachers were introduced to Feuerstein's theory of Structural Cognitive Modifiability and Mediated Learning and were trained to

use focused MLE and the COGNET MLE Instructional Approach in whole group instructional settings in the classrooms.

Each teacher was provided with a **Cognitive Network Enrichment (COGNET) Teacher Workbook** and a **Mini Lesson Plan Book for School Age Children** containing 240 Mini Lesson Plans to be used as a curriculum overlay to help them with their initial implementation of the COGNET MLE Instructional Approach. See Appendix E for excerpts from the **COGNET Teacher Workbook**.

A second sixteen hour Teacher Training In-Service Workwhop was conducted in October 1989 to review Feuerstein's theory of Structural Cognitive Modifiability and Mediated Learning and Greenberg's COGNET MLE Instructional Approach. In addition a monthly two hour Teacher Meeting was also held to keep the teachers up-to-date on the initial implementation skills and schedule.

Initial Implementation Schedule Survey and Interview Guide

The **Initial Implementation Schedule Survey** and **Interview Guide** were administered following the first full year of initial implementation of the COGNET MLE Instructional Approach in May of 1990. See Appendix F for a copy of the **Initial Implementation Schedule Survey** and **Interview Guide**.

Heathington Primary Reading Attitude Scale

The Heathington Primary Reading Attitude Scale was administered to all students enrolled in grades one through three at both the experimental and control sites during May 1990. See Appendix G for a copy of the Heathington Primary Reading Attitude Scale.

Data Analysis

All data were collected and organized by individual teacher and by grade level. This data set was then analyzed using the process of analytic induction in which categories and themes were gleaned from the fieldnotes. The fieldnotes were then coded by categories to ensure that there was enough evidence to support each of the emerging themes. The interactions of each of the teachers was compared to determine any changes between the data set collected before the Teacher Training In-Service Workshop and the data sets collected following early implementation and initial implementation of the COGNET MLE Instructional Approach. Measurement was also made to determine the level of implementation of the COGNET MLE Instructional Approach this was determined by the teacher's self-reported use of: the Mini Lesson Plans, the Building Blocks of Thinking, the Tools of Independent Learning, and other recorded instances of MLE from the fieldnote observational data. This combined data measured the

extent to which the teachers were utilizing Feuerstein's Theory of Structural Cognitive Modifiability and the Mediated Learning Experience in their individual classrooms.

A participant observer visited each of the experimental classrooms grades one through three sixteen times, six times prior to teacher training in the use of the COGNET MLE Instructional Model, six times following the early implementation, and four times following the period designated as initial implementation of the COGNET MLE Instructional Approach. The framework for the analysis of the social and instructional function resulted from the patterns and regularities found within the expanded fieldnote data. These findings have been organized by naturally emerging patterns of exchanges. Questions 1 and 2 were answered by combining the ethnographic fieldnotes from before, during early implementation, and after initial implementation with the answers to the Initial Implementation Schedule Survey and Interview. Triangulation of the data was used to verify the teacher-reported level of initial implementation of the COGNET MLE Instructional Approach.

Question 2 which measured any differences between the teacher's attitudes regarding their classroom teaching once they have been trained to use the COGNET MLE Instructional Approach, as well as any differences between

their (teacher) expectation of learning levels once they have been trained to use the COGNET MLE Instructional Approach, were measured by the Initial Implementation Survey and Interview Guide, and the TORP Profile. The results from the administration of the TORP Profile were presented as changes in total scores between Time I and Time II in the three areas of theoretical orientation which were currently being utilized by teachers while involved with the teaching of reading.

The original research design called for Question 3 to be answered by a statistical analysis of the combined data from the ethnographic fieldnotes collected before training, following early implementation, and following initial implementation of the COGNET MLE Instructional Approach, the Greenberg/Bennett Teacher Questionnaire as administered prior to training and following the initial implementation of the COGNET MLE Instructional Approach, and the Initial Implementation Schedule Survey and Interview Guide as administered following the initial implementation of the COGNET MLE Instructional Approach. Because the level of Initial Implementation of the COGNET MLE Instructional Approach had not reached Stage 3: Institutionalization, it was not possible to answer this question because variable 2: Teachers' attitude to the program, had not been finalized because they were in the Implementation Dip, an instructional disequilibrium

described in the literature (MacRae-Campbell, 1990) which resulted from the implementation of a new program. It was expected that by the end of the next school year the answer to this variable would become accessible to researchers.

To provide the answer to **Question 4**, individual copies of the **Heathington Primary Reading Attitude Scale** were distributed to all students enrolled in grades one through three at both the experimental and control sites. The results of the **Heathington Primary Reading Attitude Scale** were then used to determine individual students' attitudes toward reading. The control and experimental sites produced two groups of data which were utilized to measure through the use of descriptive statistics the differences between students attitudes toward reading by school site. Because of the selection of the populations of the study it was not possible to use inferential statistics with the data. The data from the two sites was then combined and utilized to measure any differences in attitudes toward reading between grade levels.

Measuring Instruments

Greenberg/Bennett Teacher Questionnaire

The **Greenberg/Bennett Teacher Questionnaire** that was used in this study was developed under the direction of Professors Katherine Greenberg and Kathleen Bennett. See

Appendix B for a copy of this questionnaire. Validity and reliability were established utilizing the following methods. According to Goetz and LeCompte (1985), there are five ways to reduce threats to internal reliability and all five of these methods were utilized:

- 1) mechanical recordings of the interviews were made;
- 2) low inference descriptions were used, -- verbatim quote/accounts;
- 3) multiple researchers conducted the interviews based on this questionnaire;
- 4) participant researchers did the interviewing; and
- 5) peer examination of the interview data was used.

Validity is generally the strength of qualitative studies because of the

- 1) determination of the extent to which conclusion effectively represents empirical reality and
- 2) assessing whether constructs devised by the researchers represent or measure categories of human experiences that occur.

Internal validity is the extent to which scientific observations and measurements are authentic representations of some reality. External validity is the degree to which such representations can be legitimately compared across groups, the "typicality" of phenomena.

The length of time in the site reduces artificial responses and thus increases the validity of the study. Triangulation of data through multiple sources increases the validity of qualitative data.

DeFord Theoretical Orientation of the Reading Process Survey (TORP) Profile

The Theoretical Orientation of the Reading Process Survey (TORP) Profile as developed by Delores DeFord in 1985 provided the researcher with information from each teacher which demonstrated the theoretical basis of each teacher regarding how children learn to read. The validity and reliability of this instrument had already been established (1985). This profile was administered twice, (pre and post) to measure change. See Appendix C for a copy of this profile.

Initial Implementation Survey and Interview Guide

The Initial Implementation Schedule Survey and Interview Guide that was used in this study was developed by the researcher for the purpose of providing another method of measuring the initial implementation of the COGNET MLE Instructional Approach at the experimental site in rural eastern Tennessee. Professor Katherine H. Greenberg collaborated with the researcher in the development of this tool which was designed to be used as a multiple source of information for the triangulation of data to assure the validity of the measurement of Initial Implementation of the COGNET MLE Instructional Approach. Reliability was established by comparing the results of the Initial Implementation Survey with the End of the Year

Evaluation Report returned to the researcher at the year-end staff meeting. Internal reliability was built into the instrument by the wording of the questions. See Appendix F for a copy of the **Initial Implementation Schedule Survey and the Interview Guide.**

Heathington Primary Reading Attitude Scale

The **Heathington Primary Reading Attitude Scale** that was used in this study was developed by Betty Heathington as a scale to measure individual students attitudes toward reading. The resulting **Heathington Primary Attitude Scale** was the product of her dissertation research at the University of Tennessee, Knoxville in 1975.

Triangulation of data through multiple sources was used to increase and assure its validity. The internal reliability is the degree to which other researchers, given the set of previously generated constructs would match data in the same way as the original researcher did. Reliability and Validity for this instrument have been established (Heathington, 1975). See Appendix G for a copy of the **Heathington Primary Reading Attitude Scale.**

CHAPTER IV

CURRICULUM OVERVIEW OF THE COGNET MLE INSTRUCTIONAL APPROACH CURRICULUM

Introduction

The Cognitive Enrichment Network (COGNET MLE Instructional Approach Curriculum) was an "overlay" instructional approach program that had been designed to meet the stated critical needs of students in the public schools across the United States today. This instructional approach was designed by Katherine H. Greenberg Professor of Special Services at the University of Tennessee at Knoxville as a Follow Through Project for the federal Department of Education. The purpose of the COGNET MLE Instructional Approach Curriculum was to establish a system for adults, particularly parents and teachers, to work together to help children learn how to learn through a cognitive intervention program designed for early elementary students.

Stated Goals of the COGNET MLE Instructional Approach

1. To teach children HOW to learn.
2. To assist children in reaching their learning potential.
3. To help children become independent learners.
4. To help children adjust to the needs of any situation they are faced with in life.

Stated Project Objectives of COGNET

1. To develop a network of early elementary level teachers and parents as well as Head Start staff who will implement the Cognitive Enrichment Program. All of these groups will work together to create a cooperative network in which children will receive cognitive enrichment over a period of several years and under a variety of environmental conditions.
2. To develop curricular overlay materials for teachers which focus on the application of the building blocks tools of learning effective variable in readiness and basic academic skills as well as other variables related to successful school performance.
3. To develop training activities for all groups which can be easily disseminated to other local school agencies that wish to provide intervention to at risk students. This includes the creation of a video component of the training which will introduce the basic concepts and demonstrate the implementation procedures.
4. To develop a reporting system for members of the Cognet network to use in sharing diagnostic information about given children who are displaying a need for more intensive intervention. This includes checklists which parents and teachers complete on each child every year and share with others who work with the child. These are now available for adoption and use in all school systems that adopt the COGNET curriculum.
5. To devise a method to facilitate communication among members of the Cognitive Enrichment Network. This includes regularly scheduled meetings of network members which are motivational and encourage active participation. Also included is a news letter to report anecdotal stories concerning successful implementation of the intervention program and examples of effective learning displayed by children as they apply the cognitive functions.

The concepts presented in the Cognet MLE Instructional Approach In-Service Training Workshop were based on the theoretical work of Reuven Feuerstein, a world renown

Israeli psychologist. Feuerstein has become best known for his theory of **Structural Cognitive Modifiability (SCM)** and its application to dynamic assessment. The Theory of **Mediated Learning Experience (MLE)** is a component of the theory of SCM and is the central aspect of cognitive development and enrichment.

Experts have found that we need more than an exposure to things in the environment in order to learn how to learn. We must also have at least one other person who interacts with us in a special way in order to model or assist us as we learn how to learn. This type of interaction is called a **Mediated Learning Experience (MLE)**, and the person who interacts with the child is called the **mediator**. In MLE the mediator places himself between the child and thoughts or events with which the child is interacting. Our parents are usually our first and most important mediators, but when children come to school teachers replace the parents as mediators to assist their students as they learn how to learn.

The COGNET MLE Instructional Approach Curriculum is an application of the MLE theory designed for children in an elementary school who attend regular classes and is designed to be implemented during whole group presentations, as well as during one-on-one presentations. It was adapted from a preschool cognitive enrichment

curriculum that has been implemented for the past five years in an area in rural eastern Tennessee.

Around the United States many school systems have traditionally been plagued by high dropout rates, poor student attendance beyond the primary grades, and community apathy. Currently, a large number of students (particularly in the ninth grade) are failing English and mathematics. This is a major concern to educators. Teachers state that students are coming to class unprepared, are discipline problems, and are not performing up to established standards and expectations. Teachers also feel a lack of parental support. These issues are consistent with national concerns regarding at-risk students, low student test scores, student apathy, and poor academic performance.

The COGNET MLE Instructional Approach provided an integrated curriculum as a method of addressing these national concerns regarding at-risk students. The COGNET MLE Instructional Approach overlay curriculum worked with the curricula already in place by adding the component of parental and teacher involvement in a very meaningful way.

Careful use was made of current teaching/learning research in the development of the COGNET MLE Instructional Approach Overlay Curriculum. During development careful attention was paid to the integration of related areas of the curriculum and how they affect

each other. Demonstrations were developed that would be representative of the families and professionals who would participate in the initial implementation of the curriculum.

COGNET MLE Instructional Approach Curriculum

The COGNET MLE Instructional Approach Curriculum was designed to allow the responsibility of its implementation to rest directly in the hands of the teachers and their assistants in the classroom. The COGNET MLE Instructional Approach provided a training module for both the teachers and the parents. During the introductory, or YEAR I training, the teachers, their assistants, the administrators and the parents were thoroughly introduced to the goals, objectives, and implementation procedures of the COGNET MLE Instructional Approach Curriculum. Input from the teacher and their assistants was sought on an ongoing basis during monthly meetings with the curriculum participants. This monthly meeting had been planned to keep the COGNET MLE Instructional Approach Curriculum in a formative mode of operation and organization. In this way the curriculum could be modified as new situations arose to best meet the needs of the individual school, the school district, or the school system that implemented.

Teacher Training In-Service Workshops

The Teacher Training In-Service Workshop provided orientation to all components of the COGNET MLE Instructional Approach during the introductory Year I Workshop. The cognitive variables were mastered over an extended period of time through the use of discussions, demonstrations, simulated learning situations, workbook activities and problem solving sessions concerning ongoing implementation. The formal intervention curriculum overlay program itself enhanced the understanding of the theoretical concepts. In addition, participants were trained to use checklist evaluations to analyze the cognitive functioning levels of their students.

During Year II the follow-up Teacher Training In-Service Workshop sessions for teachers and administrators focused on reviewing concepts presented during the introductory Teacher Training In-Service Workshop and helped participants to monitor individual student performance in school. Teachers received written materials which stated techniques for mediating the tools of effective learning so that their students would be able to use these tools in all school activities. These materials focused on how to create an awareness in students of their need to use these tools as they learn rather than to depend on the teacher to do these things for them. For example, a teacher who would be fostering

self regulation of behavior would teach children how to determine whether they are ready to initiate a given activity, or whether they need more information before they begin the activity. Thus the teacher is not regulating their behavior by telling them when it is time to begin an activity.

COGNET MLE Instructional Approach Curriculum Materials

With the COGNET MLE Instructional Approach Curriculum, time was invested in providing planned experiences for the students to encounter in the classroom. To increase the value of the curriculum implementation, 240 Mini Lesson Plans were prepared for the teacher to use. These lessons were designed to enhance the specific content area classes being taught to assure adequate presentation of the stated curriculum goals and objectives already in place.

The Mini Lesson Plans were built around four types of learning activities that were typical to every classroom: Introductory Lessons, which were used to introduce new skills; Group Practice Sessions, which were used to reinforce new skills that were just presented; Instruction for Independent Work, which provided a measurement of how much the individual student had learned; and Functional Living Skills, which were used to bridge from the actual content of the lesson to other areas where the same type of knowledge could be applied

such as, when working on other school assignments, at home, socially, or in the work place. Each Mini Lesson Plan stated a principle regarding the use of a cognitive function in effective learning. The plans also included suggestions for communicating the intent, transcendence, and meaning of the mediation to be provided to the student(s).

Needs Assessment Prior to Implementation

The many contextual factors affecting curriculum development were varied, complicated, interconnected, and constantly changed. Because of this, a given instructional approach for curriculum development may be suitable in one setting and inappropriate in another. Thus, a theory of curriculum development that could be responsive to individual and social needs in a complex, changing society cannot be built around linear or single-principle concepts. In addition to the many environmental factors involved, the participants must be considered (Unruh, 1984). The needs assessment of each community will be different and may mean that this particular curriculum overlay, the COGNET MLE Instructional Approach, should be revised based on a local needs assessment process. The COGNET MLE Instructional Approach was designed to facilitate such needs.

The teachers that implemented the curriculum were involved with the selection of the curriculum and the planning for the implementation schedule. They considered it a high priority in order for it to be effective in the school and to make a real difference in the amount of learning that took place in the classrooms.

Ongoing and systematic renewal activities, such as Teacher Training In-Service Workshops were necessary for both individual teacher and school wide organizational development. The renewal process was aimed at improving the skills of the teachers, their helpers, and parents and at developing their knowledge of teaching children HOW to learn. These ongoing activities included monthly teacher meetings with the sponsor staff, monthly parent meetings with the teachers, consultations between the teachers and sponsor staff as requested, and further testing and evaluation for students who were not reaching their potential.

The failure to place operational activities in the context of a systematic improvement process has often led to fragmented, inefficient development programs, which is what the COGNET MLE Instructional Approach was working to prevent. An overall strategy to strengthen the improvement process included developing an awareness of current status, establishing appropriate goals, and analyzing organizational factors likely to affect the

success of any proposed changes. Agreement on important educational goals and ways to improve organizational functioning contributed significantly to the smooth, efficient operation of the education program.

Formative Evaluation

Survey instruments were used to measure the success of the initial implementation of the COGNET MLE Instructional Approach Curriculum on a monthly basis. The teachers and their assistants were asked to keep a daily log of Mini Lesson Plans that were implemented, and to rate the effectiveness of each implementation. Mini Lesson Plans are easily reworked to adapt to any content area curriculum being taught.

Interviews with the personnel were planned on a yearly basis to clarify the general understanding about the role and scope of the COGNET MLE Instructional Approach Curriculum and to measure exactly how it was fitting in with the other programs already in place. These evaluations were treated as formative and were taken into consideration when the goals were reevaluated for implementation for the 1990-1991 school year.

Resources as Organizational Factors

Four main resources needed to be taken into account when the organizational factors involved in the successful

initial implementation of the COGNET MLE Instructional Approach Curriculum were analyzed. They were human resources, physical resources, financial resources and time resources.

Human Resources

Educational organizations depend the most heavily on their human resources to implement a curriculum. Approximately eighty percent of all financial resources available to education are expended to employ the personnel who help the schools function (Bellon & Handler, 1982). Appropriate personnel selection and evaluation processes helped to assure the adequacy of the human resources.

The position descriptors for the COGNET MLE Instructional Approach Curriculum have not changed the local position descriptors for a classroom teacher. COGNET descriptors allowed for the teacher's assistants to be trained and used at the discretion of the individual teacher to meet the individual student's needs relative to learning HOW to learn.

Physical Resources

The physical plants already in use in the school system were adequate for the initial implementation of the COGNET MLE Instructional Approach Curriculum.

Financial Resources

The initial implementation of the COGNET MLE Instructional Approach Curriculum at the experimental school site was done at a very minimal cost to the experimental school site. The initial implementation of the COGNET MLE Instructional Approach Parent's Component was also done at a very minimal cost to the experimental school site.

Time Resource

Prior to the initial implementation of the COGNET MLE Instructional Approach Curriculum a thirty-five hour Teacher Training In-Service Workshop was conducted by Katherine Greenberg from the University of Tennessee at Knoxville. At the beginning of the 1989-1990 school year a second sixteen hour Teacher Training In-Service Workshop was also conducted to reemphasize the goals of the initial implementation of the COGNET MLE Instructional Approach.

To insure proper initial implementation of the COGNET MLE Instructional Approach Curriculum workshops were conducted for two different groups: teachers, teacher's assistants, and administrators; and parents. These training workshops were essential to the successful initial implementation of the program. If it had been necessary because of time constraints, this training could have been arranged on a more flexible schedule with follow

up visits by the trainers to answer questions as they arose during the initial implementation stage. Parent Training was conducted on the same schedule with monthly meetings planned for the teachers and parents to insure the success of the initial implementation of the program.

During the Teacher Training In-Service Workshop each teacher received their individual copy of the **Cognitive Enrichment Network Teacher Workbook** which contained an overview of the theoretical background, a detailed presentation of each of the ten **Building Blocks of Thinking** and the eight **Tools of Independent Learning**. Cartoons illustrating these **Building Blocks of Thinking** and **Tools of Independent Learning** were also included to be used to create bulletin boards and booklets for student consumption. Also included in the teacher's component was a set of 240 **Mini Lesson Plans** which aided in the initial implementation of the program. Additional initial implementation information materials were made available during the meetings to keep teachers up to date on the latest ideas which aided in the initial implementation of the COGNET MLE Instructional Approach.

Evaluation Component

The evaluation component for the COGNET MLE Instructional Approach Curriculum focused on the aspect of the intervention approach which was the Mediated Learning

Experience (MLE). This included affects on children as measured by coarse grained and fine grained instruments to generate outcome data, evaluation of the training and related COGNET MLE Instructional Approach implementation materials, effects on teacher-student interactions, and effects on parent-child interactions.

Conclusion

Though outside agencies are affecting schools in important ways, the center of the improvement process remains within the local community with the parents, the classroom teachers and their helpers. Regardless of grandiose curriculum plans, when the classroom door is closed, the insight and skill of the teacher determines in a large measure the quality of learner's school experiences.

As the COGNET MLE Instructional Approach Curriculum were initially implemented there were several questions to be addressed by persons with process expertise to analyze the procedures used to develop and evaluate the curriculum framework. According to Bellon & Handler (1982) the following list of questions were appropriate to address:

- (1) Is the curriculum framework consistent with established school or district goals and priorities?
- (2) Are the curriculum goals organized into a planned sequence?
- (3) Do classroom course goals reflect program goals?

- (4) Have all appropriate faculty members participated actively in the curriculum analysis?
- (5) Does a suitable process exist for revising curricular goals as needed?

As Goodlad (1977) has observed, there are several perspectives from which any curriculum can be viewed. These range from the ideal or intended program to that which was actually experienced by each learner. There are often major discrepancies between the formal planned curriculum and that which is implemented via instruction. When these occur, many important educational goals will not be met. Further, when sizeable gaps exist between the curriculum as taught and that which students perceive, learning will not reflect expectations. Maintaining a focus on student learning is essential for effective program operation.

An analysis of the role and scope of existing programs already in place at schools is important so that the areas in which these programs complement each other in reaching the stated goals can be emphasized. The major stated goal of each of the curriculum programs now in place is to help children learn how to do math, how to read, how to spell, and so on. The major relationship between the COGNET MLE Instructional Approach Curriculum and other curricula is that the COGNET MLE Instructional Approach Curriculum helps teachers become more adapt at understanding HOW

children learn and thus more successful in teaching
children how TO LEARN.

CHAPTER V
RESEARCH FINDINGS

Introduction

It is the purpose of this chapter to present the research findings from the initial implementation of the COGNET MLE Instructional Approach, as implemented by nine teachers, in grades one through three, in a rural elementary school in eastern Tennessee. Baseline data was collected during the 1988-1989 school year with Teacher Training In-Service Workshops conducted during January and October of 1989. The COGNET MLE Instructional Approach was developed to provide teachers with a teaching methodology that would teach children HOW to learn how to learn.

The teachers involved in this research were observed prior to their introduction to Reuven Feuerstein's Theory of Structural Cognitive Modifiability and the Mediated Learning Experience during a thirty-five hour Teacher Training In-Service Workshop during January, 1989.

Katherine H. Greenberg, Professor in the College of Education at the University of Tennessee, Knoxville, directed the Teacher Training In-Service Workshop which also introduced these teachers to the COGNET MLE Instructional Approach (Greenberg, 1989) and trained them

to use this teaching methodology during whole group instruction. Because this is the first time that the COGNET MLE Instructional Approach has been used in regular elementary classrooms, this measures the initial implementation of an instructional approach.

Few school faculties are knowledgeable about the process of educational change as they begin restructuring projects. During the last five years Linda MacRae-Campbell has worked as a restructuring consultant in public schools across the United States. In order to provide an overview of the change process, MacRae-Campbell (1990) in a recent publication addressed the following issues: the three stages of change, ways to accelerate change and organizing restructuring efforts. She stated, "...that teachers and administrators have greater success with their reform efforts if the process of educational change is understood."

Such knowledge can make educational reform less stressful, more predictable and more successful for all involved. Restructuring requires addressing both content and process. Teachers must have an idea of where they are going and how they are going to get there. Reference is being made to educational reform at this point in the study on the initial implementation of an instructional approach, to provide a framework in which to place the findings of this study.

The journey can become less arduous when the schools can anticipate the following three predictable stages of change: **Stage 1: Initiation.** At the outset of a restructuring project, a need, concern or issue is identified for transformation. Individuals within the school are mobilized to support the change effort and information is usually communicated that change is underway. **Stage 2: Implementation.** At the second stage, the change effort gets underway and targeted issues are addressed in depth. As the new approach is tried, a phenomena called the "Implementation Dip" occurs. This refers to the decline in performance as one attempts to implement a new behavior or process. For example, when a teacher decides to include a new teaching strategy within her classroom repertoire, she may find that all of her teaching seems to worsen temporarily. As change is implemented, a decline in quality is experienced. This can be humiliating and frustrating and leave the implementor of change with a feeling of awkwardness and guilt. However, once the dip has been reached, behavior often reorganizes at a higher level of skill and performance than was originally expressed. School improvement is comprised of a series of emotional peaks and valleys and should be anticipated as such during change. **Stage 3: Institutionalization.** At the third stage, changes are embedded into organizational practice.

The restructured components become a part of organizational life, existing in school policies and classroom procedures. At this stage the teachers make a conscious decision to accept or reject the process or instructional approach they have been implementing.

Participant Observation Data Presentation

It is the researcher's purpose to present the major themes which emerged through an analytic induction analysis of the qualitative fieldnote data collection in this portion of the dissertation research document.

Questions 1 and 2 were answered based on the findings of this qualitative data.

Question 1: To what extent are the teachers implementing an instructional approach based on the theory of the Mediated Learning Experience during whole group reading instruction?

Question 2: What, if any, changes have occurred in teachers attitudes toward teaching and expectations of student learning, after their involvement in the initial implementation of the Mediated Learning Experience instructional approach during whole group reading instruction?

The qualitative data were collected at three different times during the period of the research study. The first time was prior to the Teacher Training In-Service Workshop (November/December, 1988). The second time qualitative

data were collected was following the early implementation of the COGNET MLE Instructional Approach (April/May, 1989). The third set of qualitative data were collected following the period of time being measured for this study as the time of initial implementation (April/May, 1990). In order to maintain the anonymity of all participating teachers, types of classroom interactions will be described in general rather than to describe the interactional styles of individual teachers. The teachers will be referred to only by grade level. The data will be presented to reflect the pre-training teaching methodologies as well as the teaching methodologies in place during the period of the early implementation and the initial implementation of the COGNET MLE Instructional Approach.

Findings of the Qualitative Data Collected Before Teacher Training In-Service Workshop

An analysis of the before training observations, revealed that there were several teachers who were utilizing "natural" mediation as a teaching methodology before the training took place. This "natural" mediation differs from the COGNET MLE Instructional Approach in that natural mediation includes the same elements as measured in a Mediated Learning Experience: Intentionality, transcendence, and meaning, but without the utilization of

the cognitive processing verbage as outlined in the **Building Blocks of Thinking** and the **Tools for Independent Learning**. To address properly the questions outlined in the research study concerning what, if any, change in teacher attitude and teacher expectation of student learning took place as a result of the Initial Implementation of the COGNET MLE Instructional Approach it was important to identify "natural" mediators in a classroom setting. Two groups of teachers emerged from the before training observation fieldnotes, "natural" mediators who made use of mediation as a teaching methodology before they were trained to do so, and nonmediator teachers who did not make use of mediation as a teaching methodology before they were trained to do so. Within the group of four that were identified as "natural" mediators there was very little "natural" mediation taking place during the teachers' whole group instructional interactions with their students. The most common form of mediation used was in the teaching of space and time concepts, one of the **Building Blocks of Thinking**, and a part of the **COGNET MLE Instructional Approach Curriculum**. First grade teachers tended to emphasize time concepts in relation to when events in the classroom were to take place. The calendar was used on a daily basis to discuss days, weeks, and months and how these affected the children's lives.

Another form of "natural" mediation that was being used by natural mediators which is supported by the fieldnotes, is the use of praise or reinforcement for correct answers. Praise and encouragement are essential elements in the development of a **Feeling of Competence**, one of the **Tools of Independent Learning** that is emphasized within the **COGNET MLE Instructional Approach Curriculum**. The use of praise and encouragement by teachers varied widely from classroom to classroom. In some classrooms very little positive reinforcement or encouragement was noted while in other classrooms students were regularly provided with positive feedback, praise and encouragement. The praise that was used by the teachers was in the form of general phrases like, "That was a good one," or "Good reading," rather than praise which provided more descriptive, specific feedback to students about what they had done well, as is emphasized with the **COGNET MLE Instructional Approach**.

The analysis revealed occasional use of "natural" mediation to help students structure the way in which they were to approach tasks. The **Building Blocks of Thinking** refer to this structure as **Approach to Task**. The following typical example from first grade fieldnotes illustrates how a first grade teacher directs her students' attention:

Teacher: Have you ever taken a trip on a train?
Now I want you to listen. All eyes
need to be up here on me.

In a comparative analysis of all nine of the experimental site classrooms there was a wide range in the rates and types of interactions teachers maintained with their students. Seven of the nine teachers maintained a moderate to high rate of teacher-student interaction in their instructional styles. These teachers tended to rely on a regular exchange of questions and answers with their students. Classrooms with the higher rates of teacher-student interaction usually included conversational periods in which students were able to play a more significant part in the verbal exchange. However, even in these classrooms, the reading lessons were teacher directed with questions which tended to require only recall answers made up of short phrases or one-word answers. An example of a segment from a typical first grade reading lesson follows:

Teacher: Okay. Let's have Lori's group first today. Let's see if you can read really good today with lots of expression and no little baby voices. All right. What's he trying to tell Socks there? Why do you think that's the dog's name? Does he wear socks?

Student: No. (Students laugh.) I had this dog named Trixie that got its head cut off.

Teacher: Oh, that's awful. Mark, will you read for us now? (Mark reads.)

Teacher: Do you think Socks will stay in the bath water? He will probably run and _____.

Student: The mud.

Teacher: You're not listening. He will probably run and _____.

Student: Play.

Teacher: No.

Student: Get food.

Teacher: No.

Student: Hide.

Teacher: Yes. Okay. Mark, let's see what happens. (Mark reads.)

The other two teachers maintained a low rate of teacher-student interaction during instruction. In these classrooms the students played a much smaller part in the interactional exchange and relied heavily on teacher directives. Although students in these classrooms also responded to the teacher's questions, more student time was spent in individual writing assignments. The following is a typical segment from such a classroom:

Teacher: Let's read our writing together.
(Students read in unison.)

Teacher: Now after you read your writing lesson go back and when you find a spelling word, circle it.

Teacher: You should have five different words circled.

Teacher: Then you will do a color coded math sheet. Where the color code is a question mark, you may color it any color of your choice.

Teacher: This is your last writing lesson on this kind of paper.

Combined Findings of the Qualitative Data Collected Following Early and Initial Implementation of the COGNET MLE Instructional Approach

Analysis of qualitative data collected following the Initial Implementation of the COGNET MLE Instructional Approach revealed that all nine teachers were using the COGNET MLE Instructional Approach within their classroom teaching following the training in it's theory and methodology during the Teacher Training In-Service Workshops. There was a wide range in the way in which these concepts of focused Mediated Learning, the COGNET MLE Instructional Approach, were being used. Some of the teachers embraced the COGNET MLE techniques and activities with great enthusiasm while others seemed to be hesitant to employ COGNET MLE techniques with their students during whole group instruction.

All of the teachers displayed and regularly used the terms **Building Blocks of Thinking** and **Tools of Independent Learning** in their classrooms. All of them constructed attractive bulletin boards which displayed the COGNET MLE Instructional Approach concepts; some of them illustrated the bulletin boards with the cartoons that were provided as part of the curriculum materials during the initial Teacher Training In-Service Workshop, while others were

very creative with their own ideas and chose not to use the cartoons as a basis for their bulletin boards.

The principal interview provides additional evidence that all of the COGNET MLE Instructional Approach teachers located at the experimental school site, were implementing the COGNET Mini Lesson Plans as a part of their curriculum as was observed by the principal while he was completing teacher evaluations. According to the principal:

...I did not evaluate every teacher involved in the initial implementation of the COGNET MLE Instructional Approach this year. Some of them come up over the next cycle of evaluations. (Of the teachers I observed,) I can think of only two that did not teach (from) a Mini Lesson Plan while I was doing my observations and yet in those two particular classes I feel comfortable in assuring you that they are using the Mini Lesson Plans. There are still a couple (of teachers) who are insecure in, maybe insecure is not the right word, but they don't feel as comfortable as the others feel with using the Mini Lesson Plans.

But I think the implementation level was high this year. I think that if you go into the classrooms and look at the bulletin boards you will see that they know how to apply what they are doing.

In addition to using these Mini Lesson Plans, all but two of the teachers integrated the COGNET MLE Instructional Approach language and concepts into their daily instructional practices as supported by the daily fieldnote data that were collected following the early and initial implementation observations by participant observers.

Data analysis of the observation fieldnotes which were taken to measure the level of initial implementation of the COGNET MLE Instructional Approach during April and May of 1990 revealed that teachers were actively using the following COGNET MLE Instructional Approach concepts in their teaching:

BUILDING BLOCKS OF THINKING

Approach to Task
Precision and Accuracy
Space and Time Concepts
Thought Integration
Working Memory
Making Comparisons
Getting the Main Idea
Selective Attention
Problem Identification
Connecting Events

TOOLS OF INDEPENDENT LEARNING

Self Regulation
Feeling of Competence
Inner Meaning
Goal Directed Behavior
Feeling of Challenge
Sharing Behavior

It was evident that the teachers had introduced each of these concepts through the use of the Mini Lesson Plans with whole group instruction and had continued to reinforce these concepts in their interactions with individual students on a less formal basis. Monthly Mini Lesson Plan reports were used as a second source to verify the use of the Mini Lesson Plans. The following examples from fieldnote transcripts provide a sampling of the

COGNET MLE Instructional Approach concepts as they were used in daily teacher-student interactions. First Grade Teacher, COGNET Building Block **Making Comparisons**:

- Teacher: Why do you need to date things and put your name on them?
- Teacher: Alright, let's look at the next page and read the story. Teacher reads, "Tables help us compare numbers, said Mr. Marks." Now that fits right in with one of our COGNET Building Blocks, doesn't it? To compare numbers.
- Student: **Making Comparisons.**
- Teacher: Alright, good.
- Teacher: What does it mean, to compare numbers?
- Student: To look at the differences.
- Teacher: Okay, to look at the differences in numbers. Good. So do graphs.
- Teacher: Now, do you remember in math a long time ago, we made a graph? This will be a little review for us. I'll make a picture graph. I'll use the numbers from our table.
- Teacher: Teacher reading from the book, "Mr. Marks drew lines on the board. He wrote words and then he began to draw stick people." "Okay." "Does this graph help us compare things, asked Mr. Marks?"
- "Yes," said Lee. "We can see which shows more things, and we can see which shows fewer things."
- Teacher: But we have to stop and count each person, That takes time. Do you think you would be able to use this graph? Very fast? What would be faster?
- Teacher: Does this graph help us count?

Student: answer inaudible.

Teacher: Instead of drawing stick people, what would be the very fastest method?

Student: answer inaudible.

Teacher: Teacher repeats question, students answer.

"Numbers." Just use numbers?
You wouldn't have to count anything.
This shows you most quickly, doesn't it.

Teacher: But if you understand numbers it would be the same thing, wouldn't it?

Teacher: So let's look at ways to get to school. What was one way?

Student: Bus.

Teacher: Alright, how many people rode the bus?

Teacher: Alright, why don't you just write that number down here.

Student: Writes number down.

Teacher: Alright, what was another method of getting to school?

Student: Car.

Teacher: How many came by car?

Teacher: Alright, and what was another method of getting to school?

Student: Walk.

Teacher: Alright, how many walked?

Student: Answer inaudible, but obviously incorrect.

Teacher: Count again.

Student: Answer inaudible, but obviously correct because the teacher says, write it down.

Teacher: Alright, now look on the front page again. Do you have the same numbers that Mark has on his? And look at the way they use numbers and they have the words, bus, car, walk and the same title, How We Get to School, but on the inside this is called a graph.

Second Grade Teacher, COGNET Building Block Approach to Task:

Teacher: The next story we are going to read is City Magic. This story is about plants. So look at the next clean page in your notebook and list what we know about what makes plants grow.

Teacher: How do seeds grow, Tommy?

Tommy: You have to have water.

Teacher: What else?

Student: Sun.

Teacher: That's right.

Teacher: What does the sun do for seeds?

Student: answer inaudible, but apparently correct.

Teacher: What else does it need?

Student: Soil or dirt. Earth to grow.

Teacher: Does it need anything else?

Teacher: How many people have ever planted anything before?

Teacher: Let's read and see if we need anything else to make seeds grow.

Teacher: Read the title, J.R.

Student: Read's title.

Teacher: What is magic?

Teacher: What do you think J.L.?

Teacher: Tommy, what's magic to you?
You got a book at the Book Fair last week
about magic, didn't you?

Tommy: It's a trick, not magic.

Teacher: If you knew the trick then it's not magic to
you. If we understand how it's done then it
isn't magic.

Teacher: Magic is something special so that those who
watch it don't understand.

Teacher: What do you think City Magic is?

Teacher: Look at p. 278.

Teacher: What do you see?

Teacher: What does this little girl want?

Teacher: Read p. 278 to yourself please.

Teacher: Roger, what does she want?

Roger: Puppy.

Teacher: Does it say a puppy or a pet?

Teacher: What do her parents say about having a pet?

Teacher: Why doesn't she want goldfish, Tommy?

Tommy: Inaudible, but correct as teacher goes on.

Teacher: Read the next page and see what her grandma
suggests.

Teacher: George, tell us what grandma said.

George: Inaudible, but the answer was correct.

Teacher: Are having a pet and growing flowers alike?

Teacher: How are they alike?

Teacher: What does a pet need?

Teacher: Plants need those, too.

Teacher: What is different between having a puppy dog
and having a flower?

Third Grade Teacher, COGNET Building Block Thought Integration:

Teacher: Please think about what you're doing.

Teacher: Do it at your seat when we have a study period.

Teacher: Use Thought Integration as you work today. Think about what you already know.

One of the first grade teachers was concerned about her students' level of conceptualization of the **Building Blocks for Thinking** and/or the **Tools for Independent Learning**. To measure the individual students conceptual level of COGNET MLE she made the following assignment:

Teacher: Write a sentence stating a COGNET principle you have learned this year.

Teacher: Write it in the following style:
If _____ then
_____.

The following list of if/then statements was composed by first grade students as examples of their understanding and comprehension of the **COGNET BUILDING BLOCKS OF**

THINKING and TOOLS OF INDEPENDENT LEARNING:

Student: If I pay attention to what the teacher says then I am using **Selective Attention**.

Student: If I write good then I am using **Space and Time Concepts**.

Student: If I fix a problem then I am using **Problem Identification**.

Student: If I am doing good work then I am using **Working Memory**.

Student: If I understand a story then I using **Getting the Main Idea**.

Student: If I correct my math then I am using **Working Memory**.

Student: If I do my math then I am using **Self Regulation**.

Student: If I compare a car and a truck then I am using **Making Comparisons**.

Student: If I leave space in my work then I am using **Space and Time Concepts**.

Student: If I space my sentences then I am using **Space and Time Concepts**.

Student: If I do something new then I use **Approach to Task**.

Student: If I get to school on time then I am using **Thought Integration**.

Student: If I finish my work on time then I am using **Self Regulation**.

Student: If I do my math right then I am using **Precision and Accuracy**.

Student: If I see who is the biggest then I am **Making Comparisons**.

Student: If I make a plan then I am using **Approach to Task**.

Student: If I clean my room then I am using **Self Regulation**.

Student: If I gather all my information then I am using **Approach to Task**.

Student: I am **Connecting Events** when I am doing something and I know that something else will happen.

Student: If I think then I am using **Working Memory**.

Student: If I watch for cars when I ride my bike then I am using **Selective Attention**.

Student: If I pay attention to my work
then I am using **Selective Attention**.

Student: If I solve a problem then I am
using **Problem Identification**.

Student: If I put the box in the big bag
then I am using **Making Comparisons**.

Student: If I take my time when working then
I am using **Space and Time Concepts**.

Student: If I compare a big apple to a little
apple then I am **Making Comparisons**.

Student: If I gather all my information then
I am using **Approach to Task**.

Cognet MLE Instructional Approach used for Classroom Management Purposes

One of the major themes which emerged from the analysis of the fieldnotes following the Initial Implementation of the COGNET MLE Instructional Approach was that some of the teachers were incorporating the COGNET MLE language into their classroom management strategies. For example, particularly with the concepts of **Selective Attention** and **Self Regulation**, the teachers were using the COGNET Building Blocks for Thinking and Tools for Independent Learning terms for disciplinary purposes. The following examples illustrate this theme, they are taken from second and third grade classes:

Second Grade

Teacher: Now, Sally, we need to have **Selective Attention** and look right here.

Teacher: We talked about **Selective Attention** this morning. I can't force you, but I can remind you.

Third Grade

Teacher: Friday we had a problem with people being impulsive. Today we'll do better.

Teacher: I think some of you aren't thinking. You just put that hand up.

Teacher: What do we call it when you just stick that hand up and don't think?

Teacher: What is it April?

April: Impulsive.

It is important to note that the COGNET MLE Instructional Approach presents **Self Regulation as a Tool for Independent Learning**. It is to be developed and used by the students at the independent level, not as a form of behavior regulation by the teacher. It would have been more appropriate for the teacher to elicit from the students ways in which they could have performed better when they needed to **Approach the Task**.

Deductive Teaching Model

Another major theme which emerged from the data analysis was the teachers' heavy reliance on a deductive model of teaching during their formal whole group instructional periods. When most of the teachers were involved in reading or language instruction, they used an interactional style which was teacher-directed. They directed the lesson and asked the questions. This resulted in very limited responses by the students and

consequently limited the time within the formal lessons for students to use language and develop their language skills. This deductive model, coupled with a reliance on one word and short phrase answers by students, was the norm in all nine of these classrooms. While utilizing the COGNET MLE Instructional Approach concepts, teachers relied heavily on telling the children about the **Building Blocks of Thinking** and the **Tools for Independent Learning** rather than encouraging the children to utilize the concepts themselves. It is not surprising to find this heavy reliance on teacher directed interactions with the use of a new instructional approach, but it would be unfair to the research to not point it out.

Classroom Interruptions

A supplementary finding in the analysis of qualitative data was the significant number of interruptions from outside the classroom each of the teachers had to handle during the periods of participant observation. During all of the observations there were at least two of the following types of interruptions during teacher instructional time: announcements on the school public address system, bells ringing to signify class changes for upper grade students, other teachers and/or teacher's assistants entering the classroom with messages, and custodians collecting the trash. Often, during one

observational period, all of these types of interruptions were present within one classroom. Most of the interruptions seemed unnecessary to the participant observer and to the researcher. All observers noted the number and types of interruptions in their classrooms. Although this is a factor unrelated to the initial implementation of an instructional approach, this high level of classroom disturbances could have some effect on any instructional approach being utilized within these classrooms. With awareness and careful planning, this high level of classroom disturbance could be restructured, reduced, or even eliminated. Interruptions take valuable time away from important classroom activities and disrupt the flow in teacher-student interactions.

Greenberg/Bennett Teacher Questionnaire

In summarizing the results from selected questions from these questionnaires to present as qualitative data, all teachers were grouped by grade to make the presentation easier to assimilate and accommodate. This questionnaire was administered twice. The first time was prior to the Teacher Training In-Service Workshop and is referred to as Time I, and the second time by the author at the same time as she conducted the Initial Implementation Interviews and is referred to as Time II. The answers to the questions were nearly identical Time I

and Time II, until the teachers were asked to state their desired goals for their students, at this point the language associated with the COGNET MLE Instructional Approach surfaced.

All of the first grade teachers chose to teach first grade because they lived in this community when the first grade position became available. It is interesting to note that when the position was offered to them they took it. One of them felt especially qualified because she had already been working as a teacher's assistant in first grade for three years. It might be noted that all of these positions were offered, not applied for.

All of the second grade teachers were teaching at that level for approximately the same reasons the first grade teachers gave. The positions were open and were offered to them and since they were living in the community they accepted them. One teacher specifically stated that once she was teaching second grade she liked both the school and the grade because the students had some reading knowledge base to build on, so she decided to stay on in the position.

The third grade teachers have slightly different reasons for teaching at the third grade level, but similar reasons for remaining there. One of them was teaching sixth grade and really didn't enjoy that age group. She sought the transfer when an opening became available at

the third grade level. A second third grade teacher was teaching kindergarten, but because of a decrease in enrollment needed to be moved. She was transferred to this third grade position after the third grade teacher became a Chapter I teacher. The third teacher was teaching at a smaller country school that was closed so she took this position when it was offered to her. She stated that she has loved this grade level ever since.

All teachers stated that they desired for their students to become more mature, more independent learners, and to advance a grade level in their schoolwork during the year they were enrolled as students in their classrooms. When stating specific skills they hoped their students would have achieved by the end of the current school year, the first grade teachers stated that they wanted their students to be able to read and to enjoy reading, that they wanted their students to use **Self Regulation** at all times, and that they wanted them to be able to use the other **Building Blocks of Thinking** and **Tools for Independent Learning** at home, school, socially, and at work.

The second grade teachers specifically wanted their students to be able to do reading and math on the second grade level. They wanted them to have good comprehension skills, the ability to get along with others (realizing that we can be "different" yet live together), and they

wanted their students to share a sense of responsibility toward themselves, their things, and their work.

The third grade teachers added English to the list of school subjects that they wanted their students to master. In short one teacher said, "I want them to know all they need to know to be ready for fourth grade, and I want them to be creative thinkers too."

When questioned about the methods they find the most effective in teaching children to read, the first grade teachers listed the following methods: ability grouping, phonics, practice in reading, silent reading, and oral reading.

Within the second grade teachers discussion of methods of teaching reading that they have found to be successful, they added the love of reading, and a combination approach which utilizes phonics, sight words and the use of words in context. One second grade teacher points out that learning how to read isn't necessarily fun, but once you know how to read it becomes "fun to read," she compared it to learning how to play ball. Learning how to play isn't fun, but playing a ball game is fun.

The third grade teachers emphasized that some children learn better by sight while others learn better by sounding words out so they make use of both methods depending on which student or group with which they are working. One of the third grade teachers mentioned the

method of using praise, and giving lots of time for reading for pleasure. She also emphasized reading to children as a method for teaching reading.

DeFord Theoretical Orientation of the Reading Process (TORP) Profile

The **TORP Profile** was filled out by the teachers at the experimental site twice during the period covered by the research. The first time the Profile was completed, Time I, was prior to the Teacher Training In-Service Workshop, it was passed out and collected by the participant observers. There was no discussion at that time concerning the purpose for this measurement.

The **TORP Profile** was administered the second time, Time II, by the author, at the time she conducted the Initial Implementation Interviews, in May of 1990. At that time, there was no discussion about the purpose for this measurement.

The data resulting from the completion of the **DeFord Theoretical Orientation of the Reading Process (TORP) Profile** was analyzed to provide additional information to help answer Question 2 as it was stated earlier in this research study. The total data set contained eighteen profiles, with each profile containing twenty-eight items. Each of these items was answered on a Lickert-scale with scores ranging from 1 = strongly disagree to 5 = strongly

agree. These twenty-eight items were grouped into three dependent variables, which can also be identified as Theoretical Orientations to the Reading Process as measured by the TORP Profile. The dependent variables are identified as the Phonics Approach, the Skills Approach, and the Whole Language Approach. The twenty-eight items were grouped as follows:

Phonics Approach (items 1, 2, 3, 6, 9, 10, 12, 20, 21, 22),

Skills Approach (items 4, 8, 11, 13, 14, 16, 19, 24, 25, 28),

Whole Language Approach (items 5, 7, 15, 17, 18, 13, 26, 27).

The validation of this instrument necessitated the use of a construct validity model to explore whether the test measured the theoretical positions it purported to measure. This validation process was not a validation of the test per se, but of the construct of theoretical orientation. The degree of construct validity reflected by this instrument is indexed by the proportion of test score variance that can be attributed to the construct being measured. Reading experts observed the teachers and judged their teaching behavior in with regard to theoretical approach this was then used to validate the grouping of items. The results of the sampling of teacher responses indicated that the twenty-eight item TORP Profile is a reliable measure of differences in theoretical orientation to reading. The Phonics and Whole

Language Approaches were separated by the greatest scoring differences with the **Skills Approach** exhibiting the greatest variance in total score. As expected, there was some overlap in total score between the **Phonics Approach** and the **Skills Approach** (DeFord, 1985).

The scores for the twenty-eight items were totaled by related groups. Each teacher had three total scores Time I and three total scores Time II, the difference between their total scores was found by subtracting Time II from Time I. A combined total of twenty-seven sets of scores resulted from the administration of the TORP Profile. Out of these twenty-seven sets of scores four sets of scores didn't change at all between Time I and Time II, seven sets of scores showed a negative change between Time I and Time II, which signified a move away from the approach, and sixteen sets of scores showed a positive change between Time I and Time II, which signified a stronger endorsement of the approach. The largest negative change, in a teacher's sets of score demonstrated a move away from the theoretical orientation of a **Skills Approach**. The largest positive change, in a teacher's sets of scores was made by two different teachers, both of which demonstrated moves in the direction of a theoretical orientation to the **Whole Language Approach** for the teaching of reading.

A comparison of the difference in the total scores, by approach, from the Time I and Time II administrations of

the **TORP Profile** is contained in Table I. As can be seen, some changes have taken place during this period of initial implementation of the COGNET MLE Instructional Approach with regard to how the individual teachers feel theoretically about the teaching of reading their **Theoretical Orientation to the Reading Process** as measured by the **De Ford TORP Profile** has changed in the following ways as demonstrated in Table I.

The difference in the composite first grade teachers **Whole Language Approach** scores showed an average change of six points moving in the direction of a **Whole Language Approach**. The difference in the composite second and third grade teachers scores showed an average change of two points also moving in the direction of a **Whole Language Approach**.

The importance of these findings is that they graphically demonstrate some change in all nine of the experimental site teachers' attitudes regarding their basic **Theoretical Orientation to the Teaching of Reading**, as measured by the **DeFord TORP Profile**. In a phone interview with the First Grade Representative the following statement was made to this researcher.

...because of the changes we have made in our attitudes toward the teaching of reading, the first grade teachers have decided to adopt a "Whole Language Approach" for the entire first grade for the 1990-1991 school year. This emphasis on "Whole Language" will replace our current emphasis on "Whole

Table I. Theoretical Orientation to the Reading Process
(TORP) Profile: Differences in Scores by
Approach to Teaching Reading from Time I to
Time II.

Differences									
10		#							#
9									
8			#						
7									
6	+								*
5		+		#			+		
4								+	+
3		*			#	#			
2	*				*				
1	#								
0				+	*	*	#		
-1					+	+	*		
-2									
-3			*						
-4			+					#	
-5									
-6								*	
-7									
-8									
-9									
-10									
Teacher	1	2	3	4	5	6	7	8	9

+ = Difference in Scores of Phonics Approach

* = Difference in Scores of Skills Approach

= Difference in Scores of Whole Language Approach

Group Reading Instruction".

Initial Implementation Schedule Survey

The results from the Initial Implementation Schedule Survey are reported as percents. Because of the rounding off of percents to the nearest whole number, all total scores will not equal exactly one hundred percent.

Forty-four percent of the teachers reported that they implementing the COGNET MLE Instructional Approach in their classrooms consistently. Fifty-six percent of the teachers reported that they were implementing the COGNET MLE Instructional Approach in their classrooms in an inconsistent manner.

Fifty-six percent of the teachers reported using four or more Mini Lesson Plans per day in their individual classrooms, which met the suggested initial implementation schedule. Twenty-two percent of the teachers reported they were using the Mini Lesson Plans sporadically which does not meet the suggested initial implementation schedule. Twenty-two percent of the teachers said they used the Mini Lesson Plans almost daily in a revised form which better fit the content lessons they were teaching.

Forty-four percent of the teachers reported using twenty Mini Lesson Plans per week. Eleven percent of the teachers reported using fifteen Mini Lesson Plans per week. Twenty-two percent of the teachers reported using

less than five Mini Lesson Plans per week, eleven percent of the teachers reported making sporadic use of the Mini Lesson Plans each week. Eleven percent of the teachers reported using principles from the Mini Lesson Plans each week.

One hundred percent of the teachers involved in the initial implementation of the COGNET MLE Instructional Approach reported using bridging as an Instructional Approach less than once a day per classroom. The COGNET MLE Instructional Approach Curriculum suggested the use of bridging four times per day. Reasons the teachers gave for not using this portion of the COGNET MLE Instructional Approach were: They are too time consuming; the teacher gets off the track of the stated intent of the lesson; the children get off track even worse which leads to an evaluation of "bird walking" during an official observation for evaluation purposes (based on the Tennessee State Educational Evaluation Model).

One hundred percent of the teachers reported using clustering less than once a day per classroom. The initial implementation schedule called for clustering as often as feasible, but at least twice a day per classroom. None of the teachers were meeting the minimum requirements of the COGNET MLE Instructional Approach Curriculum for clustering.

Fifty-six percent of the teachers reported using all

two hundred and forty Mini Lesson Plans included in the COGNET MLE Instructional Approach Curriculum during the Initial Implementation Phase of the COGNET MLE Instructional Approach. Eleven percent of the teachers reported using two hundred of the Mini Lesson Plans. Twenty-two percent of the teachers reported using one hundred and sixty Mini Lesson Plans. Eleven percent of the teachers reported using one hundred and twenty Mini Lesson Plans during this initial implementation stage.

When asked how many times they used all of the Mini Lesson Plans included in the overview Curriculum of the COGNET MLE Instructional Approach during this period of initial implementation, seventy-eight percent of the teachers reported using all of the two hundred and forty Mini Lesson Plans once, eleven percent of the teachers reported using all two hundred and forty Mini Lesson Plans at least once, some more than others, while another eleven percent of the teachers reported not using all two hundred and forty Mini Lesson Plans even once.

When asked if their level of implementation of the Mini Lesson Plans had changed during the period of the initial implementation of the COGNET MLE Instructional Approach, thirty-three percent of the teachers reported that their usage of the Mini Lesson Plans had increased, fifty-six percent of the teachers reported that their usage of the Mini Lesson Plans had decreased, eleven

percent reported that their usage of the Mini Lesson Plans had stayed about the same.

Forty-four percent of the teachers reported that their level of bridging from the Mini Lesson Plans had increased, eleven percent reported that their level of bridging from the Mini Lesson Plans had decreased, while forty-four percent reported that their bridging from the Mini Lesson Plans had stayed about the same during the initial implementation of the COGNET MLE Instructional Approach.

Eleven percent of the teachers said that "Casually pointing out how to use, or the need to use the **Building Blocks of Thinking and Tools for Independent Learning**" was the easiest component of the COGNET MLE Instructional Approach to implement. Eleven percent of the teachers said that "using the Mini Lesson Plans without the terms" was the easiest component to implement. Fifty-six percent of the teachers said that the easiest component to implement was the "**Mini Lesson Plans**". Twenty-two percent of the teachers said that using the "**Building Blocks of Thinking**" was the easiest component to implement, while the last eleven percent said that the "**Building Blocks of Thinking and the Tools for Independent Learning**" was the easiest component of the COGNET MLE Instructional Approach to implement.

The hardest component of the COGNET MLE Instructional

Approach to implement was **Clustering** according to forty-four percent of the teachers. **Bridging** was the hardest component to implement according to thirty-three percent of the teachers. Using the proper terms for the **Building Blocks of Thinking** and the **Tools for Independent Learning** was the hardest component to implement according to eleven percent of the teachers. Working the **Mini Lesson Plans** into the regular daily schedule was the hardest component of the COGNET MLE Instructional Approach to implement according to the remaining eleven percent of the teachers.

The teachers were asked for suggestions which would have made the COGNET MLE Instructional Approach easier to implement. Twenty-two percent of the teachers suggested that a smaller class size would have made the implementation of the COGNET MLE Instructional Approach easier. Eleven percent of the teachers felt that the COGNET MLE Instructional Approach could be implemented as the total curriculum at the school, thus making it easier to implement. Thirty-three percent of the teachers suggested that combining the **Building Blocks of Thinking** and the **Tools for Independent Learning** for all presentations would have made it easier to implement. Eleven percent of the teachers suggested that allowing more teacher freedom within the implementation schedule of the COGNET MLE Instructional Approach would have made it easier to implement. Eleven percent of the teachers were

not sure, but suggested that a better understanding of the entire program would have made it easier for them to be involved in the initial implementation. Eleven percent of the teachers felt that less Teacher Training In-Service Meetings as well as less paperwork would have made the initial implementation easier for them.

Initial Implementation Interview Guide

When interviewed by the researcher, all nine of the teachers at the experimental site demonstrated an adequate understanding of the theoretical framework that the COGNET MLE Instructional Approach was based on. All nine of the teachers successfully demonstrated an adequate understanding of the following theoretical elements of the instructional approach: They adequately described the goals of the COGNET MLE Instructional Approach; they gave a description of the three phases of a Mediated Learning Experience; they gave a description of a mediator and examples of persons other than a child's primary caregiver who could adequately fulfill the position of a mediator; they all said that their individual course goals were reflected in the goals of the COGNET MLE Instructional Approach; they all explained how the **Building Blocks of Thinking** affect learning, and they all successfully explained how the **Tools of Independent Learning** affect independent learning. The first area on the interview

guide which showed a major difference in teacher understanding came when they were asked to explain the differences between the **Building Blocks of Thinking** and the **Tools of Independent Learning**. Two of the nine were unable to adequately explain this difference or why there was a difference, they both requested a review of the theoretical framework that the COGNET MLE Instructional Approach was based on at the next Teacher Training In-Service Workshop and said that they planned to take their Teacher Workbook home this summer to review to get a better understanding of how the **Building Blocks** and the **Tools** work together to aid students in the learning process.

When asked if other teachers at the experimental site should be trained in the COGNET MLE Instructional Approach, "No," was the qualified response. One teacher provided the following reason for her answer, "The amount of time it takes teachers away from the classroom to be trained and the additional time it requires of teachers involved in the initial implementation stage for adequate lesson preparation are the reasons I said no." One of the nine reconsidered later during the interview and suggested that more teachers should be trained IF the training could be done faster and if the initial implementation process could be made easier.

The next interview question asked what, if any,

changes in your attitudes as teachers has taken place during the initial implementation of the COGNET MLE Instructional Approach. One teacher's answer was,

None.

A second teacher answered,

Not much, but I have given them more responsibility now that I see they can assume it.

One first grade teacher stated that because of her training with the COGNET MLE Instructional Approach:

The basic theories of education are stated more clearly and emphatically.

Six teachers replied with very similar answers that can be summed up by the following quote:

This has simply given me new terms to explain what I already did.

One second grade teacher stated that the COGNET MLE Instructional Approach has:

Given me a better way to involve the students in learning situations.

When asked what, if any, changes had taken place in their expectation level for students, three said, "None," but clarified their answers with one of the following statements:

None, but now I know how to tell them what their problem areas are and what they can do to improve in those areas.

None at school, but I have changed with my own son at home.

None, I've always had a high expectation level for all of my students I just didn't know how to state it like I do now.

The other six said "Yes," their expectation levels for students had changed. A description of these changes as gleaned from the interviews follows:

Yes, I expect them to think more on their own now without me telling them everything they are suppose to do.

Yes, my students are less impulsive now, more independent and consequently more confident.

Yes, my expectations are higher and I am more positive toward my students individual abilities.

During the researchers' interview with the principal at the experimental site elementary school the following question was asked: "What effect do you think the initial implementation of the COGNET MLE Instructional Approach has had on your school?" The following quote is taken directly from the interview data:

I think that the initial implementation of the COGNET MLE Instructional Approach has had a positive effect on teachers and on the students in this school. I think that one of the very effective things that it has gotten some teachers to do, is, to stop and think, when they are dealing with children. It has helped them to seek out an individual child's problems in a greater way than they have ever done in the past. I think they are much more sympathetic to such things as: home problems; parents as they talk to them; to having the parents involved in the child's classroom experience; the child's school experience; and realizing, that they are teachers too, not in a professional sense of the word as we would

define a teacher, but in the real sense that what they do, and how they do it has a very profound effect on how their child will do in school.

I think the ideal of letting children question, ask questions, to use a questioning approach to what they learn, to problem solve, to plan....I think the concepts that we see of planning in the COGNET MLE Instructional Approach is getting to the very nature of what we've been saying about study skills all along. ...I think we have teachers now who relate much better to their students because of the COGNET MLE Instructional Approach they are using daily with their students.

...Having a real concern and care for the child. Being convinced finally that all children can learn, I think that's a part of this process.

...I don't mean to say that because of the COGNET MLE Instructional Approach everyone has suddenly become perfect, but I mean that I can point out teachers by name who have made improvements because they have had to logically look at children and think about the processes that they have been initiating.

...I think that this COGNET MLE Instructional Approach has given us an empathy, a sympathy, a consciousness of who our children are, and what we can do and have not done before.

Earlier in this study, based on the findings of the participant observation fieldnote data, the teachers were divided into two groups: natural mediators (as described in actual teaching situations) and nonmediators (as described in actual teaching situations). Based on self reports during the Initial Implementation Interview, regarding level of implementation of the Mini Lesson Plans, the nonmediators were again divided into two groups: high implementors and low implementors. Table II

Table II. Teachers Presented as Categorized During Actual Teaching Situations, by Groups and by Consistent or Inconsistent Levels of Use of the Mini Lesson Plans.

	Consistent Use	Inconsistent Use	Total
GROUPS			
	3	1	4
1. Natural Mediators	33%	11%	44%
	1	2	3
2. High Implementors	11%	22%	33%
	0	2	2
3. Low Implementors	0%	22%	22%
Total Implementors	4	5	9
% of Consistent/ Inconsistent use of Mini Lesson Plans by teacher within Groups	44%	55%	100%

portrays these three groups: Natural Mediators, High Implementors of the COGNET MLE Instructional Approach, and Low Implementors of the COGNET MLE Instructional Approach, by levels of implementation and by the standard of consistent or inconsistent use of the **Mini Lesson Plans**.

The findings that the researcher proposed to present next were the combined findings from the observational data analyzed statistically for the purpose of demonstrating a relationship among the variables addressed in Question 3.

Question 3: Among teachers who have been involved in the initial implementation of an innovative instructional program based on the theory of Mediated Learning Experience in the classroom, what is the relationship among the following variables:

The teachers' level of implementation of MLE.

The teachers' attitudes towards the program.

The teachers' expectations of student learning.

The teachers' demonstration of a theoretical understanding of the theory of MLE.

It was originally planned to make further use of the participant observation fieldnote data in a summary that could be compared and contrasted by a quantitative measurement of correspondence analysis to answer Question 3. Because the actual Implementation Process, as defined in the Theoretical Framework of this research Study, (MacRae-Campbell, 1990) has not been fully implemented to

the **Stage 3: Institutional Level**, all of the data necessary to make the correspondence analysis possible is not available at this time. The data that is available is displayed as a Rank Order of the Level of Initial Implementation of the COGNET MLE Instructional Approach by teacher in Table III. The maximum score that could be attained on this scale was 28, and the minimum score was 9, so the range of possible scores was from 9 to 28. The teachers scores represent a range from 22 as the highest mean score and 14 as the lowest mean score.

Quantitative Data Analysis

It is the researchers purpose to present the statistical findings from the data collected by the administration of the **Heathington Primary Reading Attitude Scale** to all students enrolled in grades one through three at both the control and experimental sites during May, 1990. The statistical findings will be used to answer Question 4 addressed by this study.

Question 4: What, if any, differences occur in individual students' attitudes towards reading when their teachers have been involved in the initial implementation of an instructional approach based on the theory of MLE during whole group reading instruction?

Table III. Rank Order Presentation by Teacher of the Level of Initial Implementation of the COGNET MLE Instructional Approach.

Teacher	$\bar{X}$
1	19
2	14
3	18
4	16
5	15
6	22
7	18
8	18
9	14

$\bar{X} = 17.11$
 $sd = 3.9$

Heathington Primary Reading Attitude Scale

The data resulting from the completion of the **Heathington Primary Reading Attitude Scale** by all students at both the control and experimental sites were the source of the data that was analyzed to provide the answers to the fourth question being addressed by this study. A description and interpretation of the statistical analysis follows.

The total data set contained four hundred and seventy-five observations, with each observation containing thirty variables. These thirty variables were grouped into six dependent variables as measured by the Heathington Primary Reading Attitude Scale:

Free reading in the classroom (items 3, 17),

Organized reading in the classroom for instructional purposes (items 4, 7, 8, 13),

Reading at the library for instructional purposes (items 3, 4, 9, 17, 21),

Reading at home (items 7, 10, 11, 20),

Other recreational reading (items 12, 13, 23), and

General reading activities (items 2, 8, 14, 16, 18, 19, 22).

The greatest evidence that Heathington gives for the validity of the scales was the manner in which they were constructed. The items for the scales were taken from comments made by students relative to what constitutes positive and negative attitudes toward reading. This fact

and the elimination of the least desirable items by item-analysis are regarded as the best indicators that the **Heathington Primary Reading Attitude Scale** is valid.

There were two groups in the original data set, the control site data and the experimental site data. This research study was designed as a Quasi-Experiment so descriptive statistics will be used to describe the findings of the **Heathington Primary Reading Attitude Scale**, no inferences can be made from this data.

After the student's answer sheets had been coded and entered, the descriptive statistical factors of the mean, standard deviation, and range of scores for all six reading attitude variables measured by the **Heathington Primary Reading Attitude Scale** were compared by grade level and by school. The overall findings, when comparing results by school sites, indicated an overall school effect in favor of the experimental site on three variables at the first grade level: **Organized reading**, **Library Reading**, and **Recreational reading**, and on two variables at the second grade level: **Organized reading**, and **General reading**. The other findings on the six variables for grades one and two were higher for the control site. At the third grade level in particular the mean score for all six variables were higher at the control site than they were at the experimental site.

Careful scrutiny of the data discloses that the

greatest differences between the control site and experimental sites in the students' attitude toward reading, was in two of the six variable areas, **Free reading in the classroom**, and **Reading at home**. The researcher wishes to point out that neither of these areas pertain to actual classroom instruction, an effect that could be attributed to another independent variable, whole group instructional practices, which has been utilized at both school sites during the 1989-1990 school year. These descriptive findings have been displayed in Table IV.

Differences in the individual students' attitudes toward reading when the control site teachers have been involved in Whole Group Reading Instruction and the experimental site teachers have been involved in the initial implementation of the COGNET MLE Instructional Approach during Whole Group Reading Instruction seem to be very small. See Table IV for the descriptive comparison between sites.

The data from both groups, the control school site and the experimental school site, were then combined to make a comparison between grades of students' attitudes toward reading, when the students have been involved in Whole Group Reading Instruction. There were differences in attitudes between the first, second, and third grade students receiving Whole Group Reading Instruction. These descriptive statistics are displayed in Table V.

Table IV. Comparison by Grade and by School Site of Students' Attitudes Toward Reading as Measured by the Heathington Primary Reading Attitude Scale.

Co = Control Ex = Experimental		N	X	SD	Minimum Value	Maximum Value
Dependent Variable: Free Reading						
Grade 1:	Co	89	4.05	0.98	1.00	5.00
	Ex	75	3.49	1.06	1.00	5.00
Grade 2:	Co	84	3.61	1.22	1.00	5.00
	Ex	62	3.53	1.13	1.00	5.00
Grade 3:	Co	99	3.94	0.88	1.00	5.00
	Ex	66	3.03	1.08	1.00	5.00
Dependent Variable: Organized Reading						
Grade 1:	Co	89	3.80	0.87	1.00	5.00
	Ex	75	3.91	0.77	1.00	5.00
Grade 2:	Co	84	3.33	1.10	1.00	5.00
	Ex	62	3.40	0.89	1.00	5.00
Grade 3:	Co	99	3.27	0.84	1.00	5.00
	Ex	66	3.13	0.95	1.00	5.00
Dependent Variable: Library Reading						
Grade 1:	Co	89	4.10	0.90	1.00	5.00
	Ex	75	4.32	0.61	3.00	5.00
Grade 2:	Co	84	3.70	1.11	1.00	5.00
	Ex	62	3.66	0.99	1.00	5.00
Grade 3:	Co	99	3.72	0.83	2.00	5.00
	Ex	66	3.51	0.87	1.00	5.00
Dependent Variable: Reading at Home						
Grade 1:	Co	89	4.30	0.78	2.00	5.00
	Ex	75	3.99	0.73	2.00	5.00
Grade 2:	Co	84	3.77	1.08	1.00	5.00
	Ex	62	3.76	1.02	1.00	5.00
Grade 3:	Co	99	3.91	0.82	1.00	5.00
	Ex	66	3.41	1.06	1.00	5.00
Dependent Variable: Recreational Reading						
Grade 1:	Co	89	3.44	1.00	1.00	5.00
	Ex	75	3.46	0.81	1.00	5.00
Grade 2:	Co	84	3.07	1.05	1.00	5.00
	Ex	62	3.07	1.01	1.00	5.00
Grade 3:	Co	99	3.12	0.91	1.00	5.00
	Ex	66	2.71	0.92	1.00	5.00
Dependent Variable: General Reading						
Grade 1:	Co	89	3.99	0.83	2.00	5.00
	Ex	75	3.81	0.85	1.00	5.00
Grade 2:	Co	84	3.58	1.04	1.00	5.00
	Ex	62	3.70	0.89	1.00	5.00
Grade 3:	Co	99	3.78	0.83	1.00	5.00
	Ex	66	3.11	1.01	1.00	5.00

Table V. Summary Table for Comparison by Grade of the Reading Variables as Measured by the Heathington Primary Reading Attitude Scale.

	N	X	SD
Variable: Free Reading			
Grade 1	164	3.79	1.05*
Grade 2	146	3.57	1.18*
Grade 3	165	3.58	1.06*
Variable: Organized Reading			
Grade 1	164	3.85	0.83**
Grade 2	146	3.36	1.01*
Grade 3	165	3.21	0.88*
Variable: Library Reading			
Grade 1	164	4.20	0.79*
Grade 2	146	3.69	1.06*
Grade 3	165	3.64	0.85*
Variable: Reading at Home			
Grade 1	164	4.16	0.77**
Grade 2	146	3.76	1.05*
Grade 3	165	3.71	0.95*
Variable: Recreational Reading			
Grade 1	164	3.44	0.92*
Grade 2	146	3.07	1.03*
Grade 3	165	2.95	0.93*
Variable: General Reading			
Grade 1	164	3.91	0.84*
Grade 2	146	3.63	0.98*
Grade 3	165	3.51	0.96*
*Minimum Value = 1.00 Maximum Value = 5.00			
**Minimum Value = 2.00 Maximum Value = 5.00			

Discussion of the Findings

The Initial Implementation Schedule Survey, the Teacher Report Forms, and the Principal Interview were combined to answer Question 1 as delineated by this study. The teachers were definitely implementing the teaching methodology, as defined for the purpose of this study as the **COGNET MLE Instructional Approach**, during both the Early Implementation and Initial Implementation time periods being described for the purpose of this study as the Initial Implementation time period all of the nine teachers involved in this research study were making use of the **Mini Lesson Plans**, and were implementing the program as was further manifested by the Participant Observation Fieldnote Data.

It should be noted that by the **Teacher Implementation Survey**, the teachers reported their initial implementation of the **COGNET MLE Instructional Approach**, as being at different levels, high or low. Some of them were more consistent in their implementation of the **COGNET MLE Instructional Approach** than others reported being; some of them used more of the **Mini Lesson Plans** than others reported using; and some of them adapted the **Mini Lesson Plans** the second time around to better fit the curriculum areas they were using them with. The bulletin boards in their classrooms testified to their introduction of the concepts and doubled as a reminder to implement daily.

Question 2 was answered by the presentation of the major themes which emerged through an analytic induction analysis of the qualitative fieldnote data collection as combined with the results of the **DeFord Theoretical Orientation to the Reading Process (TORP) Profile**. The themes that emerged from the fieldnote data collection when combined with the finding of the **TORP Profile** adequately demonstrated what changes have occurred in teachers attitudes toward teaching and expectations of student learning, after their involvement in the initial implementation of the Mediated Learning Experience instructional approach during Whole Group Reading Instruction.

The **DeFord Theoretical Orientation of the Reading Process (TORP) Profile** was completed twice by the teachers teaching at the experimental site during the period of time referred to in this research as the **Initial Implementation of the COGNET MLE Instructional Approach**. The resulting data was combined with the findings from the Observational Data to answer Question 2 of this study.

A comparison of the differences in the total scores, as delineated by theoretical approach, between the two times of administration of the **TORP Profile**, presented earlier in Table I of this document demonstrate that some changes have taken place during this period of **Initial Implementation of the COGNET MLE Instructional Approach**.

With reference to the theoretical orientation of teaching reading utilizing the **Whole Language Approach**, a positive change in total scores was demonstrated by all nine teachers taking part in this experimental design.

When referring to the **TORP Profile**, it should be pointed out that Teachers 3 and 8 were the only teachers who demonstrated a change pointing in a negative direction, which represents a move away from a theoretical orientation previously endorsed. A possible explanation for the change demonstrated by Teacher 8 is that when she filled out the **TORP Profile** originally (Time I), she was employed as a kindergarten teacher. At the time she filled out the **TORP Profile** the second time (Time II), she had just completed her first year teaching at the third grade level. A different theoretical approach may be more appropriate when a teacher is employed to teach reading at the third grade level rather than at the kindergarten level. A first grade teacher also demonstrated a negative move, away from both a **Skills Approach** and a **Phonics Approach** and a positive move, toward a **Whole Language Approach**. Her original high scores for both the **Skills Approach** and the **Phonics Approach**, necessitated this negative move to make it possible for her to move positively in the directional of a **Whole Language Approach** as her theoretical orientation to the teaching of reading.

All of the information necessary to answer Question 3

is not yet available at this point and time in the Initial Implementation of the COGNET MLE Instructional Approach. There were four variables that were to be addressed by this question. The answer to three of the variables has been obtained from the Qualitative Observational Fieldnote Data, but the answer to the fourth variable, **the teachers' attitudes toward the program** (the COGNET MLE Instructional Approach), is not available yet due to the Implementation Dip that Initial Implementation of new instructional approaches go through according to MacRae-Campbell, (1990). The conclusion to this fourth variable must be reached before the Implementation Process can be completed. The conclusion to the fourth variable, **the teachers' attitudes toward the COGNET Program**, when reached will result in Stage three: **Institutionalization**. It is probable that this variable will be answered by the conclusion of the 1990-1991 school year providing that the **COGNET MLE Instructional Approach** continues to have strong support from the administrative staff at the local county office.

Question 4, concerning differences in individual students' attitudes towards reading when their teachers have been involved in the initial implementation of an instructional approach based on the theory of MLE during Whole Group Reading Instruction, has been adequately answered by the descriptive statistics used to describe

the results of the **Heathington Primary Reading Attitude Scale**.

A difference in students attitudes toward their own ability to learn to read during **Organized reading instruction**, has been demonstrated by the descriptive statistics used with the **Heathington Primary Reading Attitude Scale**. The first grade students being taught to read in Whole Group Instructional Settings have better attitudes, toward their own abilities to learn to read as measured by all six of the variables identified in the **Heathington Primary Reading Attitude Scale: Free reading, Organized reading, Library reading, Reading at Home, Recreational reading, and General reading**. The first grade students when dealt with as a whole group, demonstrated better attitudes toward all of the identified variable areas than did second and third graders who were also being taught to read in Whole Group Instructional Settings. The first grade may have had an advantage due to the fact that the second and third graders involved in this research were originally organized in traditional settings of high, middle, and low groups for reading instruction within their own classrooms during their first grade year. If students' attitudes toward learning how to read are formed in first grade then this finding might be important.

Many times teachers have students for which they need

diagnostic information. It is the professional opinion of this researcher, that the **Heathington Primary Reading Attitude Scale** could be very beneficial to teachers, when used on an individual as well as a group basis. The results of the **Heathington Primary Reading Attitude Scale** when viewed individually, rather than within a group, could help teachers better understand how individual students feel about themselves and the reading act. In the event that a teacher wishes to use the **Heathington Primary Reading Attitude Scale** this way, the teacher would look at several responses to judge a child's attitude in that particular reading activity. For example, on the **Heathington Primary Reading Attitude Scale** which was designed to be used with students enrolled in grades one through three, a teacher would examine an individual students responses to number 4, 7, 8, and 13 to evaluate a student's attitude toward Organized reading instruction in the classroom.

The researcher wishes to emphasize that the control site was very curious about the instructional approach being initially implemented at the experimental site. Because of the close proximity of the two school sites, (they were located within twenty miles of each other) the control site teachers sought information about the experimental research being utilized at the experimental school site. When the control site teachers became aware

that the experimental site teachers were grouping for Whole Class Reading Instruction, they changed their approach to the teaching of reading, and grouped their students within grades and exchanged students for the purpose of Whole Group Reading Instruction too. The control site teachers did not learn a great deal about the experimental approach, but they were aware of this approach to the teaching of reading so they decided to try it.

In experiments involving human subjects, a great many subtle influences can distort research results. If an individual is aware that he/she is participating in an experiment, for example, this knowledge may alter his/her performance and therefore affect the experiment. This phenomenon is referred to by psychologists as the **Hawthorne Effect**. The term has come to refer to any situation in which the experimental conditions are such that the mere fact that the subject is participating in an experiment or is receiving special attention tends to improve performance. The **Hawthorne Effect** may have had such an effect on the results of the **Heathington Primary Reading Attitude Scale**. The students were not as aware of the experiment as the teachers were, but the teachers were aware and influenced by the desire to improve performance. The influence of the **Hawthorne Effect** can be expected to decrease as the novelty of the new method of instruction

wears off, and therefore, studies extending over a period of two or three years can be relied upon more in the evaluation of the effectiveness of a new technique (Borg & Gail, 1979).

Summary of the Findings

The results of the Qualitative portion of this Research Study (Observational fieldnote data, Initial Implementation Schedule data, Mini Lesson Plan Report Form data, and Interview fieldnote data), combined with the descriptive statistical findings of the **DeFord Theoretical Orientation to the Reading Process (TORP) Profile**, have demonstrated that the **Initial Implementation of the COGNET MLE Instructional Approach** is well underway. At this time in the research, results of the measurement of the initial implementation of this teaching methodology demonstrate recordable changes in teachers' attitudes toward teaching, and recordable changes in teachers' expectation levels of student performance levels.

Also demonstrated by this research study through the use of descriptive statistics are differences in the students' attitudes toward their own ability to learn to read as reported by their answers to the questions on the **Heathington Primary Reading Attitude Scale**. First grade students being taught to read in Whole Group Instructional Settings have better attitudes toward their own ability to

learn how to read than do second and third graders currently being taught in the same Whole Group Instructional Setting. These second and third graders were originally assigned to groups of high, middle, and low ability for the purpose of reading instruction during their first grade year.

CHAPTER VI
SUMMARY, CONCLUSIONS, AND
RECOMMENDATIONS FOR FURTHER RESEARCH

Introduction

Few times in history rival the present for bad news about education. Commission reports and research studies present a similarly grim picture. Yet many educators, at all levels, have been in classrooms where teachers and students pursue learning with excitement; in schools where goals are set, simply so they can be achieved, and higher ones aspired to; and in districts where careful planning and high-quality development work together to contribute to challenging experiences for students. Are these random events? Are they few and far between? Are they exceptions to the rule? At least two large, national studies of school improvement (Crandall & Loucks, 1983, MacRae-Campbell, 1990) have resulted in findings that answer these questions with a loud, emphatic "No!". The conclusions from this research study also echo "No!".

This research investigates Reuven Feuerstein's Theory of Structural Cognitive Modifiability (SCM) as achieved during the Initial Implementation of the COGNET MLE Instructional Approach. This teaching methodology was developed for Whole Group Instructional purposes by

Katherine H. Greenberg and during its period of initial implementation was utilized during Whole Group Reading Instruction, with grades one through three, at an elementary school located in rural eastern Tennessee.

According to Feuerstein, et al. (1974)

Learning occurs either by direct exposure from the individual's encounters with random stimuli or by a Mediated Learning Experience in which the child is exposed to information presented by an adult (teacher) who interposes him or herself between the child and the world and intentionally mediates the information to the child. Mediated Learning Experience (MLE) involves modification of the information in such a way that the learning individual can register it meaningfully.

The Initial Implementation of the COGNET MLE

Instructional Approach through careful, thoughtful efforts was successful in many ways, accruing benefits to students, teachers, and the school as a whole. These successes are not random. They have resulted from the teachers taking advantage of the conscious and long-term commitment of the federal and state governments to encourage and support school growth by providing extra resources, programs, and strategies to choose from. The **COGNET MLE Instructional Approach** was chosen and initial implementation is well underway. There are a great many other schools around the country where efforts to improve education will also be successful when they have the opportunity to implement the **COGNET MLE Instructional Approach**. Students, teachers, and the school as a whole

will benefit from this instructional methodology.

The findings from Facilitating Change in Public Schools: A Primer and the Study of Dissemination Efforts Supporting School Improvements (MacRae-Campbell, 1990, Crandall & Loucks, 1983) allow us to look at schools and improvement-oriented change from a somewhat different perspective and in a somewhat different light than other studies that have yielded discouraging results. First, unlike many recent surveys and commissioned reports, they were looking at schools that had made a commitment to improvement and had done so by the implementation of a new curriculum or instructional approach. Second, unlike the well-known Rand Change Agent Studies (Berman & McLaughlin, 1975), they were looking at schools supported by federal and state programs that had either evolved better ways of helping schools improve or had used strategies different from those examined by Rand. The measurement of the **Initial Implementation of the COGNET MLE Instructional Approach** was designed making use of this knowledgebase.

Before turning to the findings in more detail, a word or two about the studies themselves. Funded by the U. S. Department of Education in 1978, the Crandall and Loucks study was a multi-year effort to examine the effects of strategies the government used to encourage school improvement, primarily by the dissemination of new practices developed with federal support. The report

traced sixty-one different innovations from their federal sponsors to one hundred and forty-six districts and schools, and to over four hundred classrooms in ten states. With questionnaires and interviews, the teachers, principals, superintendents, central office coordinators, external consultants, trainers and facilitators, and state and federal policy makers were surveyed. Classroom use of the innovations with the implementation, change in practice, and fidelity to the developer's core components were carefully depicted. Then twelve locations were selected for a year-long intensive field study, using qualitative techniques to probe the dynamics of the school improvement process. This research on the **Initial Implementation of the COGNET MLE Instructional Approach** utilized questionnaires, surveys, and interviews with the teachers, the principal, and the students with which the instructional approach was implemented. This research has taken place over an eighteen month period of time through the collection of an intensive qualitative observational fieldnote data base. The observational data results were then triangulated with the questionnaires, surveys, and interviews to assure the validity and reliability of the findings.

When teachers were visited in the classrooms, it was found that more than just "lip service" was given to the innovative practices. There were concrete, frequently

major, changes in classroom approaches, strategies, and materials, And, through discussions with teachers, building and district administrators, and with individuals external to the district who had provided training and support, the factors contributing to the success of the programs became discernable.

The MacRae-Campbell (1990) study on schools builds upon the findings of Crandall and Loucks (1983). Combining the factors contributing to the success of new programs and instructional approaches that are producing successful changes in school programs across America provides A Primer for implementing change by which the COGNET MLE Instructional Approach could then be measured by.

One factor addressed by MacRae-Campbell was the commitment of the teachers. More often than not, teachers in successful schools had not spent a great deal of time in "ownership building" activities before the practice was introduced. Rather, they learned about the practice, attended training, and only through using it and seeing good results did their commitment grow and deepen. Often this meant "suspending disbelief," not knowing if the practice would work, but being willing to give it a try. Sometimes it was pressure from administrators that got teachers to the training, but many were glad they participated once the impact on students was evident.

Real commitment only takes hold and flourishes with obvious benefits to students, and this can happen successfully in an environment where doing (not planning) is emphasized, where risk taking and trust are the norm. This commitment of the teachers is beginning to take place at the experimental site. Teachers, during their individual interviews, made statements of observational changes that they could see taking place in their students behavior demonstrating the success of the **COGNET MLE Instructional Approach**, as a teaching methodology.

Another factor contributing to successful change that was identified was the existence of curriculum or instructional approaches that were carefully developed, well defined, and determined to be effective. The history of education is replete with fads, good ideas that do not work, and research findings looking for an application. All of these waste time and resources, and we can no longer afford to invest in them (Brophy & Good, 1986, MacRae-Campbell, 1990). These studies found that where improvement projects were successful, people had chosen or developed specific practices that "fit" the everyday reality of teaching and the classroom; i.e. they were "classroom friendly." They were clearly defined, that is, you would know when you were using them correctly. And they had been tried out enough times with a high enough success rate to be determined effective. A major purpose

of this research study was to determine what, if any, changes needed to be made to make the **COGNET MLE Instructional Approach**, easier to implement. These areas have been identified and changes have been planned for the 1990-1991 school year. This is a process of the formative evaluation built into the **COGNET MLE Instructional Approach** which allows it to be adaptable to the specific needs of the different schools.

A third factor contributing to successful change was training by credible people, often former teachers, that included follow-up training activities. Two important points are contained within this factor. Trainers from outside the district, and even the region, can be quite helpful in assisting teachers to master new skills, but only if they themselves have experience using the same skills in real classrooms. But while this kind of real-life experience is key to the success of trainers, they must also have skill in working with adults, which requires different approaches than working with students. Knowledge of adult development, group process, and training strategies is part of the repertoire of good adult trainers. Instruction in the use of the **COGNET MLE Instructional Approach** has been provided by credible people who were former teachers. Plans were built into the **COGNET Program** for monthly teacher meetings as well as additional yearly Teacher Training In-Service Workshops

for teachers, et al., and for Parents.

A fourth factor that was found in instances of successful change was that assistance and support can and should come from people in a variety of roles, not just the principal, as many studies of school effectiveness would have us to believe. Of course, it is impossible for a school to change if the principal actively works against it. Implementation of the **COGNET MLE Instructional Approach**, was provided based on the assistance and support from people in a variety of roles, the principal and support people from the local county board of education.

A final factor that contributed to successful change was attention to all phases of the change process: initiation, implementation, and institutionalization. Much of the literature on school improvement emphasizes the need for careful planning, needs assessment, and ownership building in the initiation phase. There is often too much attention paid at this stage, too many resources and too much time spent before teachers and administrators actually do anything different. Often people are tired of all the meetings and the planning and have no energy or interest left when implementation finally begins. Then when it does, an initial training session, or an agreement to "let us do it!" is all that ever transpires. More attention to implementation in the form of good, solid training, and follow-up coaching and

support are needed to achieve mastery of truly new instructional approaches to teaching and learning. This research study on the **Initial Implementation of the COGNET MLE Instructional Approach** was designed to pay attention to all three phases of the change process. The data on hand to date concludes that the **Initial Implementation of the COGNET MLE Instructional Approach** is currently at **Stage 2: Implementation**, and by the conclusion of the 1990-1991 school year should be at the **Stage 3: Institutionalization level**.

A unique contribution of these studies is to the understanding that the change process is what it takes to accomplish the last phase: **Institutionalization**. While there is not much that can be done about some of the more major "threats to institutionalization," if they are thought about early in the effort, most can be avoided. Some strategies to consider are: Routine training for all new teachers; establishing a line item in the budget for the instructional approach; having a co-coordinator, or at least a back-up person who shares responsibility for the success of the innovative approach; and getting the theoretical framework of the new innovative approach written into the current curriculum guidelines of the school, or the district. Anchoring the practice firmly within the local educational system by making appropriate organizational arrangements is the best way of ensuring

continuing support and use. The appointment of a trained teacher as a co-coordinator within the system as well as the use of the trained teachers at the experimental site to train other teachers within the school system would help to accomplish institutionalization within this system.

There is no one way to ensure the success of the initial implementation of a new instructional approach. However, the factors that have been determined to be important, when taken together, increase the chances for its success. With the economic crunch facing schools today, and the relatively large amount of resources required to launch a meaningful change effort, using what we know is the only way to maximize the chances that our investments are good ones. The prospect of better education for today's students makes it worth the effort.

Conclusions of the Research on the Initial Implementation of the COGNET MLE Instructional Approach Curriculum

The research results that have been compiled and reported have demonstrated that **Stage 1: Initiation** of the COGNET MLE Instructional Approach has been successfully completed. The research results have also demonstrated that **Stage 2: Implementation** of the COGNET MLE Instructional Approach, the stage at which the change effort gets underway and targeted issues are addressed in

depth, has been successfully begun, but it should be noted that at this time and place in the research total implementation as described by MacRae-Campbell (1990) has not been completed. Further analysis of the research data demonstrates that the experimental site teachers are well into "The Implementation Dip" so well described by MacRae-Campbell. (See Figure 3). With the beginning of the 1990-1991 school year **Stage 2: Implementation** will have to resume and will need to be continued long enough for the COGNET MLE Instructional Approach to reach the level of performance that demonstrates change results before it can be completed. Then **Stage 3: Institutionalization** can take place.

The Implementation Dip



Figure 3. The Implementation Dip.

School improvement is a series of peaks and valleys emotionally and should be anticipated as such (MacRae-Campbell, 1990). To accelerate the implementation of this innovative approach, so as to reach the completion of **Stage 2**, the demonstration of change, through such measures as teacher observation of change and/or improved test scores will lead the experimental school site naturally into **Stage Three: Institutionalization**. This

stage is where true and complete educational restructuring will take place. For this to happen, a well orchestrated and coordinated approach to the change effort will be needed at the beginning of the 1990-1991 school year. Shared control and collaborative decision-making between the developer of the COGNET MLE Instructional Approach and the teachers involved in the initial implementation of the COGNET MLE Instructional Approach is essential to allow this innovative approach to take root and become widely embraced by the teachers at the experimental school site. Both support as well as pressure for change are crucial to the continued success of this instructional approach. Since change efforts that are quickly linked to the classroom appear relevant and important to classroom teachers, it is essential that the researchers provide this link before the beginning of the 1990-1991 school year. Early rewards and recognition will help to encourage and celebrate successes. Technical assistance must be planned for in advance of the new school year, with additional help available should it be requested by the teachers at the experimental school site.

To accelerate **Stage 3: Institutionalization**, the restructuring effort will have to become embedded in the myriad aspects of school life including the budget, policies, philosophy and throughout all other levels of the experimental school site. The majority of personnel

at the school will have to make use of the change and competing priorities will have to be eliminated so that efforts are well focused on the COGNET MLE Instructional Approach Curriculum. On-going technical assistance and follow-up training should be provided when needed or desired.

Mediated Learning Experience as described earlier in this study by Reuven Feuerstein has been used by parents and clinicians in one-on-one and in small group situations (1979). Now the use of Feuerstein's Mediated Learning Experience (MLE) has expanded as an Instructional Approach (teaching methodology) for classroom use and the initial implementation of this program has been investigated. This adaptation of an Instructional Approach necessitated a need for exploratory research to determine how effective it was as a teaching methodology, when used in regular classroom settings for Whole Group Reading Instruction.

Observational and Quasi-Experimental Research has been carried out to measure the differences as seen within and between classrooms where focused MLE was being used as the teaching approach. Questions 1 and 2 of this research were answered based on the findings of the qualitative data.

Question 1: To what extent are the teachers implementing an instructional approach based on the theory of the Mediated Learning Experience during whole group reading instruction?

Question 2: What, if any, changes have occurred in teachers attitudes toward teaching and expectations of student learning, after their involvement in the initial implementation of the Mediated Learning Experience Instructional Approach during Whole Group Reading Instruction?

Changes in teachers' attitudes toward teaching, and teachers' expectations levels of student performance levels have been demonstrated by the reported findings of the qualitative data. Teachers have made some changes in their theoretical orientation to the teaching of reading as demonstrated by their Time II TORP Profile, which will be demonstrated even more by changes in their classroom performances during the 1990-1991 school year according to a telephone interview with the first grade representative (June, 1990).

A comparison of the difference in the total scores, by approach, from the Time I and Time II administrations of the TORP Profile as was contained in Table I of this study demonstrate that some changes have taken place during this period of initial implementation of the COGNET MLE Instructional Approach with regard to how the individual teachers feel theoretically about the teaching of reading their Theoretical Orientation of the Reading Process as measured by the DeFord TORP Profile has changed in an overall movement away from the Skills Approach to teaching reading to more of a combined Phonics and Whole Language

Approach.

Question 3: Among teachers who have been involved in the initial implementation of an innovative instructional program based on the theory of Mediated Learning Experience in the classroom, what is the relationship among the following variables:

The teachers' level of implementation of MLE.

The teachers' attitudes towards the program.

The teachers' expectations of student learning.

The teachers demonstration of a theoretical understanding of the theory of MLE.

As has been stated several times so far in this research, because of the current position of the **Initial Implementation of the COGNET MLE Instructional Approach**, it is not currently possible to answer this question statistically because it would be necessary for the research to make a judgement call before the jury is in on variable 2 as outlined by the question. A decision regarding **teachers' attitudes towards the program** can not be made until the implementation of the program has progressed through all three stages of the development process; **Stage 1: Initiation, Stage 2: Implementation**, including through the **Implementation Dip**, as described by MacRae-Campbell (1990), and through **Stage 3: Institutionalization**, of the program (instructional approach). At this point and time the decision would be made to **Institutionalize the COGNET MLE Instructional**

Approach. A researcher would be able to make a decision at that time in regards to the **teachers' attitudes towards the program**. Should they decided to **Institutionalize** the program the teachers' attitudes toward the program (instructional approach) would be favorable. Should they decide not to **Institutionalize** the program the teachers' attitudes would be unfavorable toward the implementation of the program (instructional approach). At that point and time it would be possible to do a statistical analysis based on all four variables included within Question 3.

In the interview with the principal the question was asked, "Do you suggest that we spend a little bit more time on the theory?" The Principal answered the question in the following way:

Yes, I would. I would also suggest that anything we can do as an incentive to the teachers to keep them interested, to keep them feeling that the project is worthwhile would be extremely important. No one has said, you know I want to quit doing this .. and yet there have been little under currents that have made me think, you know that that may have been at the back of their mind for a couple of people. And I realize that there is more work involved in using the **COGNET MLE Instructional Approach** program and yet, um, I am convinced personally that we are doing a good thing and that we are making some progress. I wish we had right now the results of the test scores to look at. I think that as we begin to gather that data and can adequately put some statistical devices to it we will adequately see, but we just don't have the hard data at this point to prove it. I feel that it's there and I think that observation is an important part of any teacher or principal's job.

The interviewer went on to say, "Now, one of your fourth grade teachers stopped me in the hall today and wanted to know if they would be included in with the **COGNET MLE Instructional Approach Curriculum** for next year." The principal asked:

Was that a request wanting to be, or afraid that they would be? ...That's encouraging.

Question 4: What, if any, differences occur in individual students' attitudes toward reading when their teachers have been involved in the initial implementation of an instructional approach based on the theory of MLE during Whole Group Reading Instruction?

A difference in students' attitudes toward their own ability to learn to read as analyzed by all six of the variables identified by the **Heathington Primary Reading Attitude Scale**, utilizing descriptive statistics demonstrated that first grade students had higher mean scores than did second and third grade students when measuring all six variables. The first grade students being taught to read in Whole Group Instructional settings have better attitudes toward their own abilities to learn to read than do the second and third graders who originally received their reading instruction in organized traditional high, middle, and low ability groups within their own classrooms during their own first grade year.

Educational change is a process that can be understood, managed and valued as positive results are

acknowledged. As more teachers and administrators become facilitators of change, it is important to become knowledgeable about the change process and to understand that restructuring requires new skills for all involved. Perhaps the greatest reward for those implementing educational change is not what they achieve because of it, but rather what they become because of it.

Measurable teacher change has already taken place as has been demonstrated earlier in this research document. The fact that it has taken place needs to be presented to the teachers at the Experimental site so that they can continue on to **Stage 3: Institutionalization** of the new instructional approach so that more teachers can be trained to implement it in their classrooms.

Recommendations for Further Research

Until now there has been a lack of research and detailed information available concerning the interactions of teachers and students in classrooms as related to Whole Group Reading Instruction and the use of the Mediated Learning Experience as a teaching methodology to aid in the accomplishment of this cognitive act. This research study has analyzed the **Initial Implementation of the COGNET MLE Instructional Approach**.

The original research design that was utilized for this study on the **Initial Implementation of the COGNET MLE**

Instructional Approach needs to be reproduced at another school site to determine if the same or similar results occur.

Once the **COGNET MLE Instructional Approach** has been fully implemented as a teaching methodology further research needs to be done to determine how effective the **COGNET MLE Instructional Approach** might be as a teaching methodology capable of producing measurable developmental cognitive changes in students. A research design would need to be developed to be used in addition to the research design described in this research study which measured the Initial Implementation of an instructional approach.

More research needs to be done to determine the success of the **COGNET MLE Instructional Approach** with students that are not living in rural eastern Tennessee. A more diverse population needs to be researched so that it would be possible to make generalizations from the results of the research study to other population groups.

The Theory of Structural Cognitive Modifiability through the use of Focused Mediated Learning Experiences, is the theory upon which the **COGNET MLE Instructional Approach** is based on. This theory emphasizes the ability of the cognitive structure to change as can be measured through an ongoing Dynamic Assessment process rather than the Static Assessment process which is utilized by

cognitive ability tests and achievement tests. With all of the interest in cognitive development, a good question to address with additional research is what, if any, correlation exists between a student's cognitive abilities as measured by a test that measures cognitive abilities and his/her performance on standard school tasks as measured by an achievement test before the use of the **COGNET MLE Instructional Approach** and following a year of the utilization of the **COGNET MLE Instructional Approach**.

Summary

The **Initial Implementation of the COGNET MLE Instructional Approach** is successfully in place at an experimental site in rural eastern Tennessee, as is reported by this research study. Through the utilization of qualitative and quantitative research techniques the level of implementation has been verified and presented by descriptive statistics through the arrangement of rank order data by teacher.

Changes in teachers' attitudes toward teaching, and teachers' expectation levels of student performance levels have been demonstrated by the qualitative portion of this research design. The **Initial Implementation of focused Mediated Learning Experiences** through the utilization of the **COGNET MLE Instructional Approach Curriculum** does appear to enable the teacher's to change their attitudes

toward teaching. At the same time it does appear to help teacher's change their expectation levels relating to anticipated individual student performance levels.

A difference in the students' attitudes toward their own ability to learn to read during **Organized reading instruction** has also been demonstrated by the quantitative portion of this research study design. First grade students being taught to read in Whole Group Instructional Settings have better attitudes toward their own ability to learn to read during **Organized reading instruction**, than do second and third graders who were originally provided with reading instruction in organized traditional classrooms where they were assigned to groups of high, middle, and low abilities within their own classrooms during their first grade year.

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APPENDICES

Appendix A

COGNET MLE INSTRUCTIONAL APPROACH VARIABLES

INTENT: Deliberately guiding learning in a chosen direction.

RESPONSIVENESS: Establishing a reciprocal relationship with students.

AFFECTIVE VALUE: Expressing an emotional attachment and involvement with students and lesson material.

TRANSCENDENCE (GOING BEYOND THE IMMEDIATE NEEDS):
Helping learners connect the content of the lessons to other contexts or domains as well as to variables of how to learn.

MEDIATION OF MEANING: Helping learners find value and significance in learning activities.

MEDIATION OF SELF REGULATION: Helping learners understand how to control their approach to activities.

MEDIATION OF FEELING OF COMPETENCE: Helping learners develop an awareness of their ability to successfully engage in a given act.

MEDIATION OF GOAL DIRECTEDNESS: Helping learners understand goals and the need to make plans to reach them.

Appendix B

GREENBERG/BENNETT INTERVIEW GUIDE

1. How did you choose to teach in this school? In this grade?
2. How would you like students to be different after a year in your classroom? What specific skills do you hope your students will have achieved by the end of this year?
3. What methods do you find most effective in teaching children to read?
4. If a new child came in to your classroom with test results that indicated that his/her I.Q. was 75, what would you expect that child to be like in learning academic skills?
5. How do you handle slow learners?
6. Do you think it is important to adapt a lesson for those children who have difficulty learning? Why or why not?

7. Describe your interactions with children in your classroom.
8. How do you encourage children to speak out in your classroom?
9. In classroom discussion, when a student goes off in a different direction than you intended what do you do?
10. What do you say to children when you want them to pay attention?
11. What do you tell children so they know the goal of a specific activity?
12. What techniques do you use in the classroom to encourage children's learning?

13. At the end of a lesson, do you think that most of your students are aware of changes in their knowledge as a result of that lesson? Why or why not?
14. What activities do you provide to challenge children intellectually?
15. What do you think is a parent's role in children's school learning?
16. Do you have parents who are not involved in the child's school learning? What do you do about it?
17. Do you think it's important for children to learn to do things more like others or more their own way? Explain.

**The DeFord
Theoretical Orientation To Reading
Profile (TORP)**

Directions: Read the following statements, and circle one of the responses that will indicate the relationship of the statement to your feelings about reading and reading instructions. SA 2

SA 2 3 4 SD

1.	A child needs to be able to verbalize the rules of phonics in order to assure proficiency in processing new words.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
2.	An increase in reading errors is usually related to a decrease in comprehension.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
3.	Dividing words into syllables according to rules is a helpful helpful instruction practice for reading new words.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
4.	Fluency and expression are necessary components of reading that indicate good comprehension.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
5.	Materials for early reading, should be written in natural language without concern for short, simple words and sentences.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
6.	When children do not know a word, they should be instructed to sound out its parts.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
7.	It is a good practice to allow children to edit what is written into their own dialect when learning to read.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
8.	The use of a glossary or dictionary is necessary in determining the meaning and pronunciation of new words.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
9.	Reversals (e.g., saying "saw" for "was") are significant problems in the teaching of reading.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
10.	It is a good practice to correct a child as soon as an oral reading mistake is made.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
11.	It is important for a word to be repeated a number of times after it has been introduced to insure that it will become a part of sight vocabulary.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
12.	Paying close attention to punctuation marks is necessary to understand story content.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
13.	It is a sign of an ineffective reader when words and phrases are repeated.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD
14.	Being able to label words according to grammatical function (Nouns, etc) is useful in proficient reading.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
		SA					SD

- | | |
|--|--|
| 15. When coming to a word that's unknown, the reader should be encouraged to guess upon meaning and go on. | <u>1 2 3 4 5</u>
SA SD |
| 16. Young readers need to be introduced to the root form of words (run, long) before they are asked to read inflected forms (running, longest). | <u>1 2 3 4 5</u>
SA SD |
| 17. It is not necessary for a child to know the letters of the alphabet in order to learn to read. | <u>1 2 3 4 5</u>
SA SD |
| 18. Flashcard drills with sightwords is an unnecessary form of practice in reading instruction. | <u>1 2 3 4 5</u>
SA SD |
| 19. Ability to use accent patterns in multisyllable words (pho' to graph, pho to' graphy, and pho to gra' phic) should be developed as part of reading instruction. | <u>1 2 3 4 5</u>
SA SD |
| 20. Controlling text through consistent spelling patterns (The fat cat ran back. The fat cat sat on a hat.) is a means by which children can best learn to read. | <u>1 2 3 4 5</u>
SA SD |
| 21. Formal instruction in reading is necessary to insure the adequate development of all the skills used in reading. | <u>1 2 3 4 5</u>
SA SD |
| 22. Phonic analysis is the most important form of analysis used when meeting new words. | <u>1 2 3 4 5</u>
SA SD |
| 23. Children's initial encounters with print should focus on meaning, not upon exact graphic representation. | <u>1 2 3 4 5</u>
SA SD |
| 24. Word shapes (word configuration) should be taught in reading to aid in word recognition. | <u>1 2 3 4 5</u>
SA SD |
| 25. It is important to teach skills in relation to other skills. | <u>1 2 3 4 5</u>
SA SD |
| 26. If a child says "house" for the written word "home", the response should be left uncorrected. | <u>1 2 3 4 5</u>
SA SD |
| 27. It is not necessary to introduce new words before they appear in the reading text. | <u>1 2 3 4 5</u>
SA SD |
| 28. Some problems in reading are caused by readers dropping the inflectional endings from words (e.g. jumps, jumped). | <u>1 2 3 4 5</u>
SA SD |

Appendix D

Grade 1

November 21, 1988

Teacher: 01

Observer: cmg

Beginning time: 8:30

Ending time: 10:00

The teacher is stationary at her desk unless otherwise specified.

The teacher is wearing a peach sweater, black slacks, a gold necklace, and black heels.

The classroom is neat and organized.

Things appear extremely formal in this classroom.

8:30

10 students are in the room with the teacher.

Teacher's helper enters -- directions are given to her as how to grade reading tests and where to record the scores.

8:33

Teacher sharpens pencils for students who have lined up for her to sharpen their pencils.

8:34

Students who have money for the Book Fair are dismissed. Four students leave the room.

Mark goes to the front and the teacher helps him with his spelling words.

"home" like house
"how" rhymes with now
"have"
"good"
"my"

"I told the children now we make a _____. What does it mean?"

"Good." "That's right Mark."

Teacher works one-on-one with Mark. Mark read with the teacher. Teacher helps Mark understand the meaning of each sentence.

"Don't say house. What else do you call a house?"

"No, what else could you say?" "It's a spelling word Mark."

Mark is talking so quietly I can't hear his answers.

Mark misses a word. "No, it's a spelling word from last week, a size word." "Big." "Yes, that's right."

Teacher: "What was the surprise?"

Mark: "A hat."

Teacher: "Yes, it's a hat, a cowboy hat."

8:40

Teacher: "Jason I'll help you."

Jason goes up to her desk.

Teacher: "First of all say the spelling words."

"Rhymes with now."

"What word means that it belongs to you?"

I can't hear anything that Jason is saying if he is saying anything.

Teacher: "Good."

Teacher: "The title of our story is....."

Teacher: "So pig invites the fox."

Jason doesn't know the word--my.

The teacher helps him understand the meaning of the word by using it in association with his pencil.

Teacher: "So pig gave him a surprise."
"And fox is excited and says."

Jason: "Surprise."

Teacher: "You are doing good work."

Teacher: "Today we are writing it on the writing paper instead."

Teacher: "I need to see Eric for a minute please."

Teacher: "Eric, check your spelling words. Take a paper and write your spelling words on it."

Teacher: "I can't have a blank line Kim. Work, work, work. Look for that missing word."

Kim goes back to her desk.

8:45

3 children enter room. They take notebook paper off the teacher's desk.

Teacher: "Eric, did you find it?" "One of the spelling words you wrote is wrong. Check each word to see where your mistake is and fix it."

Teacher: "Nicki, I guess you need to read your spelling words to me."

Teacher: "The title of the story is..."
Nicki reads the title.

Teacher: "Asks -- "who."

WHILE NICKI IS READING ORALLY THE FOLLOWING
CONVERSATION TAKES PLACE.

Teacher: "Yes, you found it. Thank you Eric."
"Jason you need to work. Keep busy."
"Nicki, it's what you are doing with the reading teachers short e sounds?"

Pick up your spelling paper when you are done with your other work."

8:50

Teacher: "Shea, will you listen to me?"

Teacher: "What was the surprise?"

Nicki: "A hat."

Teacher: "Jason, use the words in the cloud."

Teacher: "Excuse me Mark, you need to raise your hand."

Mark: "What do I do if I've made a mistake?"

Teacher: "Turn the paper over and you have one more chance to do it correctly."

Teacher walking back to round table.

Teacher: "Kim, did you pick up your worksheets, you were a little late coming in."

Teacher: "Eric, I need to see you please."

Teacher: "Children use your green paper for your spelling words. This will be your writing grade for today so please do a good job. I think you hurry too fast. This letter goes over the line. This one doesn't touch the line. Write these words over again."

Teacher: "Shay, I need you for a moment please."
"Write home one more time. Take your time and then let me see it again when you've rewritten it."

8:55

INTERCOM ANNOUNCEMENT: "Send students to buy lunch cards."

3 students leave the room.

Teacher: "Heather, you ought to know these spelling words. We had some of them last week."

Student approaches the teacher's desk with paper.

Teacher: "No there are five words. You left one out. Go find it and put it in here."

(Teacher is speaking with an IMPATIENT tone of voice.)

Teacher: "Heather, read this sentence to me. Is that right? Now go back to your seat."

Teacher: "I need Kim please."

Kim: "What were the spelling words?"

Teacher: "Find it. Underline it. Number it."

(Teacher is speaking with an IMPATIENT tone of voice.)

Teacher: "We've done this over and over and over Kimberly."

9:00

7 new students enter the room and cluster around the teacher's desk.

Teacher: "What are the spelling words?:"
"I'm waiting until you say them."

Students read the spelling words in unison.

Teacher: "Did you find the 's' word Jeramie?"
"What is it?"
Jeramie didn't know.

Teacher: "Do your reading paper first and then do
your spelling."

9:03

Students who just returned from speech were told to go
to the Book Fair if they had money. Several left.

9:05

Teacher: "Jeramie, come and read the spelling paper
to me."

"You need to read it."

9:06

Casey enters the room.

Teacher: "Casey you need to do a spelling paper.
Read your story."

"I don't know."

Teacher: "Do your spelling paper and then you can
read it to me."

Teacher: "Fill up the line with spelling words after
you find them in order Casey."

9:07

Teacher: talking to Jeramie "We need to say the
spelling words again."

Jeramie: he gives the wrong words.

Teacher: "Let me say them first Jeramie and then you
say them after me."

Casey approaches the teacher's desk again to show her
an old healing injury. The teacher ignores Jeramie's
reading and converses with Casey. This becomes an
elongated conversation with Jeramie reading aloud
during the entire conversation.

A little girl is doing a cut and paste project that no one else is doing. She completes it and goes and washes her hands and then returns to complete her other seatwork.

9:10

Someone sticks head in the door and makes a comment about lunch tickets.

Teacher: "Okey Casey, toss it in the trash and get another one."

9:11

Teacher: "I need to talk to Suzanne."
"These words need to be listed in order."

Teacher: (With a HARSH tone of voice.) "I need Joy."

Teacher: "Gobble up some math." "That's what the math sheet says."

Teacher: "J.R., I didn't have time to help you, but I'll help you now."

9:15

Another teacher enters and asks about whether or not the teacher ordered a teacher's manual. Paper ordered cost \$8.00. Discussion takes place between the two teachers as to how high the price is. It was \$4.00 per ream.

9:18

3 children have lined up behind J.R.

Teacher: "Children what do you need?"
"Go to your seats and finish up your seatwork."

Jennifer goes for a spelling paper.

Teacher: "Now Jennifer you work on that spelling paper."

Children randomly approach the teacher's desk to turn in work sheets.

Children randomly use the restroom in the back of the classroom.

9:20

Teacher: "We need to get ready for reading classes."
"Take your reader, your pencil, and your
spelling sheet."

Suzanne goes to purchase a lunch card.

Teacher: "I don't have the orange card. You will
have to get it from Mrs. T. She passed
them out when you were absent."

9:22

6 students enter to join the reading group.

6 more students enter to join the reading group.

19 students are present altogether for this reading
group.

Donnie sent to get his supplies.

(Teacher is speaking with an AGITATED tone of voice.)

Teacher: "What is that word?" "You wrote it that
many times and still don't know it. It
didn't do you any good to write it did it?
Take it with you."

Little boy brought a paper without a name.

Teacher: "Donnie your name isn't even on that paper.
You better get it together."

The teacher circulates to staple the glue and paste
papers. Then the papers were passed up by rows.

Teacher: "Didn't you get your papers done Teresa?"
"Quickly, we're wasting alot of time."

ROCKET'S READING GROUP:

9:25

Review of sounds learned so far. Board work letters
used.

Teacher: "Today we have our last phonogram." "op
phonogram."

The teacher took "st" put in front of "op"
ball. Made "stop".

Teacher: "Over on the chart are some more "op" words. You need to practice reading the page on the chart."

Ricky reads sentence one.
Justin reads sentence two.
George has a problem reading sentence three.
(teacher scolds George)
_____ reads sentence 4.
Justin reads sentence 5.

Jesse reads vocabulary words.

9:32

Teacher: "Okey, It's listening time."
The teacher reads aloud and then asks children to answer questions about the story she just read aloud. If a child gives the wrong answer no comment is made, but the question is repeated to someone else.

9:33

First bell sounds.

9:35

Second bell sounds.

Chart words:

fast
fish
path
lunch

Teacher: "You can guess at the word."

1. This is how you walk.
2. This is something that lives in water.

Teacher: "Donnie are you watching the chart?" Donnie wasn't paying attention so was told to turn around and pay attention.

3. You may walk along this in the woods.
4. This is the name of a meal.

Teacher: "Wrong sound." "No sense."

Teacher: "Brook read sentence number one."

Teacher: "Careful, careful -- NO SENSE!"

9:40

Teacher: "Amber read sentence number four."
"George, what is this word?" (Here -- he didn't get it.)

Teacher: "Help her class -- toy top -- toy shop."

9:45

The teacher stood in front of the class and had more enthusiasm in her voice.

The teacher read aloud a poem about riding the bus in town.

Teacher: "If you've never done this just imagine it."

9:47

Teacher: "Open your practice books now please."
"If you've been absent and missed some pages you will need to make them up in the next little while, but you can't do it in reading class."

Teacher: "We need to be on what page?"

Students answer in unison, "Page 36."

9:50

Teacher: "Dawn needs a pencil. She will need to borrow one."

Teacher is walking around the room.

Teacher: "New skill word is op."
"On this page you are supposed to read the dark black words and circle the picture that goes with that word."

Silence for a minute or so.

Teacher: "Move the page Donnie. You are poking around."

Teacher sharpens a student's pencil.

Teacher: "This pencil won't sharpen. You got cheated when you bought this one so I'll loan you one."

The teacher rereads directions to a student who doesn't understand what to do.

9:52

The teacher goes desk to desk and checks the completed page.

Student's sit quietly and wait to have their papers checked.

Teacher: "We are doing one skill on that page Josh. Look up at the board they were underlined. Now they are printed in bold letters."

9:54

Teacher: "On the next page. Alright on page 37 you need to look at the picture and read the sentence. You have three things to do:

1. read,
2. circle the word,
3. write it on the line.

Teacher: (approaching Donnie's desk) "These are write-on lines just like with writing paper. Think about your letters fix them."

Teacher: (approaching Justin's desk) "F and i aren't the same size. You have the right words Justin you just don't have them written down right on the write-on lines."

Teacher: "George move, move, move. You are behind, way behind. "You aren't"

9:58

The teacher approaches the board and demonstrates how to use the write-on spaces. fish

10:00

The children are erasing and correcting write-on lines.

Teacher: "Erase and put the words on the write-on lines."

The time is finally up and I am weary of writing.

Grade 2
Teacher 5
Beginning time: 8:30

April 10, 1989
Observer: cmg
Ending time: 10:00

8:30

Teacher: "We are going to review for next week. Next week we take the Stanford Achievement Test. Patsy, can you tell me the answer?"

Teacher: Writes $5 - 3$ on the board.

Patsy: $5-3=2$

Teacher: "She gave me a number family, could she have given me any other number?"

Student: Unless it's double one, add 5,2,3

Teacher: "One subtraction."

Student: $5-3=2$

Student: $5-2=3$

Teacher: "Where should your... We talked about **Selective Attention** this morning. I can't force you, but I can remind you."

Teacher: "Jeramie what are the numbers?"

Jeramie: $+2=5$
 $2+3=5$

Teacher: "Could I say $3-5=2$?"

Russell: "No. 5 is bigger than 3."
When we are saying number families, we can only give _____ the numbers."

Teacher: "16 9 7."

Teacher: "Write down two addition problems."

Jeramie: "Show me the two addition problems."

Teacher is circulating around the room checking on work.

Teacher: "Brad, two addition problems."

Teacher: "Wilma, you weren't here when we talked about this. Do you understand what we are talking about?"

Wilma: "No."

Teacher: Does indepth individual instruction. Using old examples.

3 students out of seat asking for feedback.

Teacher: "If you have these two addition problems finished, write two subtraction problems using the same numbers."

Teacher: "That's great."

Teacher: "Let me show you how Russell wrote. That is his plan for writing his problem. Is it wrong?"

Teacher: "No."

Teacher: "Remember two addition and two subtraction problems for each set of numbers."

Teacher still circulating and reviewing as individual problems come up.

Teacher: "Proceed with your number sentences."

Teacher: "It's better to make a mistake when we're reviewing this week than when we're taking the test next week."

Student: "What will happen if someone gets an F on the test?"

Teacher: "I don't think we need to worry about that. No one will get an F."

2 students sharpen pencils.

Teacher: "Finish your spelling when you are through with this review."

3 hands up for help.

9:00

Teacher: "Put everything away quietly and get ready for reading."

Teacher: "Line up by groups.
Mrs. Nelson is the front.
Then Mrs. Seaton.
Mrs. Woolard at back."

Teacher: "Rhonda and Charity help, pass out reading books."

OBSERVATION of room decorations: Becoming Better Learners board -- **SELECTIVE ATTENTION.**

Teacher: "If you made your puppet, put it on top of your book."

8 sock puppets are put of top of reading books.

Student: "How do you change reading groups?"

Teacher: "You rotate every 12 weeks."

Teacher: "We got two new students in reading today. Jonathan, new boy. Joseph isn't new. He left for a few weeks and came back.

Teacher: "Did you move back into the same house?"

Joseph: "Yes."

Teacher: "This was a week-end assignment. Take Sunburst home and make a puppet."

Jason: (talking to new boy Jonathan)

Teacher: "I'm going to give you four extra days. By Friday your puppet is due, see page 162 for the directions."

Teacher: "Let's read the directions and what is the title Misty?"

Student: "Following directions."

Teacher: "What did you do first?"

Misty: "Got a sock."

Teacher: "What kind of a sock?"

Misty: "An old clean sock."

Teacher: "What did it say next?"

Misty: "Get a piece of cardboard."

Teacher: "Read the rest of the page."

Misty: She read directions aloud for placing the piece of cardboard in the sock. Put buttons on the top.

Teacher: "How many sewed the buttons on themselves? How many had help?"

Teacher: (Hippo) "How many used rubberbands to make ears?"

Teacher: "I've got buttons and rubberbands. If you need them get them from me."

Teacher: "David, read the rest of the directions."

David: Read the rest of the directions.

David: Showed buttons.

Teacher: "How many of you have puppets to show?"

Students: David, Patsy, Brent (a snake), Jason, Anna, Miranda, Charity, Wanda, Summer, Jacob (a snake), Alicia, Cliff, Misty (put mouth on hers), Casey (put a long head on his).

Teacher: "Are there any more puppets from Mrs. Woolard's room?"

Teacher: "Take your puppets off and put them on the top of your desk."

9:15

Teacher: "Those who go to reading may go now."

3 students left.

Teacher: "ie will say long e or long i."

Teacher: "We will review this for the sake of the two new boys in our reading class."

tried	cried
believe	cookies

Worked from chart on the board:

1. Yellow-eyed daisies were growing near the woods.
2. Peppy likes to lie in the sun.
3. Carla's family spent a brief time at the beach.
4. Both of these stories are interesting.
5. You'll find all kinds of jellies on that shelf.

Teacher: "Jonathan, would you like to take a try at this sentence?

Teacher: "Joseph, would you like to?"

Joseph had a hard time but figured out brief and spent.

Teacher: "What does brief mean?"

They didn't know so the teacher proceeded to teach the meaning of the word.

Brook: (boy) read sentence #4.

Stephanie: read sentence #5.

Teacher: "Anytime we have a word that ends in f and you want to make it more than one what do you do?"

Jeramie: "Change the f to a v and add es."

Teacher reviewed this and demonstrated it on the board.

leaf
leaves

life
lives

elf
elves

OBSERVATION: Teacher is left handed and made an e like a c and then added a - to complete the letter.

Teacher: "Read the sentence and correct the words. Circle the correct ie word that makes sense in the sentence."

Teacher: "Think about what you are doing."

If they gave a word that doesn't have an "ie" it can't be that word.

Teacher: Passed out "re" assessment test p.26. Test copies were very poor quality of copy.

The reading class was comprised of:

14 girls

12 boys

Teacher: "Joseph, put your feet down before you fall."

Teacher: "When you are done put your papers on my desk."

Jacob didn't bring a pencil so hasn't started his assignment and almost everyone else has turned it in.

9:30

Teacher discusses proper procedure with Jacob and loans him a pencil.

Teacher: "Open your Sunburst reading book to the page I've written on the board, p. 165."

Teacher: "OK. Everyone is through."

Teacher: "We're fixing to start the last magazine."

Teacher: "How many magazines in the book?"

Student: "Three."

Teacher: "How many have we finished?"

Teacher: "New word - Moonglow - what does it mean?"

Teacher: "What animal is pictured on this page?"

Student: "An owl".

Teacher: "Why?"

Brad: "They are out at night. They sleep at day time."

Teacher: "Turn the page. How many stories are listed?"

Buzzer - interruptions, two of them ring within two minutes.

Student:	"Story	4
	Poems	4
	Informational article	1
	Skill Lessons	2."

Teacher: "Jonathan, tell us how did it make you feel when _____ (Couldn't understand.)?"

Jonathan: "It was fun. We went through a lot of states. I liked it."

Teacher: "Joseph, how did it feel when you _____?"

Joseph: No response.

Teacher: "Stephanie is new, how did it feel?"

Stephanie: "Good. I had been driving to Knoxville every day. I was kind of scared when I went into Knoxville but now I like it alot."

Teacher: "Rhonda, were did you go?"

Rhonda: "Chattanooga."

Teacher: "What might you have been scared of?"

Rhonda: "Students, teacher, new house, new kitchen and new bedroom, built new room on the house, summer, moved from Oklahoma, principal."

Teacher: "In the story we're going to read today is about a new boy in the neighborhood. On Friday how may of you went up to Jonathan and introduced themselves?"

Teacher: "One, Jason."

9:35

Interruption.

Student: "Joey fighted with him."

Teacher: "In this story we're going to find out how the new boy made friends."

Students: (List names of characters in the story):

Hollie
Winnie
John
Alex
Panic - the dog

Teacher: "Jason, if you talk I can't hear you so please put your hand up."

Teacher: "Panic means?"

Brad: "Scared."

Miranda (girl): "Fear or afraid."

Teacher: "Why would anyone name a dog Panic? Turn and look on page 167 for the title."

Greg: (Read title) "The Case of the Stolen Code Book".

Jason explains how he used a code in Boy Scouts.

Teacher: "How would you read a code?"

Wanda: "It would have numbers and letters."

Teacher: "If you have a code how can you read it? You need an explanation of the meaning. What kind of story?"

Student: "Mystery. Like TV detective shows."

Teacher: "Turn the page to 168 and see the characters I've listed on the board. Read to find out what the new boy picked up out of the yard when the children left the yard. Read 167-170 to find out what the new boy picked up."

9:45

Children reading quietly. Teacher is modeling reading by reading the story too.

9:50

Waiting for all of the students to finish reading the assigned pages.

Teacher: "Alisha, what did the new boy pick up?"

Alisha: "Secret Agents Code Book".

Teacher: "Brad, what would be in this code book?"

Brad: "Codes."

9:52

Interruption - announcement to come to the commons to pay all lunch charges.

Teacher: Charity read paragraph about what the new boy does.

Charity: "He grins when they come by".

Teacher: "Look on page 168 and see what John and Alex do when the new boy calls them."

Student: Girl reads the paragraph.

Winnie - black girl
John - black boy
Alex - glasses

Teacher: "Did any answer him?"

Chorus answer: "No."

Teacher: "What does Winnie say when she calls the group to order on page 169?"

Jeramie: (I couldn't understand the answer).

Teacher: "No, No, No - what does it say on page 169?"

"Meeting of the Secret Agents come to order".

Teacher: "Stephanie read the last paragraph on this page."

Stephanie: "The new boy is afraid to go over there because of PANIC, the dog."

Teacher: "We have about 8 minutes to play 'Around World'. If everyone will sit down so that everyone can try to go around the world."

First student reads the word then stands beside the next person and they race to read the word.

If they tie, they get another word or as many more words as necessary to win and then move up to vie with the next person. Spent 8 minutes on this.

Appendix E

APPROACH TO TASK

* * * * *

DEFINITION:

the manner in which a person goes about beginning, being involved with, and completing an event, including gathering information, thinking about the situation, and expressing thoughts or actions related to the event

* * * * *

Let's begin our study of the ten Building Blocks of Thinking by focusing on the first Building Block, Approach to Task. This Building Block is easy to see in all three stages of the mental act--input, elaboration, and output.

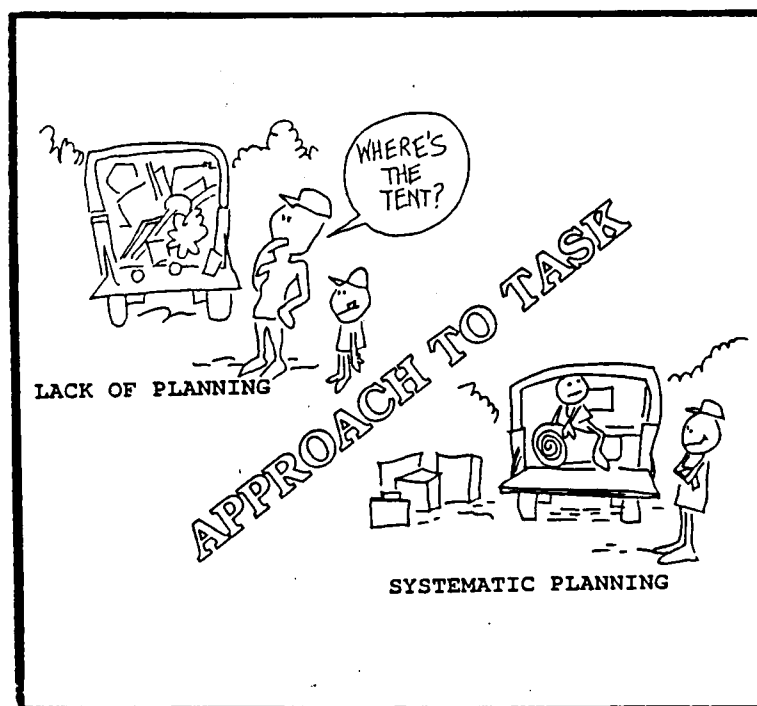
SYSTEMATIC & IMPULSIVE EXPLORATION



In the input stage--when gathering information--
Approach to Task may cause inefficient thinking when it is
displayed as Impulsive Exploration. It aids efficient
thinking when it is displayed as Systematic Exploration.

Impulsive Exploration of a learning situation is one
of the easiest to observe. One reason is that it occurs
so often and greatly affects the completion of activities.
On the other hand, Systematic Exploration of a learning
situation makes learning both efficient and effective-
effective in that most tasks cannot be completed without
gathering all the needed information. Efficient in that
time is not being wasted by having to explore a task over
and over.

SYSTEMATIC PLANNING & LACK OF PLANNING

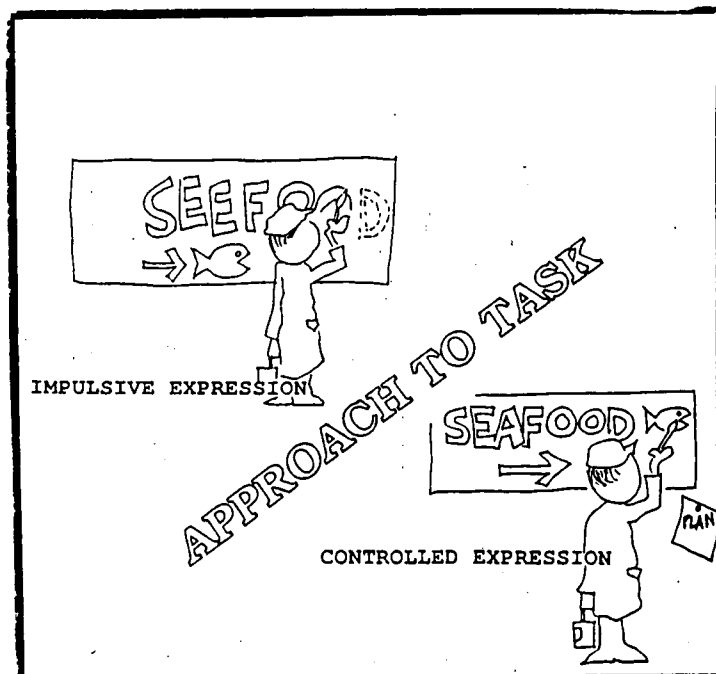


In the elaboration stage of a mental act, Approach to Task may cause inefficient thinking if the child displays a Lack of Planning. If the child uses Systematic Planning, effective and efficient thinking is much more likely to occur.

Lack of planning is fairly easy to observe. Impulsive children almost always display this problem. If a child has difficulty determining the steps to reach a goal and the order of those steps, the child is displaying this problem. Lack of Planning can only be seen in the output stage of the mental act. We cannot observe thinking directly, and yet, Lack of Planning is easy to spot. The child cannot be successful on projects involving more than one step without making use of Systematic Planning behavior.

Systematic Planning is crucial to successful learning--except for very simple tasks. Impulsive behavior cannot occur if a child is actively engaged in making a plan. But Systematic Planning is a learned process. Children need to be taught how to make a plan.

CONTROLLED & IMPULSIVE EXPRESSION



Approach to Task may result in Impulsive Expression or Controlled Expression. A child displaying Controlled Expression will often be correct on her first response. If, however, a child responds incorrectly and then immediately corrects himself, he is probably displaying Impulsive Expression. Messy work is a good example of Impulsive Expression. Rushing through a response to an activity is another example of this.

Often an impulsive child can learn to replace Impulsive Expression with Controlled Expression by learning to think, and by mentally saying, "Ready, set, go!" before responding. This extra time allows the child to think about his response before expressing it.

ADDITIONAL INFORMATION

RECOGNIZING IMPULSIVE EXPLORATION

The inefficient use of Approach to Task at the input stage involves very obvious and observable behaviors. For example, a child who rushes into an activity before you have finished explaining what to do is easy to observe because you will be very aware that you are still giving directions, or, perhaps have not even started to give them. It is also easy to observe when a child is rushing through a task because he will be working quickly while making many mistakes.

Examples:

1. Directions for the activity are to string beads according to a pattern of "two reds, one green, two yellows." The child is stringing beads but not according to the pattern.
2. A child has lost his gloves and is running around the room, stopping suddenly at different (and sometimes the same) places while looking for them.

Note: 1) Impulsive exploration occurs so often and makes such a tremendous difference in successful completing of activities that it never hurts to concentrate on it even if another Building Block used at an inefficient level really caused the problem.
2) Impulsive exploration can occur at any time a child is gathering information in order to think, not just when given directions for completing a task at school.

* * * * *

Characteristics to look for:

- * Responding before the question or instructions have been completed
- * Gathering only bits and pieces of information
- * Rushing through the task

* * * * *

MEDIATING SYSTEMATIC EXPLORATION

Systematic Exploration of a learning situation can be encouraged through the use of MLE. In this case, the child needs mediation on how to determine what information is needed in order to become successfully involved in the activity.

For example, if a child is getting ready to work an unfamiliar puzzle, you could help him carefully analyze each part of the picture the puzzle makes. In order to do this, the child will have gathered information about this puzzle and will be able to determine much more easily where the pieces will go when it is time to put it together.

Another helpful technique can be used when asking questions in a group setting. Simply state the question without calling on any child to answer. Wait at least three seconds and encourage all the children to think about their answers. Then call on one child to respond. Do not allow anyone to state his answer until you call on

a person. Praise children for taking time to think.

A similar technique is helpful when children are working independently. Teach them to say "ready, set, go" (as discussed above) before beginning to work. Encourage them to use this time to be sure they do not need to gather more information and are actually ready to begin working.

Another approach is to have the children tell you the instructions you have just given in their own words. This will allow you to check as to whether or not they gathered all the information needed to follow directions carefully.

* * * * *

Tips for Mediating

- * **Never allow children to answer a question or begin an activity before you have finished asking or explaining**
- * **Insist that children take time to think before beginning an activity or answering a question**

* * * * *

RECOGNIZING LACK OF PLANNING

Lack of Planning behavior is fairly easy to observe.

Examples:

1. Child cannot tell you a logical ending to a story you have just read
2. Child cannot tell you what he is going to do when he gets to the art center

* * * * *

Characteristics to look for:

- * Lack of ability to anticipate the outcome of behavior
- * Difficulty establishing goals
- * Difficulty determining the appropriateness of steps to reach a goal
- * Difficulty determining the order of steps to reach a goal

* * * * *

MEDIATING SYSTEMATIC PLANNING

Systematic Planning behavior is one of the most important Building Blocks to help children use on a frequent basis. Impulsive behavior cannot occur if a child is actively engaged in making a plan.

It is helpful to ask the children to tell you two or three steps for their plan just before beginning a task, and then to carry out those steps while using their plans. Have the children discuss what they will do first,

second, and third.

Tips for Mediating:

- * Help children learn to anticipate the outcome of events by discussing what is going to happen before an activity begins.
- * Help children learn to establish a plan for one activity as well as groups of activities.
- * Tell children your plans for activities.
- * Help children learn to select steps for reaching goals which are suitable in terms of investment, feasibility, and other criteria.
- * Help children discuss what they will do first, second, etc. in order to reach a goal.

RECOGNIZING IMPULSIVE EXPRESSION

Impulsive expression of thoughts and actions is readily observable at the output stage. The difficulty comes in knowing if that is where the impulsivity originated. Asking questions to determine if the child really knows the correct answer will help you determine if the impulsivity is occurring at this stage.

A child displaying this inefficient function may be able to respond correctly in one modality (gesturing) but incorrectly in another (orally responding). If a child responds incorrectly and then corrects himself with no hints from others, he is probably displaying Impulsive Expression.

Examples:

1. Child gets all mixed up while telling you about something that happened to her which she clearly understands.

2. Child makes many careless errors.

*** * * * ***

Characteristics to look for:

- * Responding correctly in one form of expression (e.g. oral) but incorrectly in another (e.g. drawing)**
- * Responding incorrectly when information is gathered and thought about correctly**
- * Immediately changing an incorrect response**
- * Producing messy papers and art work in learning activities**
- * Rushing through a response**

Note: Impulsivity can occur during any stage of the mental act. It is readily observable at the output stage if one checks to see if the child can, in fact, derive a correct answer. Many children are thought to be incapable of a task when the real problem lies in their difficulty in expressing the response.

MEDIATING CONTROLLED EXPRESSION

Controlled Expression of thoughts and actions is incompatible with Impulsive Expression. Often an impulsive child can learn to use Controlled Expression by applying a similar strategy as described under Mediating Systematic Exploration: counting to five before responding. The extra time allows the child to think about her response before expressing it.

Teachers can encourage thinking before responding by always waiting a few seconds after asking a question

before calling on a child to answer the questions. The children should be told that this is thinking time, and that thinking time is needed even by those who know the answer immediately. Controlled Expression should be taught on a regular basis rather than waiting for the children to display impulsivity. Otherwise, Impulsive Expression may become a habit that will then need to be continuously discouraged. The teacher should emphasize as well the input stage function of Systematic Exploration on a regular basis. Controlled Expression and Systematic Exploration are very easy to teach together. For young children especially, the inefficient use of Approach to Task at all three stages of the mental act occurs more often than with most other Building Blocks.

* * * * *

Tips for Mediating:

- * Help children use their best form of expression to guide them in developing good use of other forms.**
- * Help children develop a plan for sharing their responses correctly.**
- * Help children control impulsivity by counting, checking work, or using some other plan for giving oneself time to organize behavior after thinking, but before responding.**

* * * * *

Appendix F
M E M O R A N D U M

TO: COGNET MLE Instructional Approach Teachers

FROM: Cynthia M. Gettys, COGNET Evaluation Coordinator

DATE: May 11, 1990

As we near the end of the school year I am in need of some detailed input from you concerning your implementation of the **COGNET MLE Instructional Approach Curriculum** in your own individual classrooms. Because of the overall low return rate of the **Mini Lesson Plan Implementation Report Forms** I have developed another method to measure the level of actual implementation of **COGNET MLE Instructional Approach Curriculum** in your individual classrooms. The **COGNET MLE Instructional Approach** was designed to benefit you, the teacher as you endeavor to teach children to learn how to learn.

We plan to make some implementation adjustments for next year based on your ideas so this open ended questionnaire as well as individual teacher interviews will serve not only as an implementation measurement tool for the 1989-1990 school year, but will also serve as a formative evaluation tool of the **COGNET MLE Instructional Approach Overlay Curriculum**. Your input will help us make structural changes in our implementation schedule for the 1990-1991 school year.

Thanks so much for your cooperation and dedication to the implementation of the **COGNET MLE Instructional Approach Overlay Curriculum**.

IMPLEMENTATION QUESTIONNAIRE

1. How do you implement COGNET in your classroom?
 - _____ consistently (discuss COGNET Building Blocks and Tools daily)
 - _____ sporadically (discuss COGNET Building Blocks and Tools only once in a while or go several days between discussions)

2. How many COGNET Mini Lesson Plans do you regularly use in a given day?

_____ 4 or more a day

_____ 3 a day

_____ 2 a day

_____ 1 a day

_____ sporadic use, never more than 1 or 2 in a given day

_____ other: _____

3. How many Mini Lesson Plans do you regularly use in your classroom each week?

_____ about 20 a week

_____ about 15 a week

_____ about 10 a week

_____ about 5 a week

_____ less than 5 a week

_____ sporadic use, never more than 2 or 3 per week

_____ other: _____

4. How many times a day do you regularly bridge from a principle?

_____ 4 times per day

_____ 3 times per day

_____ 2 times per day

_____ 1 time per day

_____ less than 1 time per day

_____ almost never

_____ other: _____

5. How many times a day do you cluster when working with the Building Blocks and Tools?

_____ 4 times per day
_____ 3 times per day
_____ 2 times per day
_____ 1 time per day
_____ less than 1 time per day
_____ almost never
_____ other: _____

6. Approximately how many of the Mini Lesson Plans have you used during the 1989-1990 school year?

_____ all 240 Mini Lesson Plans
_____ about 200 Mini Lesson Plans
_____ about 160 Mini Lesson Plans
_____ about 120 Mini Lesson Plans
_____ less than 120 Mini Lesson Plans
_____ other: _____

7. How many times did you use all of the Mini Lesson Plans?

_____ more than twice
_____ twice -- one each semester
_____ once -- half each semester
_____ less than once during the entire school year

8. Has your level of Mini Lesson Plan implementation?
- _____ increased
- _____ decreased
- _____ stayed about the same
9. Has your level of bridging from a principle?
- _____ increased
- _____ decreased
- _____ stayed about the same
10. What is the easiest component of COGNET to implement?
11. What is the hardest component of COGNET to implement?
12. What changes could be made to make COGNET easier to implement?

INTERVIEW QUESTIONS

1. How would you describe the goals of COGNET?
2. How would you describe the teaching instructional approach referred to as **Mediated Learning**?
3. When involved in a **Mediated Learning Experience** in a school setting, who is the **Mediator** and what is the responsibility of the **Mediator**?
4. Do your classroom course goals reflect the goals of the **COGNET MLE Instructional Approach**?
5. How do the **Building Blocks of Thinking** affect learning?
6. How do the **Tools of Independent Learning** affect learning?

7. What is the difference between the **Building Blocks of Thinking** and the **Tools of Independent Learning**?

8. Do you think some other faculty and staff members at this school site should be trained in the implementation of the **COGNET MLE Instructional Approach**?

9. What, if any changes, have occurred in your attitude toward teaching after your involvement in the **COGNET MLE Instructional Approach**?

10. What, if any changes, have occurred in your expectations of student learning after your involvement in the **COGNET MLE Instructional Approach**?

Appendix G
M E M O R A N D U M

TO: Teacher's
FROM: Cynthia Gettys

Thank you so much for helping us with our research by administering the **Heathington Primary Reading Attitude Scale** to the students in your classroom. The Reading Scale consists of twenty questions which you are to read to your students. After listening to each question which begins with the words "How do you feel. . .", the students are asked to mark one of the five faces (ranging from very unhappy, to unhappy, to neutral, to happy, to very happy) which shows how he/she feels about the question.

The following directions should be followed to administer the **Heathington Primary Reading Attitude Scale**:

"Your answer sheet has two sides. Side one goes from number 1 to number 10, side two goes from number 11 to number 20. Beside each number are five faces: a very unhappy face, an unhappy face, a face that's neither happy nor unhappy, and a happy face. I will ask you how you feel about certain things and you will put an X on the face that shows how you feel. Suppose I said, "How do you feel when you eat chocolate candy? Which face shows how you feel? Someone may have chosen an unhappy face because he/she doesn't like chocolate candy; someone else may have chosen a happy face because he/she likes chocolate candy. Now I'll read some questions to you and you mark the face that shows how you feel about what I read. Remember to mark how **YOU** feel because everyone does not feel the same about certain things. I'll read each question two times. Mark only one face for each number. Are there any questions? Now listen carefully. Number 1...".

The scale items are:

How do you feel . . .

- (1) When you go to the library?
- (2) When you read instead of playing outside?
- (3) When you read a book during free time?
- (4) When you are in reading group?
- (5) When you read instead of watching TV?
- (6) When you read to someone at home?
- (7) About the stories in your reading book?
- (8) When you read out loud in class?

- (9) When you read with a friend after school?
- (10) When you read stories in books?

Please turn your answer sheet over now.

How do you feel . . .

- (11) When you read in a quiet place?
- (12) When you read a story at bedtime?
- (13) When it's time for reading group?
- (14) When you read on a trip?
- (15) When you have lots of books at home?
- (16) When you read outside when it's warm?
- (17) When you read at your desk at school?
- (18) When you find a book at the library?
- (19) When you read in your room at home?
- (20) When you read instead of coloring?

Thank you so much for administering the **Heathington
Primary Reading Scale** for me.

VITA

Cynthia Miller Gettys was born in Washington, D.C. on February 2, 1944. She attended elementary schools in Orlando, Florida and Lansing, Michigan. In 1961 she graduated from Adelphian Academy in Holly, Michigan. She received a Bachelor of Science degree in Elementary Education and Home Economics from Andrews University in 1965. In 1981 she was awarded a Master of Arts degree in Education by Western Carolina University, Cullowhee, North Carolina.

Mrs. Gettys taught in the public schools of Michigan and North Carolina for thirteen years. Her teaching experience encompasses all grades one through six as well as math and English at the high school level. She served on the North Carolina Competency Test Commission which developed the North Carolina High School Competency Test and served as a Competency Coordinator at the high school level for two years in Catawba County. While teaching in North Carolina she was active with the Catawba County and Henderson County Education Associations. She was president-elect of the Henderson County Educational Association in 1987. In 1987 she began a doctoral program at the University of Tennessee, Knoxville. She was awarded the Doctor of Philosophy degree with a major in Education in August 1990. She is employed as the Evaluation Coordinator with the COGNET Project.