A COMPARISON OF THE EFFECTS OF TEST-TAKING STRATEGY

INSTRUCTION ON GOAL ORIENTATION, SELF-EFFICACY,

AND TEST ANXIETY BETWEEN SECONDARY

STUDENTS WITH AND WITHOUT

LEARNING DISABILITIES IN

DIFFERENT LEARNING

ENVIRONMENTS

By

BARBARA ANN POYNTER

Bachelor of Science
Phillips University
Enid, Oklahoma
1965

Master of Education
University of Oklahoma
Norman, Oklahoma
1989

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
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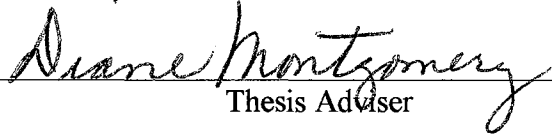
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Thesis Adviser

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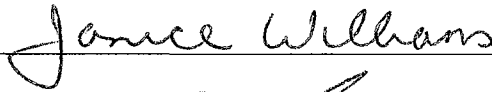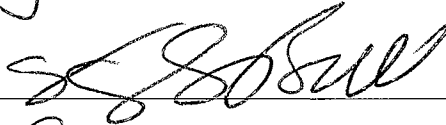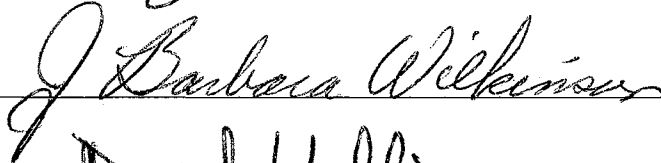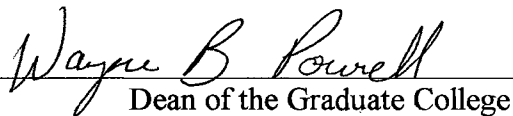
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Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Efforts to restructure schools and reform education challenge schools to offer inclusive programs and curricular interventions for teaching higher order thinking to all students, thereby expanding opportunities available to special education students (Carnine, 1991; U.S. Department of Education 1991). Making inclusion successful includes many factors involving both regular and special education teachers (Cosden, 1990), instructional strategies (Montague, 1993), and curriculum instruction (Jenkins & O'Connor, 1991; Rieth & Polsgrove,1994). Education programs by necessity must serve a diversity of students, maximize development, and increase the learning of all students. The proponents of inclusion visualize an educational setting where all students can learn and succeed regardless of their individual differences. Cognitive strategy models for teaching secondary students with learning disabilities have been developed, researched, and field-tested to validate the efficacy of the various instructional strategies (Wong, 1993).

Inclusion for students with learning disabilities demands a differentiated curriculum that addresses their specific learning needs. Much research has focused primarily on strategy instruction in the resource room isolated from the regular education class curriculum (Reid & Leamon, 1996; Schumaker & Deshler, 1988). Models that have integrated strategy instruction into content instruction have raised many questions for educational researchers who believe that using strategy instruction to teach content areas to adolescents with learning disabilities is an unattainable goal. Data is needed to support the important elements of the models including the issues of what constitutes a through and valid model as well as how to implement it (Hutchinson, 1993). Advantages for teaching strategies in content classes include increasing student motivation and goals for learning the strategies when they specifically relate to the content of an academic task

(Wong, 1993), assisting the students with learning disabilities to perceive the relationship of general strategies to school tasks and, finally, discovery by the student that learning content information facilitates learning problem-solving strategies (Alexander & Judy, 1988). Ellis's (1993b) contention is that learning strategies need to be taught in a unified manner so students can extend the "strategy sameness" into new problem-solving domains. Promising interventions have a major limitation in that they are implemented in highly structured special education resource rooms and may not be transferable to inclusion classes (Schumaker & Deshler, 1988). An additional problem with instructional models taught in special education resource rooms is that students frequently fail to generalize the strategy training to inclusive content classes (Niedelman, 1991).

Numerous studies have indicated that students with learning disabilities have deficient test-taking skills (Alley, Deshler, & Warner, 1979; Hallahan, Kaufman, & Ball, 1973; Scruggs & Lifson, 1985). Since one of the most frequent problem-solving situations in school is taking tests, an ultimate goal of Lee and Alley's study (1981) was to present a test-taking strategy to secondary students that would minimize test anxiety. Another goal was to increase students' test-taking skills and, thereby, possibly increase students' academic motivation and self-efficacy as well (Butler, 1987). Hughes (1985) demonstrated that test-taking strategy instruction can increase scores on unit tests in content areas and increase the level of academic performance as measured by the test scores of subjects in their regular education classes. Wong (1993) and Walsh (1993) suggested research is needed to assess if the students with learning disabilities become more strategic learners and more able to generalize strategies to other curriculum classes.

Traditional assessment methods are continued in most high schools today. A high school student in a typical regular education class must take an average of 11 tests in a 9-week grading period. The tests are either teacher-made or provided by publisher and the students' test scores account for 45.9% of their 9-week grade (Putnam, 1992). Before the tests, students usually complete a study guide and participate in a class review which

usually consists of going over the completed study guide. Occasionally, the teacher might allow the students to use their class notes, have an open book test, or orally read the test. The test is often returned to the students and then reviewed by going over either the entire test or only the questions many students incorrectly answered.

Research indicates that students with learning disabilities need instruction in effective test-taking strategies and skills to enable them to cope effectively in regular education classes (Whinnery & Fuchs, 1993). Putnam (1992) found that a large number of regular education teachers provided supplemental procedures and conducted in-class reviews prior to test-taking, but only a small number provided instruction in test-taking strategies. When such training was provided, the most commonly taught strategy was teaching students to first, answer easy questions, to second, eliminate difficult questions, and to third, read test questions carefully. Putnam (1992) found that, in regular education classes, the students with learning disabilities seldom take tests that have effective modifications. More often they are permitted to take the tests back to the special education classroom. For the most part, little assistance is provided to students during the actual testing. A test-taking strategy guides the student to approach and take the test in a systematic and efficient manner so optimal test scores can be obtained. If students with learning disabilities can be taught to take tests effectively so that the scores reflect their knowledge, instead of their poor test-taking skills, then teachers will have a better understanding of their true instructional needs (Whinnery & Fuchs, 1993).

Since test-taking will continue to be the most frequent problem-solving experience in regular classes for students with and without learning disabilities, effective test-taking skills are of vital importance. All students will be judged primarily by their performance on tests that determine whether they succeed or fail (Lee & Alley, 1981). Test-taking strategy instruction seems justified. Special education teachers can teach the strategies in a limited time frame to students in resource rooms, team taught regular classes, and regular

classes for all students. General test-taking strategies which are applicable to many tests are more likely to be generalized to other classes (Whinnery & Fuchs, 1993).

Purpose of the Study

The purpose of this study was to examine the effect of instruction in an inclusion and exclusion environment on students with and without learning disabilities. This assessment was conducted on the four motivational variables of intrinsic goal orientation, extrinsic goal orientation, self-efficacy, and test anxiety. The three types of environments were resource room classes, inclusive team taught classes, and regular education classes. The instruction taught in all environments was a test-taking strategy. The following questions were addressed:

1. For students with learning disabilities, will a test taking strategy in the environments of resource room or inclusive team taught class influence intrinsic goal orientation, extrinsic goal orientation, self-efficacy, and test anxiety?

2. For students without learning disabilities, will a test taking strategy in the environments of a regular education class or inclusive team taught class influence intrinsic goal orientation, extrinsic goal orientation, self-efficacy, and test anxiety?

Statement of the Problem

The legal mandates of P.L. 94-142 and Individuals with Disabilities Education Act (IDEA) (20 U.S.C.A. Sections 1400-1485 1990) requiring the educating of students with

disabilities in the least restrictive environment direct schools to continue to serve students with mild handicaps in the regular educational setting to the maximum extent appropriate. Students with learning disabilities are being served, to a large degree, within regular classrooms. With the implementation of inclusion, the role of the special education teacher in a resource room may change to serving as a team teaching member as well as to serving as a consultant. This expanding role permits the integration of strategy and content instruction in a regular education classroom which allows a logical dovetail between the skills of a special education teacher and a regular education teacher in a team teaching situation or in a collaborative consultation model in a regular education class setting.

Two major reasons for examining the educational environment for students with learning disabilities are: (1) the variety of environments in which these students receive instruction and (2) the need for instructional strategies that facilitate more efficient and effective learning for students with learning disabilities (Bulgren & Carta, 1993). Since the movement toward inclusion makes a variety of educational settings possible, the need exists for effective teaching practices in all environments and for all students. The combination of environmental settings may include a regular classroom, a resource room, a team taught classroom, or a consulting-teacher classroom for a variable part of the school day (Carlberg & Kavale, 1980). Research on the classroom environments of students with learning disabilities has revealed variations in classroom structures in regular and special education settings. Critical questions for research have been raised regarding how each setting should be arranged to meet the needs of students with learning disabilities (Bulgren & Carta, 1993). Thus, this current study examined the effect of a test-taking strategy on students with learning disabilities in two different environments.

Research data suggest that students with learning disabilities have ineffective strategies for accessing the varied components of academic tasks, thereby limiting their ability to attain their academic potential which in turn classifies these students as poor or inefficient learners (Carnine, 1991; Hresko, Parmar, & Bridges, 1996; Ysseldyke &

Christenson, 1987). Central to the strategy deficit model is the belief that the student lacks the strategy, or decides on ineffective strategies, or cannot efficiently utilize self-monitoring academic behaviors (Swanson & Cooney, 1996). Research findings reviewed by Swanson (1989) found as follows: "LD children experienced difficulty with such self-regulating mechanisms as checking, planning, monitoring, revising, and evaluating during an attempt to learn to solve problems" (p. 4). This strategic inefficiency perspective underscores basic academic problems in students with learning disabilities.

Limitations of the Study

The present investigation and analysis was limited to the collection and analysis of data related to the specific research questions addressed. It was recognized that there are multiple factors which can affect the process of learning. However, it was beyond the scope of this study to address these additional variables as primary sources of study.

Conclusions were limited to the category of students with learning disabilities and students without learning disabilities in sophomore, junior, and senior English classes in the following environments: (1) resource rooms, (2) inclusive team taught classes, and (3) regular education classes. In addition, conclusions were limited to the results of the specific instrument used to measure goal orientation, self-efficacy, and test anxiety. Generalizations of conclusions to other categories of disabilities, other subject areas of inclusive classrooms, other grade levels, other instructional strands of strategies, other grade levels, and other geographical areas were not included in the study.

Significance of the Study

The intent of the study was threefold: (1) to determine which environment would affect the intrinsic and extrinsic goal orientation produced by test-taking strategy instruction, (2) to determine which environment would increase self-efficacy produced by test-taking strategy instruction, and (3) to determine which environment would facilitate the reduction of test anxiety after test-taking strategy instruction as measured by The Motivated Strategies for Learning Questionnaire. The study was significant for a number of reasons. First, the literature reflects the need for empirical research that focuses on promising *in situ* interventions, rather than laboratory setting interventions of instructional and curricular strategies that permit secondary students with learning disabilities to attain, sustain, and generalize academic skills that are designed to enhance success, thereby improving chances of graduation. The work that seems most promising for investigation at present is related to teaching curriculum content corresponding with information-processing strategies (Carnine, 1991; Ellis, 1993a; Rieth & Polsgrove, 1994). Also of considerable importance, studies have found that teachers in the regular education setting are more likely to adopt instructional practices that promote learning for all students (Vaughn & Schumm, 1996). Therefore, practices that require an inordinate amount of teacher time and effort for individual students or subgroups of students will likely not be used by regular education teachers. Secondly, research is needed to ascertain the levels at which students with learning disabilities can perform in the regular education secondary classrooms.

In the last ten years substantial research has supported using strategy instruction to improve student achievement and performance (Harris & Pressley, 1991). Studies have shown that more students with learning disabilities fail and others barely pass (Bulgren, Schumaker, & Deshler, 1994). Models which have been developed to combine strategy instruction with content instruction acknowledge that strategically based instruction

results in more effective learning of content in students with learning disabilities (Wong, 1993).

In addition to natural learning environments and combining strategy instruction with content instruction, this study will focus on both students with and without learning disabilities. Skric (1996) maintains that researchers and practitioners in both regular and special education are following parallel and similar lines of research. The research findings are resulting in similar conclusions about effective teaching and service delivery that emphasize teacher collaboration and teaching diverse learners in an inclusion environment. This study will add needed information to both the reform movement of special education and regular education.

<div align="center">Summary</div>

As a result of high drop-out rates of high school students with learning disabilities (Licht, Gard, & Guardino, 1991), several concerns must be addressed. These concerns include: strategy instruction, interventions, and learning environments that are instrumental in producing success. If the needs of the students with learning disabilities are met, they can continue to work toward the goal of graduating with a high school diploma. Most studies reviewed conducted the strategy interventions in only resource room classes.

This study focused on cognitive strategy instruction as it related to goal orientation, self-efficacy, and test anxiety of students in different academic environments. This study assessed if a test-taking strategy would affect students with learning disabilities in a resource room and in an inclusive team taught class. In addition, it assessed the effect of a test-taking intervention strategy on students without learning disabilities in an inclusive team taught class and in a regular education class. The results of the analysis serve as a framework or reference to be used by special education teachers in team teaching or in a collaborative-consultation model in planning effective strategy and

curriculum instruction for all students in the regular education classroom. Of additional

value, the results serve as undergirding and documentation for further research regarding

the use of other strategy instruction with content teaching.

Definition of Terms

1. Cognition   The manner in which humans acquire, interpret, organize, store, retrieve, and employ information (Lerner, 1985).

2. Cognitive strategies   The "tools" one used for solving specific types of problems across a variety of situations (Ellis, 1992: Wong, 1991).

3. Goal orientation   An integrated pattern of beliefs that leads to different ways of approaching, engaging in, and responding to achievement situations (Ames, 1992).

4. Inclusive team taught class   An instructional arrangement composed of a heterogeneous grouping of both students with and without learning disabilities in a regular education class with a certified regular education teacher and a certified special education teacher collaborating in the planning, instructional, and evaluation responsibilities for the same students on a regular basis for the academic year (Stainback & Stainback, 1990).

5. Motivation   The process whereby goal-directed activity is instigated and sustained (Pintrich & Schunk, 1996).

6. Regular Education Class   An instructional arrangement composed of a homogeneous grouping of students without learning disabilities in a regular content class with a certified regular education teacher.

7. Resource Room Class   An instructional arrangement composed of a homogeneous grouping of students with learning

disabilities in a special education class with a
certified special education teacher.

8. Self-efficacy	The degree of confidence individuals possess about their own capabilities (Manning, 1991).
9. Specific learning disability	"Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction dyslexia, and developmental aphasia. The term does not apply to children who have learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage." (*Policies and Procedures for Special Education in Oklahoma*, pp. 54-55, 1993).
10. Strategic instruction	A cognitive-behavioral modification approach derived from operant, social, and cognitive learning theories. A strategic approach to teach content, but designed to enable students to use their existing knowledge in an optimal fashion when learning content. It is designed to teach students how to learn (Deshler, Schumaker, & Lenz, 1984; Schumaker, Deshler, Alley, Warner, & Denton, 1982).
11. Test Anxiety	A special case of general anxiety consisting of phenomenological, physiological, and behavioral responses related to fear of failure (Sieber, 1980).

CHAPTER II

REVIEW OF LITERATURE

In this chapter the literature was reviewed to determine characteristics of students with learning disabilities, to describe test-taking strategy, and to analyze classroom environments of students with learning disabilities. The literature review addressed the learning disabled dimension as explained by the neuropsychological domain and conceptual processing. A review of research in the behavioral domain specifically included the following four components of motivation: goal orientation (intrinsic and extrinsic), self-efficacy, and test anxiety which were the variables of this study. In addition, research on test-taking strategy was conducted. Of particular importance were the classroom environments of students with learning disabilities, and more specifically, the issues addressing the implementation of inclusion, teacher's roles in inclusion, and even more precisely, the students and inclusion.

Learning Disabled Dimension

An examination of contemporary thought on the learning disabilities label revealed an enormous volume of literature that confirms that students with learning disabilities are a heterogeneous group. Broadly conceived the condition of learning disabilities covers a portion of the student population experiencing academic difficulties (Kavale & Forness, 1995). These students are unique because they may exhibit varying degrees of difficulty in different areas (Mercer, 1983).

Researchers have reported on the multiplicity of problems and the heterogeneous nature of learning disabilities. A multiple-syndrome paradigm described by McKinney (1988) suggests that deficits which describe a large number of students with learning

disabilities fails to describe an equally large number. Clements (1966) reported on the most frequently mentioned characteristics of individuals with learning disabilities, and his list still stands as the prototype. There are certain core problems in learning that may be observed: for example, the first four items of Clements' list include disorders of speech and communication, academic problems, disorders of thinking processes, and impairments on concept formation. These four characteristics are definitely representative of specific types of learning disabilities even though Clements' list in entirety no longer reflects an accurate description of learning disabilities. Adelman and Taylor (1986) presented an interactional approach which recognizes organism or pathological conditions, environmental factors, and person-environment interactions. In the model, students' failures are the combination of their inabilities, classroom factors, and environmental interactions. The National Joint Committee on Learning Disabilities (NJCLD) (1994) issued a generic definition for learning disabilities indicating that a variety of disorders are included in the category. Furthermore, the committee agreed that the disorders were intrinsic to each individual and were presumed to be due to a systems' dysfunction of the central nervous system. The taxonomy of learning disabilities is well supported in the literature and generally includes basic subject disorders, psychological process disorders, social-emotional deficits, and motor skill disorders on a continuum of mild to severe (Berdine & Blackhurst, 1985; Kirk & Chalfant, 1984; Licht, 1993; Lyon & Flynn, 1991; Mercer, 1987; Meyers & Hammill, 1982).

The goal of a study by Kavale and Nye (1986) was to identify deficit areas of sufficient magnitudes between students with learning disabilities and students without learning disabilities, and thus identify variables that provide a framework about the nature of learning disabilities. The results indicated that approximately 75% of the students with learning disabilities differed from students without learning disabilities in achievement, neuropsychological, linguistic, and social/behavioral characteristics. It is apparent that an extraordinarily diverse population of students represent the category of learning disabilities

The investigations of the 1960's and the 1970's in the neuropsychological domain were significantly different than the current research into the treatment for learning disabilities. Several avenues of investigation were pursued such as minimal brain dysfunction (Chalfant & Scheffelin, 1969), biochemical disorders (Wender, 1971), maturational lag (Kinsbourne, 1973), and genetic factors (Cantwell, 1976). Many of these investigations are ongoing. The earlier emphasis suggested that only a medical, pharmacological treatment would be applicable. However, the current view maintains that the treatment of choice is educational (Hresko, Parmar, & Bridges, 1996). The past decade is frequently referred to as the "age of the brain" because of a more complete understanding of the anatomical mapping of the brain and the Central Nervous System. As a result, more complete understanding of the etiology of learning disorders has emerged (Brown & Donegan, 1996).

Gaddes (1980) reviewed the basic assumptions of the neuropsychological approach to learning disabilities and are summarized as follows:

1. All behavior, including cognitive processes, is mediated by the central nervous system.

2. When all supporting and mediating organic subsystems are functioning normally, they can usually be ignored. If that is the case, the behavior can be dealt with exclusively at the behavioral level.

3. When one or more of the physiological subsystems is dysfunctioning, impeding normal perception, cognition, or motor response, their interactions must be recognized if diagnosis and treatment are to be successful.

4. Behavior and neural function are perfectly correlated; one is caused by the other.

5. The human brain develops and functions systematically, revealing relationships between normal functioning and specific patterns of behavior;

likewise, systematic relationships exist between the functioning of the damaged brain and specific behavior deficits.

6.   Because of the imperfections of nature, it is logical to conclude that brain functions in large populations vary from perfect structural integrity and normal function to structural damage and inferior cerebral function.

7.   Brain-damaged patients are not homogeneous and must be understood individually. Similarly, children with learning disabilities are not a homogeneous group and must be understood diagnostically in terms of the nature of their learning problems.

Gaddes continues by reiterating that neurogenic variables must be recognized because they provide a better understanding of behavior and learning problems. Therefore, neuropsychological research is not an abstract concept, but a vital approach to understanding the deficits accompanying learning disabilities. Currently, it is recognized that, although a problem is medically based, the treatment of choice is most often educational, and therefore this study will look at an educational strategy intervention.

Six major variables were identified by Kavale and Nye (1986) as being in the primary neuropsychological domain. These six were as follows: intelligence, attention, memory, conceptual processes, perceptual functioning, and neurophysiologic functioning. Learning disabilities is not a unidimensional concept, but rather is a complex amalgamation of variables. The factor analysis by Kavale and Nye (1991) suggested that learning disabilities are primarily generalized in cognition and achievement with neurophysiological functioning maintaining a strong influence.

Obrzul and Bolick (1991) strongly contend that central processing deficits interfere with the organization, integration, analysis, and synthesis of verbal and/or nonverbal information and that specific learning disabilities result from underlying neuropsychological dysfunction causing academic failure. One crucial factor that limits the academic success of students with learning disabilities is cerebral dysfunction (Rourke,

1975). Although the etiology of cerebral dysfunction is unknown, the causes extend from acquired cerebral damage to neurodevelopmental anomalies to chemical imbalances (Obrzul and Bolick, 1991). The National Institute of Child Health and Human Development is conducting research that indicates a concern for the neurology of learning disabilities as they work on neuro-imaging, on the development of language, on the search for biological signs of the causes of learning disabilities, and on major cognitive mechanisms (Lyon, 1995). Also the National Institute of Neurological Disorders and Strokes is sponsoring research on learning disabilities to diagnose subtypes of reading disorders based on electrophysiological findings, of difficulties in auditory discrimination, in developmental agraphia, and in the causes and effects of specific neurodevelopmental syndromes (Interagency Committee on Learning Disabilities, 1987). When the advancement of medical techniques such as nuclear magnetic resonance imaging and position-emission tomography become more refined, cheaper, and more widely used, the relationship of learning disabilities and associated brain structures and functions will be better understood (Pressley, Borkowshi, Forrest-Pressley, Gaskins, & Wile, 1993). These important technological advancements have allowed a more complete understanding of the central nervous system and its role in cognitive processes as well as learning disabilities and its related disorders.

If neural differences between students with learning disabilities and students without learning disabilities can be determined or if how particular areas of the brain support particular cognitive functions can be determined, the classification of learning disabilities could be based on specific anatomical brain structures rather than on symptoms. Therefore, the conceptionalization of learning disabilities might impact instructional strategies (Hynd, 1986). Pressley et al., 1993 concluded, that without the fundamental neurological understanding for learning, the explanation and identification of differences would not be possible; thereby, sensitive differential treatments for students with learning disabilities would not be possible. However, to teach students cognitive

strategies increases knowledge of academic content, learning for the long term, good information processing, and students' conceptual knowledge over what it would have been without the intervention strategy. Keogh and Speece (1996) strongly suggested that the neurobiological basis is only one part of the learning disabilities puzzle and argued that understanding learning disabilities also requires contextual considerations of the problem. The contextual contributions are represented by the school and classroom setting and deserve equal consideration in understanding the achievement as well as the development of students with learning disabilities. Almost three fourths of the subjects with learning disabilities in the Kavale and Nye (1986) study could be differentiated from students without learning disabilities on the basis of interpersonal perception which included intrinsic and extrinsic locus of control and self-efficacy.

Included in the neuropsychological domain is the area of conceptual processes which is the ability to combine thoughts and ideas (Kavale & Nye, 1986). In Kavale's and Nye's study, seventy-six percent of the students with learning disabilities performed below the average level of the students without learning disabilities, and seventy-four percent of the students with learning disabilities were slower than students without learning disabilities in their acquisition of information. Reid (1991) noted that students with learning disabilities follow the same stage-like academic behaviors as students without learning disabilities, but with developmental delays and with systematic difficulty learning complex tasks. This difficulty results from processing inadequacies rather than deficits. Students with learning disabilities experience periods of stagnation in problem-solving performances which may contribute to deficits in verbal IQ. Wansart's (1990) findings concurred that students with learning disabilities exhibit a slower rate of learning, while following normal developmental patterns, and that labeling those students as passive and nonstrategic is inappropriate.

Disorders of conceptualization are present in students with learning disabilities, and even more likely such deficits exist in these students as developmental lags (Tarver &

Maggiore, 1979). A list that was derived from a number of sources was compiled by Myers and Hammill (1982) to provide information about conceptual processing of students with learning disabilities follows:

1. Concrete behavior characterized by a dependence upon immediate experience as opposed to abstract behavior that transcends any given immediate experience and results in the formation of conceptual categories

2. Poor differentiation, unstable, and inconsistent generalizations

3. Little differentiation of part-whole relationships

4. Either passive-apathetic (curious about nothing) or hyperactive, driven, impulsive (curious about everything) behavior

5. Poor short-term or long-term retention

6. Either a marked lack in persistence or compulsive perserveration

7. Field dependence as opposed to field independence

8. Internally controlled versus externally controlled behavior

9. Rigidity; resistance to change (p. 39-40)

They concluded that the end product of conceptualization is a highly developed and organized problem-solving ability which results in a competent, reasoning student. Since specific problem-solving strategies in students with learning disabilities are frequently inadequate, the general problem-solving process may also be detrimentally affected. Students with learning disabilities often exhibit different approaches to concept learning tasks and display discrepancies in the way they learn (Stone & Michals, 1986).

Two types of inefficiencies in strategy use have been identified by Stone and Conca (1993) indicating that students with learning disabilities choose simpler and less efficient strategies than their classmates and, in addition, they cannot generalize a learned strategy

to a new situation. They may fail to properly implement the necessary strategy or not be aware of errors in their strategy intervention. Individuals with learning disabilities do not spontaneously use elaborative strategies for remembering content, engage in developing short definitional information, or use organization to link the new information with existing knowledge structures (Torgesen & Licht, 1983; Wong, 1978). Specifically, students with learning disabilities may not use available information to solve problems (Gerber & Hall, 1981), may not generate new information systematically, and may not make good use of the information to develop or revise their conclusions (Stone & Michals, 1986). They may not reason logically with the presented information (Kavale, 1980), and they often attend to extraneous details (Lee & Hudson, 1981). The information-processing approaches used by students with learning disabilities frequently do not reflect their intellectual ability (Swanson, 1988).

Since it has previously been stated that students with learning disabilities are a heterogeneous group, it is critical to add that all the conceptual process inefficiencies do not always characterize each and every student categorized as learning disabled. In conflict with Myers and Hammill (1982), Meltzer (1993) states the strategy inefficiencies will not be apparent across all learning situations in the same student.

As further emphasized by Meltzer (1993):

> a particular student may display flexibility on certain
> complex reasoning tasks, yet may be inflexible in an
> academically oriented learning situation that requires
> the coordination of different skills and strategies.
> Similarly, students with learning disabilities may
> use strategies actively until a specific point
> in time and may then become overwhelmed
> and even immobilized by the task demands.
> They may also become "stuck" in using
> strategies that were previously helpful but are
> inadequate for meeting the increasing complexity
> of new tasks. (p. 100)

An important educational goal is to help students with learning disabilities become better processors of information (Swanson, 1996) since several studies have found that students with learning disabilities do not utilize or activate information processing skills that engage their intellectual capabilities or academic potential (Cornoldi, 1990; Englert, Rozendal, & Mariage, 1994; Geary, 1993; Pressley, 1991).

Cognitive style relates to the general behavior and attitude of the student when presented with a learning task, and an analysis of the cognitive style can provide insight into the learning disabilities of the student (Lerner, 1985). Cognitive style can be reflective, proceeding with careful deliberation and considering alternatives, or implusive, responding quickly without considering alternatives. Students who are learning disabled often respond in an implusive manner which is detrimental to school performance (Keogh, 1977). Research suggests that the implusive behavior of students with learning disabilities is basically due to lack of alternative cognitive strategies (Torgesen, 1980, 1982). Since they do not have methods to cope with the learning task which may cause them to respond impulsively, one solution is to help them acquire cognitive strategies.

Another facet of cognitive styles is whether students are active or passive learners. Lerner (1985) states that active learners are efficient and are dynamically involved in the learning process by using cognitive strategies. They structure the information (organization), are self-questioning, and compare the new information to what they already know (assimilation and accommodation). Students with learning disabilities, on the other hand, lack interest in learning and may approach it in a passive or inactive manner (Hagen, Barclay, & Newman, 1982; Torgesen, 1982), and probably because past learning experiences resulted in failure and frustration have become dependent learners, a style that is referred to as "learned helplessness" (Torgesen, 1982). Students with learning disabilities may lack cognitive strategies, and in order to compensate, they may rely on others' academic help when they have the ability to do the work themselves.

Some researchers began to move away from the models that view students with learning disabilities as being passive learners to an approach that underscored the active but inefficient learning processes as exhibited by learning disabled students. Swanson (1989) suggested that students with learning disabilities are "actively inefficient learners" because of their difficulties in concurrently accessing, organizing, and coordinating multiple mental activities. The theory of "maladaptive learning patterns" identified by Torgesen (1975, 1978) resulted from his research that found the cognitive processes of students with learning disabilities operated differently than students without learning disabilities. He believed that students with learning disabilities are not aware of the information necessary for solving particular problems efficiently. They know neither the strategies that are appropriate for executing certain kinds of tasks nor of the value of specific strategies such as planning and self-checking. His theory emphasized the importance of identifying global, domain-general strategy deficits and did not focus on identifying weaknesses in specific areas such as language and attention. Swanson's (1992) findings suggest that students with learning disabilities may not understand how specific strategies are utilized in task performance. When students with learning disabilities were compared to students without learning disabilities, it appeared that they had little or no difficulty in accessing the information but they were hampered in their ability to use strategies, so Swanson concluded that students with learning disabilities actively, but inefficiently, processed information. In order for learning strategies to have significant impact on student success, the instruction must be intensive and extensive (Pressley, Goodchild, Fleet, Zajchowski, & Evans, 1989; Slavin, 1989).

Strategic inefficiencies of students with learning disabilities can be attributed to at least three factors including insufficient content knowledge, inefficient processing, and inadequate management of processing knowledge (Silliman, 1987). Also inefficiencies of reasoning, problem solving, and decision making can be added (Wiig, 1993).

One of the factors included in the management of processing knowledge is metacognition. Metacognition, a concept that was first introduced by Flavell (1979) and later expanded by Brown (1980), and Baker and Brown (1984), refers to knowledge about and control of certain cognitive processes such as attention, memory, and comprehension. Metacognition is, therefore, forged with two components. First, knowledge implies that students know about the strategies and skills necessary to learn. Second, control implies that students are able to use the metacognitive knowledge to monitor and regulate the success of their learning (Reynolds, Wade, Trathen, & Lapan, 1989). Metacognitive ability appears to develop in phases, beginning with task awareness, progressing to strategy awareness and culminating in performance awareness (Reynolds, 1989). Resnick (1987) suggested that executive or self-regulatory processes called metacognitive skills are used by effective learners to keep track of their own understanding, to initiate review activities when needed, and to organize their attention and other resources in order to learn. These skills, she contends, are absent in less intelligent individuals.

Currently, there is increasing emphasis on the role of strategy inefficiency in students with learning disabilities, partially as a result of the research that has documented the importance of metacognitive and problem-solving strategies necessary for efficient and independent learning (Brown, Bransford, Ferrara, & Campione, 1983; Pressley, Goodchild, Fleet, Zajchewski, & Evans, 1989; Pressley, Woloshyn, Lysynchuk, Martin, Wood, & Willoughby, 1990).

There has also been a change in focus from the importance of materials and tasks to a focus on the role of the learners and their specific activities. This has led to the cognitive-developmental approach gaining wider acceptance because it emphasizes the interaction between the student's developmental status and the cognitive and metacognitive components of learning (Reid, 1988).

Metacognition, the awareness of cognitive processes, and the monitoring, evaluating and regulating of these processes, have been suggested as one source of differences between students with and without learning disabilities (Borkowski & Cavanaugh, 1981), Comparisons of various groups of children, disabled and nondisabled, have revealed substantial differences in metacognitive knowledge about memory and the memory processes (Campione, Brown, & Ferrara 1982).

Students with learning disabilities are less able to spontaneously regulate academic learning which is controlled by the process of metacognition (Short & Ryan, 1984). Some students with learning disabilities are not aware of metacognitive processes or have difficulty describing and discussing their own cognitive activities that allow them to access information. Students with learning disabilities have difficulty with self-regulating activities such as planning, testing, and revising during their attempts to learn (Palincsar & Brown, 1984; Short & Ryan, 1984).

In addition to the neuropsychological domain, another element of learning disabilities has been identified as the social/behavioral domain (Kavale & Nye, 1986). Kavale's and Nye's (1986) study showed three categories in this domain: interpersonal behavior, intrapersonal perception, and interpersonal perception. In interpersonal behavior, almost three out of four students with learning disabilities manifested interpersonal deficits marked by peer rejection, by being perceived by parents and teachers as having more problems, and by being easily distractible. In intrapersonal perception, seven out of ten students with learning disabilities experienced reduced feelings of self-worth. In interpersonal perception, the primary areas included attribution and locus of control. More than seven out of ten students with learning disabilities minimized effort as a source of their failure and primarily showed an external locus of control. For the purpose of the present study, the primary area included in the investigation was the interpersonal perception as it relates to motivation in extrinsic and intrinsic goal orientation, self-efficacy and test anxiety.

Goal Orientation

Weinert (1987) believes that the important components of any learning activity are cognition, metacognition, procedural skills, and motivational factors which all must be weighted differently according to the type of task. Motivation influences the outcome of learning and performance and what a student learns and does influences further motivation (Schunk, 1991). Students who attain learning goals realize that they are capable of learning and are then motivated to set new, challenging goals. Goal attainment helps to develop intrinsic rather than extrinsic motivation in students to learn for the sake of knowledge (Meece, 1991). Weinert (1987) stated that there is sufficient overlap in the tasks and concerns of cognition, metacognition, and motivation to develop an integrated research agenda.

Sternberg and Wagner (1994) maintain that no personal attribute is more important to success or learning than motivation. Motivation as defined by Pintrich and Schunk (1996) is the process whereby goal-directed activity is instigated and sustained. Most current research on motivation has focused on goals (Ames, 1992; Ford, 1992; Locke & Latham, 1990). Of all the current theories, the theory of Ames (1992) is the one that has the greatest application to classrooms and motivation. Goal orientation is an integrated pattern of beliefs that leads to "different ways of approaching, engaging in, and responding to achievement situations" (p. 261). Goal orientation reflects the standard by which students will judge their performance or success which impacts their motivation and thus their performance. Ames (1992) used the terms *mastery* and *performance* goals to refer to the two general goal orientations. The difference between mastery and performance goals parallels the difference between intrinsic and extrinsic motivation (Pintrich & Schunk, 1996). A mastery or intrinsic goal orientation focuses on learning and mastering the tasks according to self-set standards, developing new skills, improving competence, accomplishing a challenge, and gaining insight (Maehr & Midgley, 1991). A

performance or extrinsic goal orientation focuses on getting grades, getting rewards, getting special privileges, or avoiding getting into trouble (Pintrich, Smith, Garcia, & McKeachie, 1993). Ames (1992) showed that mastery goal orientation is linked to a positive, adaptive pattern of attributions, while a performance goal orientation is linked to a maladaptive, helpless pattern of attributions.

The motivational view of the students with learning disabilities should be considered when implementing neurological and cognitive research interventions (Deci & Chandler, 1986). There are a number of reasons for differences in the motivation or goal orientation between students with and without learning disabilities. A history of school failure leads to decreased motivation and value for school (Ryan, Connell, & Deci, 1985). Decreased motivation also occurs because students with learning disabilities believe their intellectual abilities are low and their achievement efforts are useless (Licht, 1993). School failure also leads to attitudes of "helplessness" (Smith, 1986). Interventions with students with learning disabilities that emphasize external contingencies and controls have shown decreased perceived autonomy and increased dependence on external rewards which often produces short-term benefits (Ellis, 1986; Ellis, Lenz, & Sabornie, 1987; Grolnick & Ryan, 1987). Another study by Grolnick and Ryan (1990) found that students with learning disabilities were more likely to see the control on success and failure outcomes as being centered in others causing students with learning disabilities to depend on their teachers for their source of motivation. The instructional process must be driven by student goals and not teacher goals. Their study raised the complex question of whether resources should be implemented for all students having problems in school and even, further, if resources should be implemented into making regular education more special. Motivation or goal orientation is one of the key factors in helping students with learning disabilities activate their strengths to overcome their weaknesses (Smith, 1986). Paris and Haywood (1973) reported that high levels of motivation in students with learning disabilities can even result in achievement commensurate with that of peers who test 20 IQ

points higher. However, when academic work becomes difficult, students with learning disabilities doubt their ability to achieve. Then they blame their own inferiority and external factors for failure (Dweck, 1975, Pearl, 1982).

Teachers control the instructional variables and can instigate classroom applications for enhancing student motivation and goals. It appears students will adopt the goal orientations that are emphasized in their classrooms (Ames, 1992; Maehr & Midgley, 1991). Dembo (1988) suggested that structured learning situations rather than independent study or discussion groups may aid motivation. Forty specific strategies were described by Good and Brophy (1986) to increase student motivation. Among the strategies were effective strategy instruction, success oriented strategies, and metacognitive strategies. Deshler et al., (1984) indicated that the students who are targeted for learning strategy instruction are the same students who have been described as unmotivated and inactive students. McCombs (1984) further argued that the major purpose of self-motivation training is to promote in students a perception of self-efficacy and personal control. He continued that the students mastering the strategy must also master the use of self-motivation strategies. However, Adelman & Taylor (1983) found in their research that efforts to enhance motivation toward overcoming skill deficiencies were restricted. Their study indicated that motivational strategies were needed prior to efforts to implement academic strategies. Motivation influences the outcome of learning and performance, and what a student learns and does further influences motivation (Schunk, 1991).

Ongoing research demonstrates a strong correlation between motivation and effective learning in students with and without learning disabilities (Mehring & Colson, 1993). One of the most important conclusions from research on cognitive strategy interventions with students with learning disabilities in academic situations is that the intervention is most effective when it also includes motivation or goal orientation for the student to learn effectively (Borkowski, Weyhing, & Carr, 1988; Schunk, 1989a).

Self-Efficacy

Different models of self-efficacy have been developed within the framework of cognitive and social learning theories (Bandura, 1986; Licht, 1993; Schunk, 1982). Students with high self-efficacy for a task participate more readily, work harder, and persist longer. The way the students perform establishes their self-efficacy in that success generally raises efficacy while failure lowers it (Schunk, 1989a). Students who attain learning goals realize that they are capable of learning and are motivated to set new, challenging goals. Goal attainment helps to develop intrinsic motivation in students to learn for the sake of knowledge (Meece, 1991). Schunk (1989b) also stated that students acquire efficacy information by socially comparing their performances with other students. Students who observe similar peers perform a task are more likely to believe that they too can accomplish the task.

A person's self-efficacy expectation influences and is affected by cognitive styles and preferences (Bandura, 1986). A study by Zimmerman, Bandura, and Martinez-Pons (1992) found that student beliefs of self-efficacy to regulate learning performs an important role in academic motivation, and other research by Zimmerman & Martinez-Pons (1986, 1988, 1990) reports that students' use of learning strategies promotes academic achievement. However, there are also studies that show knowledge of learning strategies does not guarantee their effective and consistent use (Borkowski & Cavanaugh, 1981).

As with the study of motivation and goal orientation in students with learning disabilities, studies of self-efficacy in students with learning disabilities show that they have been powerfully influenced by previous success or failure. Findings show that students with learning disabilities are more likely than students without learning disabilities to show lower self-concepts of ability, lower expectations for success, and a greater decrease in their expectations for success (Butkowsky & Willows, 1980; Licht, 1993; Torgesen &

Licht, 1983) and that, when confronted with difficult tasks, these students may show decreased effort, less active learning, and lack of problem-solving strategies which in turn leads them to believe their efforts are futile (Licht, 1993; Torgesen & Licht, 1983). Low self-efficacy beliefs cause students with learning disabilities to give up when presented with a challenging task and, according to Borkowski, Johnston, and Reid (1987), these students are nonstrategic learners. Students' with learning disabilities beliefs about their school failure and self-doubts about their ability further impact their low self-efficacy (Licht & Kistner, 1986).

Wong (1985) contends that students' with learning disabilities do not comprehend the task demands because of deficient metacognitive skills so their individual efficacy expectations are not commensurate with performance. As a result they are often confused and frustrated by their grades on such tasks. Cognitive strategy instruction would be an appropriate intervention with these students, giving them greater self-efficacy if they believe they have the level of ability to execute the strategy (Fyans & Maehr, 1979).

Test Anxiety

The majority of secondary students' course grades are derived from test scores. Sieber (1980) has defined test anxiety as a special case of general anxiety consisting of phenomenological, physiological, and behavioral responses related to fear of failure. Test anxiety can result in interference with effective task performance (Dusek, 1980). Research suggests that test anxiety develops in the early school years as a result of parent-child interactions (Dusek, 1980; Goulding, 1987; Polster & Polster, 1973; Sarason, Davidson, Lightfall, Waite, & Ruebush, 1960). Other researchers argue that test anxiety is related to the school environment (Phillips, Pitcher, Worsham, & Miller, 1980). Still other researchers have related test anxiety to motivational theory and the cause of failure (Butler, 1987; Pintrich & DeGroot, 1990; Thorkildsen & Nicholls, 1991; Weiner, 1990;

Zimmerman & Martinez-Pons, 1990). Test anxiety has also been assumed to develop in a social context (Bandura, 1982). In addition, students who experience test anxiety are thought to have low levels of self-efficacy and feel helpless and unable to influence testing results (Schunk, 1991).

Although researchers have associated many factors that influence the test anxiety of adults and children, scant research has been done to address the causes, effects, and treatment of test anxiety in students with learning disabilities. A study by Swanson and Howell (1996) investigated the influence of academic self-concept, cognitive interference, academic achievement, and study skills on test anxiety and found that cognitive interference and the lack of study habits affected the test anxiety of a sample of 82 junior and high school students with learning disabilities. Their correlational analyses found that the prediction equation containing the two variables, lack of cognitive strategies and study skills, accounted for 38% of the variance in test anxiety Their study supported the belief of some researchers who contend that students with learning disabilities have higher incidence rates of test anxiety than do students without learning disabilities (Bryan, Sonnefeld, & Grabowski, 1983; Rizzo & Zabel, 1988).

Test-Taking Strategy

Research indicates not only that many students with learning disabilities lack cognitive strategies to perform well on academic tasks but also that they do not naturally develop cognitive strategies (Englert, Raphael, Lear, & Anderson, 1988). In contrast, students without learning disabilities develop cognitive strategies on their own as they age and experience life (Brown et al., 1983). The purpose of this section is to provide an overview of cognitive theory, instructional design, and the theories of Vygotsky and Bandura as applied to cognitive approaches as background information of a cognitive framework for a test-taking strategy. The final part of this section presents general

information about test-taking strategies and specific information about the test-taking

strategy designed by Hughes, Schumaker, Deshler, and Mercer (1993) which was

implemented for this current study in different environments.

A cognitive perspective defines learning as follows:

   a. Involving the active participation of the learner

   b. Depending on the will and interpretations of the
      learner

   c. Resulting in long term changes in the individual's
      knowledge

   d. Occurring primarily inside the learner (i.e., there
      may not be any observable manifestations. (Hresko
      et al., 1996, p. 42)

Cognitive research repeatedly finds that specific content curriculum knowledge represents

a central role in reasoning, thinking, problem-solving, and learning of all kinds. The more

promising way to teach thinking strategies is within the context of specific content

domains with hope for generalization to other disciplines as the relevant knowledge

about strategies is acquired (Resnick, 1987).

Sternberg (1986) believes that a cognitive theory that is instructionally productive

includes two broad categories of factors, individual differences and group commonalties,

thereby considering both the attributes of the learner and the characteristics of the learning

situation. The theory should identify the individual differences that exist and then explain

what to do about them. The differences might be due to the component processes, the

strategies of the processes, the mental representations of the processes, or the attention of

the individuals. Cognitive research indicates that substantial individual differences do exist

in information processing; therefore, a cognitive theory must take into account individual

differences in predicting classroom performance, rather than a hypothetically averaged

individual who does not exist (Sternberg, 1986). Instructional theory must accompany the

application of cognitive theory to educational practice. The instructional theory should

specify the cognitive principles upon which the instructional material is presented. In addition, Sternberg (1986) contended that several questions should be asked about a proposed instruction theory and are paraphrased as follows:

1. Does the instructional theory provide clear and complete specifications of what the teacher should do to apply the theory?

2. Is the instructional theory appropriate to the content?

3. Is the instructional theory appropriate to the age level of the student?

He further believed that a practical problem existing for a teacher is the impossibility of individualizing instruction when teaching to a large classroom, but he believes it is possible to present the same material in two alternative ways in the hope that some students will profit from both methods of instruction while all students will profit from at least one method.

Cognitive theory suggests that processes traditionally reserved for advanced students (those who have developed skills for interpretive mental processes) might be taught to all students, especially those who learn with difficulty (Resnick, 1987). Instructional psychology literature maintains that generally low and average performing students benefit from strategy instructions whereas such instruction impede the performance for high-ability students who already have their own efficient tactics (Dillon, 1986). Therefore, instructional and cognitive theories depend upon the level and patterns of ability (MacLeod, Hunt, & Mathews, 1986), and optimal teaching tactics may vary because of the ability of the student (Doyle, 1983; Gordon, DeStefano, & Shipman, 1985). The interventions of task performances can be with either domain-specific (Egan & Greeno, 1973) or domain-general (Cronbach & Snow, 1977). Most of the interventions have been with domain-general abilities because those abilities have more reliable and valid measurements.

Students in academic settings are expected to learn predetermined content at a predetermined rate. Some students lack the cognitive strategies required, and some are not cognitively competent. In many instances, the most salient weakness is a lack of cognitive strategies needed to focus, follow through, and finish independent school assignments (Corno, 1987). Special education takes the perspective that cognitive strategic inefficiencies are the major problems in students with learning disabilities (Baker, 1982; Gerber, 1983; Hallahan, 1980). The educational goals for students with learning disabilities are not different from students without learning disabilities because they must also be able to utilize strategies for learning new material, be able to plan methods for information acquisition and learning, be able to use prior information to learn new material, and be able to develop the ability to retrieve information from long-term memory (Hresko, et al., 1996). Learning from a cognitive perspective includes the multidimensional nature of learning and how students respond to tasks and materials and the types of instruction (Griswold, Gelzheiser, & Shepherd, 1987). Traditionally the academic focus has been on what students produce (Clark & Peterson, 1986). However, in a cognitive perspective, academic tasks focus not only on what students do but also on how they think by having the students describe his learning strategy (Marx & Walsh, 1988). Interventions for students with learning disabilities are best accomplished by considering the specific learning problems of students in a cognitively based approach and focusing on the learner and the content of the learning as well as matching the learner and the intervention (Hresko et al., 1996).

The increase in knowledge about the nature of cognitive thinking has been combined with interest in relating principles of cognitive psychology to instruction (Glaser, 1985). Models of instruction incorporate the skills and the knowledge that constitute good strategy use. Instructional models prescribe teaching students procedures that accomplish important educational goals. According to Montague (1993), the primary goals of strategy instruction are threefold : first, for students to be able to adapt the

strategies to their own individual style of learning; second, for students to be able to generalize strategies to other settings and situations; and third, for students to develop into self-regulating learners. Teaching a few strategies at a time and teaching them well works better than teaching many strategies and teaching them superficially (Duffy et al., 1986; Pressley, Cariglia-Bull, & Snyder, 1984). The significance of checking strategies by teaching students to self-monitor is stressed in strategy instruction and has evolved because research shows that even good students sometimes fail to monitor performance or fail to take corrective measures when they have problems (Garner, 1987). Critical to strategy instruction is making certain students know when and where to use the strategies. This can be accomplished by telling the students or providing them with experience in different settings where the strategies can be utilized and noting when the strategies work (Pressley, Borkowski, & O'Sullivan, 1984). Strategies should be taught as part of the actual content curriculum and part of the academic tasks and not as a separate curriculum entity (Symons, Snyder, Cariglia-Bull, & Pressley, 1989). Although Peterson and Swing (1983) express concern about potential difficulties in the implementation of cognitive strategies, they emphatically state that research on classroom implementation of cognitive strategy instruction should be given a high priority. Marx, Winne, and Walsh (1985) agreed by pointing out that the study of students' cognition is a challenge, but it is fundamental to the betterment of education.

In addition to cognitive theory and instructional design, the field of cognitive instructional psychology also addresses concerns in educating students with learning disabilities. According to Lauren Resnick and Robert Glaser (1976), problem solving is necessary whenever students encounter tasks never seen before in exactly that same form, or when there is not enough information to solve the problem. Therefore, students must be taught to apply well-rehearsed thinking strategies to different situations in order to transfer the problem-solving knowledge. Most cognitive psychologists refer to the mental operations of thinking in terms of different kinds of knowledge arranged in a hierarchical,

top-down structure that has a first order of content knowledge, then procedural knowledge, and, finally, at the pinnacle of the knowledge hierarchy is the overall executive function of metacognitive knowledge (Frederiksen, 1984; Prendergast, 1986). The hierarchical knowledge model has educational significance in the awareness that thinking is an operative, active attempt by the student to create meaning and understanding (Shuell, 1986; Weinstein & Mayer, 1986). Thinking is a demanding and complex activity. Thinking ability implies strategy, and students who possess a large repertoire of strategies are more successful (Covington, 1992). Students today must coordinate numerous skills in a variety of content domains, and academically successful students balance their cognitive skills, metacognitive skills, and motivational styles (Short & Weissberg-Benchell, 1989). The cognitive processes are inseparable from the affective processes such as interests, attitudes, appreciations, and values (Tanner & Tanner, 1995). Education must strengthen the ability of students to reflect on their thinking and to create their own strategies because, by focusing on mental strategies, the students become task oriented and more positive (Covington, 1992). Jenkins (1979) developed a tetrahedral model that perceives successful students as being aware of four critical factors: the characteristics of the learner, the demands of the task, the nature of the materials, and the learning activities of the task in relation to the skills possessed by the student. Successful students know their cognitive strengths and weaknesses and are motivated to use their strategic skills.

The field of special education has interpreted much of the Vygotskian literature within a behavioral framework. Vygotsky's (1987) theory of social constructivism, a framework for the role of social interaction in cognitive development, emphasizes learning through interactions with people. Vygotsky defined reflective awareness and deliberate control in terms of what is now known as strategic or metacognitive behaviors (Stone, 1985). Vygotsky states that the internal developmental processes of children are able to operate only when they are interacting with people in their environment and in cooperation with their peers. Vygotsky further argued that all higher psychological functions (e.g.,

perception, attention, memory) have social origins. The adults teach how to cope with information, categorize, memorize, retrieve, integrate, and talk about experiences so the adults show children ways to think. Therefore, knowledge and cognitive processes are transmitted socially. One implication of Vygotskian theory is that children's cognitive ability is determined by the amount of knowledge and strategy to which children have been exposed (Vygotsky, 1987).

An important aspect of his theory is that children can complete tasks with other people that they could not accomplish working by themselves. Learning should be matched with children's developmental level. The distance or gap between the level of what children can do alone in independent problem solving and what children can do with assistance or in collaborative problem solving was labeled the zone of proximal development. Vygotsky hypothesized that measurement of the zone might supply predictive information about children's performance in the future (Day, 1983). In addition, the measurement of the zone would gauge the readiness for instruction. The teacher bridges the zone of proximal development with scaffolded instruction by keeping the task constant while adjusting the students' participation through the methods of procedural facilitation and peer collaboration (Englert, 1992). One method of graduated assistance is procedural facilitation which is a formal way to help students carry out strategies. The other method of graduated assistance is peer collaboration in which the teacher and the students engage in collaborative social dialogues using the strategies. The teacher gradually turns over the strategy use to the students and only reenters to scaffold and to guide (Englert, 1992). Vygotsky's (1987) approach to scaffolding is a gradual process of social mediation in which the teacher models the outcomes and then gradually transfers the learning to the student. He referred to this progression as movement from "other-directed to self-directed". This movement requires a teacher to be highly sensitive to students' individual progress.

Vygotsky found that the most important development of thought in adolescence is the change from complex types of thinking to conceptual kinds of thinking. The concepts were formed during the process of finding a solution to some problem in the adolescent's thinking process. (van der Veer & Valsiner, 1994). The social constructivist framework of Vygotsky emphasizes an analysis of student's development in terms of increasing mastery of cognitive strategies.

Over a fifteen year period Vygotsky published theories and practical issues related to the assessment and education of exceptional children. He carefully delineated between what he perceived to be the direct and indirect effects of the disability (van der Veer & Valsiner, 1994). The natural developmental symptomatology of an exceptionality was the direct effect and was assumed to be neurologically based. The indirect effects, in contrast, were considered to be lack of conceptual thinking or strategic deficiencies resulting from inappropriate social and educational modifications to the child with exceptionalities (Stone & Conca, 1993). Vygotsky theorized that because exceptional children are different, they are treated differently, and this to Vygotsky was more devastating than the disability itself. Vygotsky emphasized the indirect or socially based effects of children's exceptionality. He did not specifically write about children with learning disabilities, but some of his observations about children with mild retardation may be applicable to children with learning disabilities. Vygotsky thought that, because of cultural and educational deficiencies, children with mild retardation were more impaired in the higher psychological functions. Therefore, mild retardation was both a cognitive and an affective handicap. This perspective then emphasizes a framework for exposing those individuals to quality adult-child interactions with thoughtful attention to the dialogue of the interactions (Stone & Conca, 1993).

Scaffolding in Vygotsky's terms results in the internalization of external knowledge. Instruction is scaffolded in a concrete and linear fashion for an abstract, nonlinear problem-solving process. This concrete representation designates the beginning

point of the strategic process. The teacher's social discourse centers primarily on enabling the students to understand on a concrete level what the strategies are and how they are used. This dialogue provides the student with an understanding of the problem-solving processes. The dialogue is a function of teachers' collaborating with students as they work together to solve problems. Later, as the students' understanding of problem-solving increases, the dialogue shifts away from the concrete representations into the dialectical instruction procedures of Bandura (1986).

The social learning or social-cognitive theory extended traditional learning by assuming that social behaviors could also be explained by the principles of learning, including observational learning through modeling (Bandura,1977). The important social variable of verbalizing is an indispensable aspect of the learning process, and learned patterns tend to generalize to situations other than those in which they were learned (Bandura, 1977).

Bandura's theory (1986) was expanded to support the importance of modeling a wide range of appropriate cognitive and metacognitive strategies. According to Bandura, the cognitive process is concerned with thinking, evaluation, and perception. His theory is based on the assumptions of the reciprocal nature of influence among personal, behavioral, and environmental factors, the relation of learning to motivation and behavioral change. In addition, Bandura's research (1986) made it clear that modeling can have powerful effects by reinforcing certain behaviors and affecting interaction and cognitive development.

The major assumptions of the cognitive theories and the theories of Vygotsky and Bandura that have been instrumental in the development of cognitive strategies for students with learning disabilities have been discussed as a background for development of test-taking strategies. The remainder of this section will specifically address the intervention selected for this study, the test-taking strategy.

Even though no degree of a test-taking strategy or skills can replace knowledge of relevant academic content, knowledge of a test-taking strategy coupled with content knowledge can make a difference between academic success or failure. Most students can gain from training in a test-taking strategy, and students with learning disabilities may particularly benefit from a test-taking strategy. The success of students with learning disabilities will be determined largely by their performance on tests, and test-taking strategy training can increase test scores of those students (Lee & Alley, 1981). Research reported that poor test-taking skills are one of the more commonly referred to characteristics of adolescents with learning disabilities (Alley et al., 1979). The general conclusion is that students with learning disabilities can be taught to use cognitive strategies that will improve their academic performance (Ellis, Deshler, & Schumaker, 1989).

The majority of secondary students' grades are determined by their test scores. According to research reported by Hughes, Schumaker, Deshler, and Mercer (1993), tests at the secondary level are composed of approximately 32 questions which require about 40 responses. Students who have 50-minute classes must make about 1.3 responses per minute. Usually tests at the secondary level are divided into about four sections with the instructions for each section being about 3 sentences long.

Hughes, Schumaker, Deshler, and Mercer (1993) designed a curriculum for learning strategies including a test-taking strategy. Since 1979, field testing has been done by staff members of the University of Kansas Center for Research on Learning to validate the efficacy of their instructional approach in a variety of different settings with a variety of different students. The results of their testing have indicated that significant gains are realized in learning associated directly with the strategy. The test-taking strategy teaches students an effective and efficient way to improve their performance on tests in several ways: (1) to allocate time and order of importance to each section of a test, (2) to carefully read and focus on important elements of test instructions, (3) to systematically

and quickly process through a test by selectively answering or abandoning questions, (4) to make well-informed guesses, and (5) to take control of the testing situation through regular use of self-talk and the application of test-wiseness principles. (p. 3) It is the belief of Hughes, Schumaker, Deshler, and Mercer (1993) that instruction in the test-taking strategy produces relatively quick and significant gains in classroom test performances.

Classroom Environments of Students with Learning Disabilities

Students with learning disabilities are now experiencing a variety of classroom environments because of inclusion. The educational process in American schools is experiencing tremendous change and evolving through this change is inclusive schooling. An inclusive school is one that educates students in the mainstream. Inclusion means providing all students in the mainstream appropriate educational goals and programs that are challenging and individualized with necessary support services (Stainback & Stainback, 1984).

The goal of inclusion is to provide each student the opportunity to work with peers in natural, integrated educational settings (Stainback & Stainback (1990); without ignoring students' individual differences (Stainback, Stainback, East, & Sapon-Shevin, 1994). These researchers continue by reiterating that the goal of inclusion allows students to become knowledgeable about and supportive of all other students and not to develop homogeneity in the guise of inclusion. Advocates for students with disabilities want effective instruction in academic skills in the least restrictive environment and collaboration among all service providers regardless of their views on the inclusion reform (Kauffman, 1993) According to Fuchs and Fuchs (1994), inclusion will require special education to redefine its relationship with general education and to define what is possible in strengthening mainstreaming while at the same time respecting the tradition and laws of

special education and strengthening educational options that provide services to all students.

The concept of inclusion has been generating controversy among regular and special educators and policymakers. The Learning Disabilities Association of America continues to advocate its support for a continuum of placement options (Learning Disabilities Association, 1993), while the Council for Exceptional Children has been enthusiastic for inclusion for students with disabilities but are at the same time concerned about the continuum of services (Council for Exceptional Children, 1993). The American Federation of Teachers in a 1994 study indicated that over three-fourths of the teachers polled would object to the adoption of a full-inclusion policy (Richardson, 1994). The National Education Association (Hoff, 1994) advocates appropriate inclusion. That organization further states that special education students should only be taught in the regular classrooms if special education teachers are prepared to assist them. Other stipulations by the NEA include training teachers, additional planning time, and reduced class size.

Another concern about inclusion relates to funding, primarily that inclusion might result in the reduction of funds targeted for students with disabilities. Some state funding systems restrict state special education allocations to the location where services are provided.

Another concern is the concept that a special education program has to be superior before it can be justified (Dempsey & Fuchs, 1993). Vaughn and Schumm (1995) have detailed the guidelines that they believe constitute responsible inclusion to be as follows: "the student and family are considered first, teachers choose to participate in inclusion classrooms, adequate resources are provided for inclusion classrooms, models are developed and implemented at the school-based level, a continuum of services is maintained, the service delivery model is evaluated continuously, and ongoing professional development is provided." (p. 264)

Implementation of inclusion

A series of enactments over the past one hundred years has been concerned with the education of pupils whose disabilities have required some form of special provision. The educational reform movements are continuous in that they have a past and a present and reflect what society perceives as important at the time (Kaufman, Kameenui, Birman, & Danielson, 1990). The delivery system of special education has been described by Reynolds (1989) as "progressive inclusion" which has been gradual and steady to incorporate students with educational disabilities in regular education settings with their nonhandicapped peers. Issues such as defective systems and practices for classifying students as disabled, ineffectiveness of some categorical programs, questions about the validity and appropriateness of pull-out programs, and research on traditional special education placements has facilitated the move toward increased integration (Hagerty & Abramson, 1987; Stainback & Stainback, 1984; Wang & Walberg , 1988). Legislation and litigation reflect contemporary attitudes, beliefs, and professionals' understanding of the existing problems. One way changes are reflected is in the changes of terminology. These changes both in practice and legislation have always been influenced by the professionals involved, their conceptual base, their methodologies of working, and their expertise in assessment and education of children (Jones, 1989).

Historically, the evolution of inclusion began to develop during the 1960's when the trend shifted from educating students with disabilities in segregated special schools or classes to integrating students with disabilities into the regular classroom setting for the majority of the school day. Thus, inclusion became the goal of the effort to change the delivery of special education services. Since then there has been an avalanche of federal and state legislation and numerous court decisions rendered that relate directly or indirectly to individuals with disabilities. By the 1970's there were right-to-education cases in states all over the nation. In response to the widespread failure of public schools to

provide appropriate education to students with disabilities, Congress in 1975 enacted P.L. 94-142, the Education for All Handicapped Children Act (20 U.S.C. Sections 1400-1485). The policy of placement known as "least restrictive environment" principle mandated in P.L. 94-142 has been a defining factor in the movement toward more inclusion. Since the mid-1980's mainstream education settings to include all students gained increased momentum. The issue termed Regular Education Initiative was given impetus by Madeleine Will (1986), former Assistant Secretary for the Office of Special Education and Rehabilitative Services, U.S. Department of Education, when she recommended that regular and special education contribute skills and resources collectively for the betterment of all students. In 1990 P.L. 94-142 was renamed the Individuals with Disabilities Education Act (IDEA). IDEA requires that students with disabilities be educated in a setting that allows them to be integrated into the regular education program to the maximum extent consistent with their needs. Currently, the term "inclusion" denotes programs where regular and special education students are taught together. The term "inclusion" is not mentioned in federal law, but it is a state-of-the-art term referring to placing students with disabilities in integrated sites (McCarthy, 1994).

The definition of inclusion in the educational context, as stated by the Inclusion Times Staff (1993), is that all children can learn in the same environment with different education goals and have their needs met. The Council for Exceptional Children (1993) issued a statement supporting inclusion while viewing inclusion as part of a continuum of options. The IDEA statute requires states and school districts to, the maximum extent appropriate, educate students with disabilities in the same environment as students without disabilities. Special classes, separate schools, or other placements of students should occur only when the students' needs are such that they cannot be met in the regular education environment, even with supplemental aids and services. The past practices that were antithetical to the intent of IDEA did not achieve desired outcomes for students and did not support the need to focus on students as individuals. Inclusion is the term used to

refer to the commitment to educate all students to the maximum extent appropriate in the classroom they would otherwise attend. It entails bringing the support services to the student instead of moving the student to the support services (Rogers, 1993). Two lines of reasoning have united in the inclusion movement: first, the civil rights argument that segregated education is inherently unequal and as a result is a violation of the rights of students who are segregated, and second, the empirical analysis of established special education programs reveal that they are not effective in the expected benefits of academic, social, or vocational skills (Rogers, 1993). In an inclusive school, teacher and curricular resources are used more efficiently and reach the maximum number of students. The National Association of State School Boards (1992) agreed that inclusion is a system that does not limit either who can provide special education or the setting where the instruction takes place.

In practice, inclusion is increasingly accepted and widely practiced. In data reported by the states to the U.S. Department of Education (1995), it was noted that the percentage of all students with disabilities, aged 6 to 21, who were receiving educational services in the regular classrooms was 39.81% during the 1992-1993 school year compared to 28.88% during the 1987-1988 school year. This is an 11% increase in just five years. These figures reflect the current trend of educating students with disabilities in regular classrooms.

The category of learning disability is the most prevalent handicapping condition diagnosed in public schools and there is no evidence of a trend reversal. The Sixteenth Annual Report to Congress On the Implementation of the Education of the Handicapped Act stated that more than 90% of students with learning disabilities are taught in the regular classes for some part of their school day. The number of students classified as learning disabled continues to grow. From 1991-1992 to 1992-1993, the number of students with specific learning disabilities increased 5.4%. The learning disabilities category accounts for 52.14% of all students age 6 through 21 with disabilities who are in

school (U.S. Office of Education, 1994). Mather and Roberts (1994) found that most professionals agree that the majority of students with learning disabilities can be appropriately served in regular education classrooms with minor curriculum adaptations and modifications.

Teacher Roles in Inclusion

Central to the implementation of inclusion are the teachers, regular and special education (Davis, 1989), and teachers are seen as being agents of change in students' learning (Cochran-Smith, 1991). The National Education Association has contended that students should be placed in inclusion classes only if teachers are prepared to assist them (McCarthy, 1994). Inclusion is a philosophical reorientation that defines special education as a service, not a place (Morra, 1994). A number of differences exist between regular and special teachers. Regular education teachers are involved in the academic achievement of the entire class while special education teachers focus on the individual student. In addition, teachers may use incompatible methods to instruct the same students, which results in student confusion with an inability to generalize across settings. Furthermore, the perception of both regular and special education teachers is that the special education teacher's role is secondary, and, therefore, less important (Glatthorn, 1990).

In some team taught classes the regular teacher directs the instructional activities while the special education teacher acts as an aide or assistant. The role of the special education teacher as an assistant includes taking class attendance, typing tests, grading papers, recording grades, running off papers, etc. - all jobs that do not require the expertise of a highly trained special education teacher. (Bean, Trovato, & Zigmond, 1993). The special education teachers felt unqualified to present the curriculum content in the class in which they were team teaching. In some team taught classes identified students only work with the identified teacher (Minke, Bear, Deemer, & Griffin, 1996). This study

also found several areas that needed improvement in the team taught situation including the following: class sizes too large (in the range of 35 to 40 students), need of more planning time for collaboration, additional administrative support, additional resources, and dissatisfaction that inclusive classes were used as a "dumping ground" for all students experiencing difficulties. Special education teachers kept their own grade books with the special education students' grades separate from the rest of the class. This separation of grades and lower expectations of students with disabilities by both the regular and special education teachers resulted in differential criteria for grading (Piccillo, 1994). The reality of actual practices in regular education classrooms with special education students included is often contrary to the vision of inclusion as espoused by the Inclusion Times Staff (1993).

A study of 320 teachers by Minke, Bear, Deemer, and Griffin (1996) found that most teachers noted differences between regular and special education teachers in the team-teaching arrangement. One area of difference was in background, training, and/or experience. Another mentioned difference was in behavior management training or methods. A third difference was noted in the use of instructional methods indicating that special education teachers were more likely to individualize instruction based on their understanding of learning styles and task analysis. Also the attributes and attitudes of special educators were deemed to be different. Both regular education and special education teachers perceived special educators as more consistent, patient, calm, and tolerant when dealing with inappropriate behavior or slow academic progress. Teachers indicated that it is important to respond to the academic success of all students and to utilize effective instructional techniques.

McIntosh, Vaughn, Schumm, Hagger, and Lee (1993), in a study designed to observe effective general education classroom teachers, found that students with learning disabilities are treated by their regular education teacher much like the other students. This finding is both positive and negative in that students with learning disabilities are accepted

by the teacher and treated fairly, but at the same time the instruction is not differentiated

to meet the needs of the students with learning disabilities. They also found that, although

students with learning disabilities were included in class activities, they were participating

very little and were not very involved in the learning process. Two studies by Schumm and

Vaughn (1991, 1992) found that regular education teachers felt modifications that were

least desirable and feasible were those that required changes in their planning, curriculum,

or instructional practices such as adaptations of regular materials, use of alternative

materials, or individualized instruction. The most desirable and feasible adaptations were

to provide positive reinforcement and encouragement, establish personal relationships with

students, involve students in class activities, and respect students with disabilities as

individuals. Generally regular education high school teachers were concerned with treating

all students the same, not identifying students with learning disabilities or making special

accommodations for them because they did not want to call attention to the students with

learning disabilities or make them "stand out" (Schumm et al., 1995). In their studies

teachers expressed concerns that instruction should be focused on meeting the needs of

the class as a whole rather than meeting the specific instructional needs of students with

learning disabilities. Vaughn and Schumm (1996) believe that the fundamental question of

inclusion needs no longer be:

> "What are the most effective practices for students with
> learning disabilities in the general education classroom?"
> but "What are the most effective practices for students
> with learning disabilities in the general education
> classroom that (a) are feasible to implement, (b) are
> likely to be sustained by teachers over time, and (c) will
> positively influence the performance of all learners in the
> classroom, including average-and high-achieving
> students?" (p. 110)

Another concern in implementing inclusion is the decision regarding appropriate

curriculum. In regular education classes the curriculum serves as the basis for decisions

about the topics and the levels of presentation (Fuchs & Fuchs, 1994). In resource special

education classrooms there is a difference in format and depth from the content of the regular education classrooms, so special education students are more likely to receive a more comprehensive curriculum if they are placed in regular included classes (Piccillo, 1994). However, unlike curriculum, Stainback and Stainback (1984) state that there are not two distinct sets of instructional methods, one for regular students and one for special students, but rather that instructional methods such as basic instructional processes need to be tailored to individual characteristics of all learners. Strategy instruction has been reported to be beneficial for all students (Deshler et al., 1984).

Sands, Adams, and Stout (1995) investigated special educators' training and beliefs about curriculum, policy, and program development. Their major findings included the practice that special education teachers received most of their training in curriculum development and modifications on the job. They also found that teacher time was spent primarily on academic remediation rather than strategy instruction. As more students with disabilities receive their education in inclusive settings, it is critical for all teachers who serve special education students to have skills in curriculum and instructional strategies. Studies have shown that collaborative-consultation models can benefit students with learning disabilities and improve teaching and student learning (Mercer, 1987; Wiedmeyer & Lehman, 1991). Ideally, team teaching taps into the strengths of both regular and special educators and both may increase and diversify their skills. Team teaching offers the most direct classroom support and more completely meets the needs of all students in the classroom (Jakupcak & Rushton, 1992). Wiedmeyer and Lehman (1991) found that for the most part special education teachers are familiar with modifications of assignments to match student strengths and weaknesses, learning styles, and evaluation of progress.

Regular education teachers, on the other hand, are familiar with the knowledge they are expected to teach in the traditional core curriculum (Hutchinson, 1993). Success of team teaching depends on shared philosophy and commitment of both regular and special educators to ensure that a variety of learning opportunities in curriculum and

learning strategies will exist for all students. Collaborating skills for the effectiveness of integration of students are needed by the regular and special education teacher (Voltz, Elliott, & Cobb, 1994). The special education teacher also needs to be able to instruct the regular education student as well as the special education student (Whitaker, 1994). By implementing the instruction of strategies into the instruction of the content, the philosophies, the commitment, and the expertise of the regular and special educator can be integrated into a collaborative or team taught regular classroom.

Students and Inclusion

Students with learning disabilities are enrolled in some combination of academic environments that may include a regular classroom, a consulting-teacher classroom, an inclusive team taught classroom, or a resource room setting for part of the school day (Carlberg & Kavale, 1980; Greenwood, 1985; Madden & Slavin, 1983). Students with learning disabilities have to adjust to a variety of settings each day. Studies have shown that teachers in both settings designate similar amounts of time to various instructional pursuits, although the class structure in special education classes often differs from that in regular classes (Greenwood, Delquadri, Stanley, Terry, & Hall, 1985).

There is a belief that students with learning disabilities need to be educated for most of the school day in regular classrooms (Carlberg & Kavale, 1980; Madden & Slavin, 1983). Vaughn and Schumm (1995) defined responsible inclusion as education that is student centered and based on each students' needs. They believe the goal of responsible inclusion is that all students with disabilities be placed in the regular classroom unless their academic needs cannot be adequately met there. The first consideration in responsible inclusion is the academic progress of the students with learning disabilities in the regular classroom. Students with learning disabilities in regular content education classes encounter curriculum content that may be abstract, complex, and voluminous. This is

particularly true of secondary classrooms because of continual demands for increased

performance and excellence in core classes by businesses and governmental agencies. One

barrier to the placement of students with learning disabilities in regular classroom settings

is the increasingly higher standards of academic competence in regular-class settings

(McLeskey, Skiba, & Wilcox, 1990). The instructional decision in the regular education

classes is driven by content coverage, and students with learning disabilities are expected

to cover the same content at the same pace as other students (Vaughn & Schumm, 1996).

In addition to reading content-area information, students with learning disabilities must

meet the same demands of the regular class as students without learning disabilities.

Students must be able to listen to lectures and take notes, complete large amounts of

written assignments, and take tests that frequently do not facilitate student responding

(Putnam, 1992).

Some researchers maintain that special education resource rooms have not been

effective for students with learning disabilities (Lipsky & Gartner, 1987) so inclusive

education is preferred (Baker, Wang, & Walberg (1995). Madden and Slavin (1983)

stated:

> There is little evidence that self-contained special
> education is superior to placement in regular classes
> in terms of increasing the academic performance of
> Mildly Handicapped students, and the best evidence
> is that, in general, it is the regular class placement
> with appropriate supports that is better for the
> achievement of these students. (p. 555)

There are others, however, who conclude that some elements of effective

instruction were missing in inclusive settings, for example: modifications, progress

monitoring for individual students, and individual attention to specific student needs

(Baker & Zigmond, 1995). Some maintain that there are many instances in which special

education resource rooms promote greater academic achievement (Fuchs & Fuchs, 1995).

Other studies found that students with learning disabilities had greater levels of attention

and higher on-task behavior in the special class than in the regular classroom, and that students with learning disabilities were more distractible in the regular class (Richey, Miller, & Lessman, 1981; Sherry, 1981). Lastly, Morsink, Soar, Soar, and Thomas (1986) indicated that lower teacher-pupil ratios provide students with learning disabilities increased opportunities for verbal interactions.

Just as there are concerns about the educational placement of students with learning disabilities, there are concerns about students without learning disabilities in inclusive setting. One principle of inclusion is that everybody benefits from including students with learning disabilities in the same classroom (Stainback & Stainback, 1990). In another study, Reynolds (1991) stated that the screening process and eligibility requirements exclude many students who need extra instructional support. Advocates of inclusion maintain that since many students "fall through the cracks", a single educational system should be responsible for teaching all students regardless of their needs. Education in regular classrooms should emulate special education instruction and employ specialized instruction to more effectively meet the needs of every student (Reynolds, 1991). There is recognition that perhaps as many as 75% of the students classified as disabled have been misdiagnosed (Reynolds, Wang , & Walberg, 1987), causing educators to rethink which environment is best suited for educating students with disabilities. In addition, students without disabilities have not been found to suffer academically (Stainback & Stainback, 1984), but rather have actually benefited from inclusive settings by gaining a greater knowledge and understanding of diversity and the needs of other students. Some surveys have shown that teachers believe including students with learning disabilities in the regular education classrooms compromises the education of higher level students (Vaughn & Schumm, 1996). Other teacher concerns are that regular education students do not receive the proper time or attention to develop within their educational programs when students with disabilities are in the classroom (Stoler, 1992).

Student outcome objectives were the focus of a study by Johnston (1994) which demonstrated that students with learning disabilities in collaborative classrooms outscored students with learning disabilities in non-collaborative classrooms on a criterion-referenced minimum competency exam and an academic achievement test. On two measures of self-esteem both students with and without learning disabilities in collaborative classrooms scored higher than did their peers in non-collaborative settings.

Research seems to be inconclusive when determining which environment is most effective for students with learning disabilities. An important focus for the present study is that outcomes for all learners, including students with and without learning disabilities will be evaluated in different academic environments.

Summary

Review and analysis of the presented literature, experimental and nonexperimental, revealed several major concerns for professional practice and further educational research to facilitate successful inclusion in regular education content area classes for students with learning disabilities. This chapter was divided into six sections. In the first section characteristics of students with learning disabilities were presented with particular attention given to strategy deficiencies. Also described was a brief overview of the current approaches to the neuropsychological and behavioral domains of students with learning disabilities. In the second, third, and fourth sections, the variables of goal orientation, self-efficacy, and test anxiety were discussed as particular concerns of the interpersonal perceptions of students with learning disabilities in the behavioral domain. In the fifth section, test-taking strategies were discussed with background information given on major assumptions of the cognitive theories and the theories of Vygotsky and Bandura. Finally, in the sixth section, the academic environments including resource rooms, inclusive, and regular classrooms were discussed with the implications of issues raised for this research.

The goal of interventions for students with learning disabilities is the acquisition of knowledge which places a high premium on the acquisition of metacognitive functions. A cognitive intervention approach in a content area classroom with collaborative team teaching to educate students with learning disabilities has several advantages. First, it focuses specifically on the acquisition of content information by the student. Second, it places the student at the focus of the problem. Third, it looks at the interaction of the student, the classroom with team teachers, and the social influences of those interacting with the student in the environment.

It is clear that extensive research focused on the best strategies for the inclusion of students with learning disabilities is needed to assist educators facing the challenge of the least restrictive environment, inclusion, and students with learning disabilities.

CHAPTER III

METHOD

The purpose of this study was to examine the effect of instruction in an inclusion or exclusion environment on the goal orientation, self-efficacy, and test anxiety of students with and without learning disabilities. The study was implemented in the following three types of classroom environments: (1) resource room English classes comprised exclusively of students with learning disabilities, (2) inclusive team taught English classes with a regular education teacher and a special education teacher interacting in a team teaching situation comprised of students with and without learning disabilities, and (3) regular education English classes comprised exclusively of students without learning disabilities. The instruction employed in all environments was a test-taking strategy. Chapter III presents the research method that was used in this study, including a description of the subjects, the survey instrument, the procedures, data collection, and statistical analysis.

Research Questions

The study examined the effect of different instructional environments on students' with and without learning disabilities goal orientation, self-efficacy, and test anxiety in a resource room class, a regular education class, and an inclusive team taught class. More specifically, the intent of the study was to address the following questions:

1. For students with learning disabilities, will a test-taking strategy in the environments of resource room or inclusive team taught class influence intrinsic goal orientation, extrinsic goal orientation, self-efficacy, and test anxiety?

2.   For students without learning disabilities, will a test-taking

strategy in the environments of regular education class or

inclusive team taught class influence intrinsic goal orientation,

extrinsic goal orientation, self-efficacy, and test anxiety?

Subjects

The study was conducted in a large suburban school district in the Midwest. The

district profile indicated the average income was $34,844 with an unemployment rate of

4% and a poverty rate of 7%. The high school had an enrollment of 1,930 students in

grades 10-12. All subjects were in 10th, 11th, or 12th grade level English classrooms.

Assignment of students to the English classes was done randomly by the computer; hence,

the sample of students in this study could be assumed to be representative of the English

classes in this high school. The subjects invited to participate were from five intact English

resource rooms with students with learning disabilities, six intact inclusive team taught

English classes including students with and without learning disabilities, and three intact

regular education English classrooms with students without learning disabilities. The

students with learning disabilities were identified by school personnel as needing special

education services according to federal and state criteria and were on current IEP's. All

students with learning disabilities were receiving special education services and were

members of their respective English classes. The low SES identification was determined

for both the students with and without learning disabilities by ascertaining if they were

eligible for free or reduced lunches. All students in the fourteen English classes involved in

the study participated in the test taking strategy and the pre and post strategies

questionnaire; only the data obtained from the students whose parents signed the

permission letter was used for the analysis of the study. Also only the data of students who

obtained mastery of a minimum of 80% on the strategy pretests and/or controlled practice tests were used.

Basic guidelines are needed in designing and implementing research studies for students with learning disabilities (Parker, 1990) in order to provide external validity. Researchers must provide subject description in enough detail for others to replicate the study to achieve external validity. In an effort to establish more universal standards for subject description, the Research Committee for the Council for Learning Disabilities (CLD) published guidelines regarding the minimum information required for the description of participants (Smith et al., 1984). Updated in 1992, the committee recommended that the subjects be thoroughly described in the narrative and in an accompanying table. The committee further reiterated that by gathering and reporting all relevant participant information recommended by the guidelines, the researcher can more precisely and fully interpret and integrate research in applied settings by achieving external validity. In keeping with the guidelines described above, the students with learning disabilities are completely described in Table I. The students without learning disabilities are completely described in Table II.

TABLE I
DESCRIPTION OF SUBJECTS WITH LEARNING DISABILITIES

		Resource Room	Team Taught
Numbers			
	Male	27	18
	Female	5	14
	Total	32	32
Age			
	Mean	17.4	17.0
	Range	4	5
Race/Ethnicity			
	Anglo	27	23
	Hispanic	0	3
	African American	2	1
	Native American	3	5
	Asian American	0	0
	Other	0	0
SES			
	High/middle	23	28
	Low	9	4
Grade Level			
Time in Special Ed. Placement/Years Mean		8.86	7.31
Level of Placement			
	Tenth	13	15
	Eleventh	8	7
	Twelfth	11	10
Intelligence (a)			
	Mean	88.4	93.0
	Range	27	30
	SD	7.53	8.14
Specific Academic Achievement (Reading):(b)			
	Mean G.E.	7.8	7.8
	SD	3.33	2.83
	Range	14.1	12.1
Location			
Geographic region		West South Central	West South Central
	Locale	Suburban	Suburban

a. Name(s) of test(s) used: Kaufman Brief Intelligence Test (k-Bit) /Wechsler Intelligence Scale for Children-Third Edition (WISC-III)
b. Name(s) of test(s) used: Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R)/ PIAT-R

TABLE II
DESCRIPTION OF SUBJECTS WITHOUT LEARNING DISABILITIES

	Regular Education	Team Taught
Numbers		
Male	34	33
Female	30	31
Total	64	64
Age		
Mean	16.7	17.1
Range	4	5
Race/Ethnicity		
Anglo	48	47
Hispanic	2	4
African American	5	0
Native American	9	8
Asian American	0	5
Other	0	0
SES		
High/middle	60	56
Low	4	8
Grade Level		
Time in Special Ed. Placement	0	0
Level of Placement		
Tenth	23	27
Eleventh	19	18
Twelfth	22	19
Specific Academic Achievement (Reading):		
Mean G.E.	12.0	12.7
SD	2.81	2.83
Range	14.1	11.9
	a.	a.
Location		
Geographic region	West South Central	West South Central
Locale	Suburban	Suburban

a. Name of test used: Test of Achievement and Proficiency (TAP) Group Achievement Reading Test

Selection criteria of district eligibility included evidence of (a) a disorder in one or more of the basic psychological processes including visual, auditory or language processes; (b) academic achievement significantly below the student's level of intellectual functioning; (c) learning problems that were not due primarily to other handicapping conditions; and (d) the ineffectiveness of general educational alternatives in meeting the student's educational needs. The following additional selection criteria were developed for this study:

(a) Verbal, performance or full scale IQ of 80 or above (this information was obtained from school records).

(b) Above third-grade reading level to allow full benefit from the learning strategies intervention (this information was obtained from records of annual testing for the IEP administered by a special education teacher).

(c) Receiving Learning Disabilities services.

(d) Enrollment in an English class

(e) Parent permission.

Permission letters were sent to the parents of all students enrolled in all three types of English classes in which the study was conducted. (See Appendix C.) The classrooms were selected on the basis of principal approval and the consensus approval of the special education, regular education teachers and team teachers. Administration and teachers agreed to provide the instructional intervention to all students. The pre and post test data were used by school personnel to determine instructional effectiveness. Only those students whose parents granted consent to participate were included in the data analysis for this study.

The English classrooms that were invited to participate in the study are defined and described as follows:

The regular education classes were an instructional arrangement composed of only students without learning disabilities with a regular certified English teacher. In the three regular education classes that were invited to participate in the study, there were three different teachers: one at the tenth grade level, one at the eleventh grade level and one at the twelfth grade level. The classes studied grammar, writing, documented essays, and literature as required by the curriculum of the district and the state.

The inclusive team taught classes were an instructional arrangement composed of both students with and without learning disabilities in a regular education class with a certified regular education teacher and a certified special education teacher collaborating in the planning, instructional, and evaluation responsibilities for the same students on a regular basis for the academic year (Stainback & Stainback, 1990). In the six inclusive team taught classes that were invited to participate in the study, there were three different certified regular education teachers: one at each of the tenth, eleventh, and twelfth grade levels, and three different certified special education teachers. Each team decided before the school year began on the basic structure of the teaming arrangement. In all of the classes, the special education teacher graded papers, modified tests and assignments for the students with learning disabilities, assisted all students with documented essays, typed or duplicated tests and assignments, and assisted the regular education teacher as needed. In one of the team taught classes, the special education teacher kept her own grade book with the names of the students with learning disabilities and their grades, and she was solely responsible for grading the papers of those students. In one of

the team taught classes, the special education teacher taught parts of the curriculum.

The resource room classes were an instructional arrangement composed of a homogeneous grouping of students with learning disabilities in a special education class with a certified special education teacher. In the six resource rooms that were invited to participate in the study, there were two different certified special education teachers. Each of the resource rooms contained students in the 10th, 11th, and 12th grade levels. One teacher had one of the English resource rooms used in the study. She assigned different reading level books with accompanying questions for each student to individually read. The second teacher had four of the resource rooms used in the study. She covered the English curriculum of a regular class at a slower pace with lower level grammar and literature texts with all student working from the same texts.

<center>Instruments</center>

This section discusses the Motivated Strategies for Learning Questionnaire that was utilized in collecting pretest and posttest data on the groups. The Motivated Strategies for Learning Questionnaire (MSLQ) is a questionnaire that assesses students' perceived goal orientation, self-efficacy, test anxiety, cognitive strategy use, and self-regulation of their learning, . It has been administered in research studies to students in junior high school through college grade levels and to students with and without learning disabilities (Pintrich, 1991; Pintrich & DeGroot, 1990; Pintrich & Garcia, 1991). This study used the MSLQ Part A ,the motivation section, which consists of 31 items that assess students' goals and beliefs about their ability to succeed and their anxiety about tests. (See Appendix E.) For this study Part B, the 31 items of the learning strategies

section, was not used as the hypotheses were not specific to the cognitive and metacognitive components of the test-taking strategy. Development started in 1986 on the MSLQ and continual revision has occurred on the basis of the results of statistical analyses including internal reliability coefficient computation, factor analyses and correlations with academic performance and aptitude measures (Pintrich et al., 1991).

The students indicated their preferences on a seven point Likert scale from "not at all true of me" to "very true of me". Scales are constructed by taking the mean of the items that make up the scale so an individual student's score is computed by summing the items of a scale and taking the average.

The authors of the questionnaire (Pintrich et al., 1991) state that the different scales of the MSLQ can be used together or singly. On the pretest, the students' total score on the 31 items on the Part A Motivation Scale was used for the data analysis to determine whether there were any significant differences in the intact classes of the inclusion and exclusion learning environments of students with and without learning disabilities. The four MSLQ scales of intrinsic goal orientation, extrinsic goal orientation, self-efficacy, and test anxiety were used as modular scores from the posttest scores for the mixed two factor analysis of variance.

The total score included the scales of intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self efficacy, and test anxiety. The coefficient alphas on the scales in Part A as reported by Pintrich et al. (1991) follow. The scale of intrinsic goal orientation contains 4 questions and assesses the student's perception of why he/she is engaging in a learning task; the coefficient alpha is .74. The scale of extrinsic goal orientation contains 4 questions and assesses the degree to which the student perceives himself/herself engaging in a task for reasons such as grades, rewards, performance, evaluation by others, and competition; the coefficient alpha is .62. The scale of task value contains 6 questions and refers to why the student is participating in the task; the coefficient alpha is .90. The scale of control of learning beliefs contains 4

questions and refers to students' beliefs that their efforts to learn will result in positive outcomes; the coefficient alpha is .68. The scale of self-efficacy for learning and performance contains 8 questions and assesses expectancy for success and judgment about his/her ability to accomplish a task; the coefficient alpha is .93. The scale of test anxiety contains 5 questions and refers to both cognitive concern with performance and emotionality , the affective and physiological arousal aspects of anxiety; the coefficient alpha is .80.

The author's reported coefficient alpha on the four scales that were used singly from the posttest administration of the MSLQ were as follows: intrinsic goal orientation is .74, extrinsic goal orientation is .62, self-efficacy is .93, and test anxiety is .80.

Procedure

Prior to the study, discussions were held with the regular English teachers and the special education teachers who were invited to participate in the study to allow them to choose the strategy intervention that would be most beneficial to their students. Six strategies were presented. The researcher outlined the reading strategy, mnemonic strategy, self-advocacy strategy, text perusal strategy, writing strategy, and test-taking strategy and detailed each.

The reading strategy involved previewing introduction and headings in text, reviewing known information about the topic, predicting content of text material, asking and answering content-focused and problem-solving questions, summarizing, and synthesizing, The mnemonic strategy involved constructing key-word mnemonics for key concepts, tying in key concepts with main ideas on graphic organizers, constructing first-letter mnemonic devices for important vocabulary lists, and using key-word strategy on other types of information. The self-advocacy strategy involved previewing the situation, reviewing and rehearsing what to say, predicting what and how to say it, asking

and answering content-focused and problem-solving questions, summarizing both person's views, and surveying the results of what was agreed upon by both persons. The text perusal strategy involved goal setting, analyzing titles, headings, visuals and words, reviewing introductions and summaries, forming questions, and stating relationships. The writing strategy involved deciding on a topic, estimating main ideas and details, deciding on order of main ideas and details, expressing thesis statement, noting main ideas and supporting ideas, writing conclusion, and searching for errors and correcting.

The teachers favored the test-taking strategy. The researcher prepared the instructional procedures to follow a test-taking strategy by adapting and using a set of instructional procedures developed through Kansas University Institute for Research in Learning Disabilities (KU-IRLD) Learning Strategies Curriculum: The Test-Taking Strategy (Hughes et al., 1993), Tips on Testing Strategies for Test-Taking (Alford, 1979) and Proven Strategies for Successful Test Taking (Sherman & Wildman, 1982). (See Appendix F.)

The MSLQ , a self-report measure, was administered to all the students participating in the study for pretest and posttest scores in goal orientation, self-efficacy and test anxiety. The questionnaire was administered in a group format to the class as a whole within the assigned class a week before the first day and a week after the last day of instructional strategy. The MSLQ is not a timed instrument and the testing session lasted approximately 15-20 minutes. The certified special education teacher presenting the strategy in each class acted as test examiner and followed the administration directions for the MSLQ in the fourteen established classrooms.

Instruction began approximately 12 weeks after the beginning of the second semester. Lesson plans, detailed scripts and procedures that comprised a protocol for the test-taking strategy using adaptations from KU-IRLD, Learning Strategies Curriculum: The Test-Taking Strategy (Hughes et al., 1993), Tips on Testing Strategies for Test-Taking (Alford, 1979) and Proven Strategies for Successful Test Taking (Sherman

et al, 1982) were prepared by the researcher for the special education teachers to use in conjunction with the test-taking strategy. (See Appendix G.) Transparencies to use during the strategy instruction were also prepared. (See Appendix H.) The scripts, instruction, and teacher behaviors were discussed during the three one hour training sessions for the special education teachers presenting the treatment intervention. Weekly meetings with the researcher and special education teachers teaching the strategy were held during the intervention to discuss the ongoing intervention and any problems that occurred. Certified special education teachers taught the test-taking strategy to the students in each English class invited to participate in the study. The test-taking strategy procedures were taught as prescribed, one hour each week for four weeks. All subjects were allotted the same amount of time for treatment. Attendance records were kept and reported so that students who were absent could make up the work. In addition, pretests and controlled practice tests were administered during the four weeks of instruction so the researcher could determine if the students were learning the strategy or if further review or instruction on a particular concept was needed.

One week after the last intervention, posttest assessment using the Motivated Strategies for Learning Questionnaire was administered to all students in the study. After all the tests had been scored, the researcher presented to each student a Student Feedback Letter (See Appendix I) and the student's scores on the questionnaire on a Student Feedback Form (See Appendix J.) that were included in A Manual for the Use of The Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1991).

During the study, the researcher documented comments the students made about the test-taking strategy as reported by their teachers. (See Appendix K.) The researcher interviewed the participating teachers individually during the teachers' planning period at the conclusion of the study. (See Final Teacher Evaluation Interview, Appendix L.) These interviews and student comments provided more detailed information about the strategy

intervention and enhanced the interpretation of the statistical outcomes (Bogdan & Biklen, 1992).

Instructional Procedures

The test-taking strategy PIRATES was taught to the subjects who participated in this study by instructional procedures designed to enable students to learn to solve problems and to promote skill acquisition (Hughes et al., 1993). The 7-step procedure developed by Hughes et al. was utilized and adapted for the purposes of this study. In addition, test taking strategies of Alford (1979) and Sherman and Wildman (1982) were also incorporated into the lessons. Steps one and two were completed in one hour of classtime. Step three was completed in the second hour of classtime, and step four was started in the second hour of classtime. Step four was completed in the third hour of classtime, and step five was completed in the third hour of classtime. Steps six and step seven were completed in the fourth hour of classtime. The steps and main purpose of each are listed and identified as prescribed by Hughes et al., 1993:

Step 1:   Pretest

Purpose: To determine how well subjects take tests and what kinds of strategies they use when they take a test and to motivate subjects to improve their skills.

Step 2:   Describe

Purpose: To describe the test-taking strategy using PIRATES and the substeps (PASS, RUN, and ACE) and to provide rationale for mastering the strategy.

Step 3:   Model

Purpose: To demonstrate and verbally model the test-taking strategy in its entirety.

Step 4:   Verbal Practice

Purpose: To ensure subjects can name and explain the strategy

steps at the automatic level.

Step 5:   Controlled Practice and Feedback

Purpose: To give subjects practice applying all the steps

of the strategy to classroom-type tests, and to assess

whether subjects are proficient in the use of the strategy.

Step 6:   Advanced Practice and Feedback

Purpose: To give subjects practice applying all the steps

of the strategy to content tests, and to assess whether subjects are

proficient in the use of the strategy.

Step 7:   Posttest

Purpose: To measure subject's progress in learning the strategy

and to encourage subjects to make use of the strategy in a variety

of settings.

See Appendix F for a more detailed description of the instructional procedures.

Hypotheses

From the two research questions, two hypotheses were generated, were stated in the null form and are as follows:

Hypothesis 1. For students with learning disabilities, there will be no

difference in the scores of intrinsic goal orientation,

extrinsic goal orientation, self-efficacy, and test anxiety

between students in the test-taking strategy in the

environments of resource room or inclusive team taught

class.

Hypothesis 2. For students without learning disabilities, there will be no difference in the scores of intrinsic goal orientation, extrinsic goal orientation, self-efficacy, and test anxiety between students in the test-taking strategy in the environments of regular education class or inclusive team taught class.

Statistical Analysis

A four stage analysis procedure was constructed for the data. First, descriptive statistics were completed. Second, analysis on the pretest scores to determine differences among the groups for each dependent variable was conducted. Third, analysis of variance was conducted on the posttest scores of goal orientation, self-efficacy, and test anxiety

Stage I

Demographic variables were compiled and descriptive statistics are reported in Table I (p.55), as recommended by the Research Committee for the Council for Learning Disabilities for the students with learning disabilities. In Table II (p. 56) descriptive statistics for the demographic variables are reported for the students without learning disabilities.

Stage II

The study used intact classrooms of participants for the test-taking strategy intervention, a problem not uncommon to school-based research. To determine if there were any pre-existing differences, analysis was performed on the pretest motivation scores

of each of the groups in the learning environments. Finding no significant difference among the groups at pretest indicated that using intact classrooms did not seriously threaten the validity of the results.

Stage III

Two separate analyses of variance were conducted on the posttest scores of intrinsic and extrinsic goal orientation, self-efficacy, and test anxiety for the motivation dependent variable for both the students with learning disabilities in different environments and the students without learning disabilities in different environments. One analysis of variance was conducted on the posttest motivation scores of students with learning disabilities. For students with learning disabilities, the independent variables for this mixed two-factor ANOVA design were the environment which included the resource room classes and the team taught classes, and the second independent variable was motivation which included intrinsic goal orientation, extrinsic goal orientation, self-efficacy and test anxiety. The dependent variable was the set of scores on the Motivated Strategies for Learning Questionnaire. The specification table (Table III), schematic diagram (Figure 1) and source table (Table IV) for this design are as follows

TABLE III

Specification Table for Students With Learning Disabilities

Variable	# levels	factor
Environment	2	between
Motivation	4	within
Subjects/E	32	(64/2)

total # scores = 2 x 4 x 32 = 256
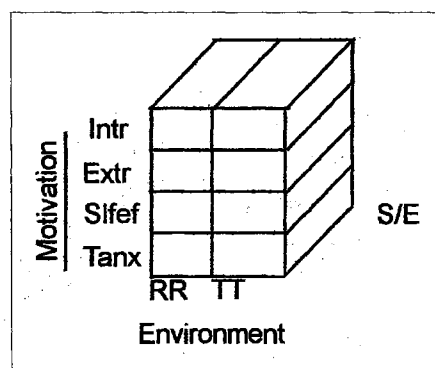
Figure 1. Design Diagram of Students
With Learning Disabilities

TABLE IV

Source Table for Students With Learning Disabilities

Source		df
Environment	(e-1)	1
S/E	e(s-1)	62
Motivation	(m-1)	3
E x M	dfe x dfm	3
M x S/E	dfm x dfs/e	1

Total # scores - 1 = total df = 255

The first effect tested was interaction. The influence of the different environments of resource room classes and team taught classes will be constant at all four points of motivation: the influence of motivation will be constant at the two levels of environment of resource room and team taught. (No interaction). The intent of this component of the hypothesis was to determine if there was any significant difference in the motivation scores of students with learning disabilities in the two environments

The second effect tested was environment. There will be no statistically significant motivation differences between students with learning disabilities in the two environments of resource room classes and team taught classes. The intent of this component of the hypothesis was to determine if any significant difference occurred in the motivation scores between the students with learning disabilities in the resource room classes and the team taught classes.

The third effect tested was motivation. There will be no statistically significant differences among the components of motivation of intrinsic goal orientation, extrinsic goal orientation, self-efficacy and test anxiety for students with learning disabilities. The intent of this component of the hypothesis was to determine if there was any difference in the motivation scores of students with learning disabilities.

The second analysis of variance was conducted on the posttest motivation scores of students without learning disabilities. For students without learning disabilities, the independent variables for this mixed two-factor ANOVA design were the environment which included the regular education classes and the team taught classes, and the second independent variable was motivation which included intrinsic goal orientation, extrinsic goal orientation, self-efficacy and test anxiety. The dependent variable was the set of scores on the Motivated Strategies for Learning Questionnaire. The specification table (Table V) , schematic diagram (Figure 2) and source table (Table VI) for this design are as follows:

TABLE V

Specification Table for Students Without Learning Disabilities

Variable	# levels	factor
Environment	2	between
Motivation	4	within
Subjects/E	64	(128/2)

total # scores = 2 x 4 x 64 = 512
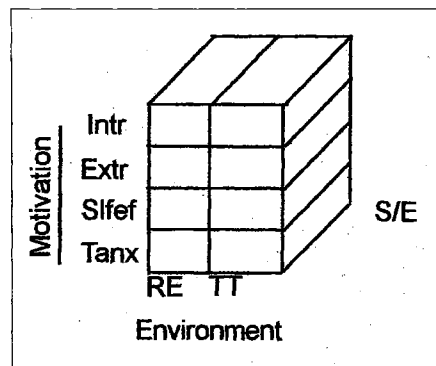
Figure 2. Design Diagram of Students
Without Learning Disabilities

TABLE VI

Source Table for Students Without Learning Disabilities

Source		df
Environment	(e-1)	1
S/E	e(s-1)	126
Motivation	(m-1)	3
E x M	dfe x dfm	3
M x S/E	dfm x dfs/e	378

Total # scores - 1 = total df = 511

The first effect tested was the interaction. The influence of the different environments of regular education classes and team taught classes will be constant at all four points of motivation; the influence of motivation will be constant at the two levels of environment of regular class and team taught (No interaction). The intent of this component of the hypothesis was to determine if there was any significant difference in the motivation scores of students without learning disabilities in the two environments.

The second effect tested was environment. There will be no statistically significant motivation differences between students without learning disabilities in the two

environments of regular education classes and team taught classes. The intent of this component of the hypothesis was to determine if any significant difference occurred in the motivation scores between the students without learning disabilities in the regular classes and the team taught classes.

The third effect tested was motivation. There will be no statistically significant differences among the components of motivation of intrinsic goal orientation, extrinsic goal orientation, self-efficacy and test anxiety for students without learning disabilities. The intent of this component of the hypothesis was to determine if there was any difference in the motivation scores of students without learning disabilities.

Stage IV

An informal qualitative evaluation of the effectiveness of the test taking strategy was ascertained from the verbal comments of the students during the study. The regular education teachers or the special education teachers would relate to the researcher students' comments which the researcher documented. (See Appendix K) In addition, a final teacher interview was individually conducted by the researcher at the conclusion of the study. (See Appendix L.)

CHAPTER IV

RESULTS

The purpose of this chapter is to report the findings of data analysis comparing the intrinsic goal orientation, extrinsic goal orientation, self-efficacy and test anxiety scores of students with and without learning disabilities in different environments. The results of this study are organized in three sections to address the two questions. In the first section the results of the comparison of students with and without learning disabilities in different intact classes with different teachers and different grade levels are presented. In the second and third sections, the results of separate mixed two-factor design ANOVAs for the LD and NLD groups are presented.

Preliminary Analyses

The initial analyses examined group differences of students in the three environments. The total scores from the 31 items of the Motivation Scales of the MSLQ were used for the pretest scores. The data of the pretest scores was examined to determine whether there were any significant differences in the intact classes between the students with learning disabilities in the different resource room classes, the students with learning disabilities in the different grade levels and team taught classes, the students without learning disabilities in the different grade levels and different team taught classes, and finally, the students without learning disabilities in the different grade levels and different regular classes. Due to the number of group comparisons that were assessed across these analyses, probability values were adjusted downward from .05 to .001 to protect against Type I error. Results are reported in Table VII for students with learning disabilities in different resource rooms, in Table VIII for students with learning disabilities in different

team taught classes, in Table IX for students without learning disabilities in different

regular education classes and in Table X for students without learning disabilities in

different team taught classes.

TABLE VII

Group Difference Assessment for LD Students in Five Different Resource Rooms

Source of Variance	df	SS	MS	F
Between groups	4	2.34	.58	.50
Within groups	27	31.18	1.15	
Total	31	33.52		

$p > 001.$

TABLE VIII

Group Difference Assessment for LD Students in Six Different Team Taught Classes

Source of Variance	df	SS	MS	F
Between groups	5	8.18	1.63	3.46
Within groups	26	12.25	.47	
Total	31	20.43		

$p > .001$

TABLE IX

Group Difference Assessment for NLD Students in Three Different Regular
Education Classes

Source of Variance	df	SS	MS	F
Between groups	2	7.96	3.98	6.31
Within groups	61	38.77	.63	
Total	63	46.73		

$p > .001$

TABLE X

Group Difference Assessment for NLD Students in Six Different Team Taught
Classes

Source of Variance	df	SS	MS	F
Between groups	5	2.77	.55	1.61
Within groups	58	19.72	.34	
Total	63	22.49		

$p > .001$

The results of .50, 3.46, 6.31 and 1.61 respectively were not statistically significant at the .001 level of alpha. This indicated no significant pretest differences among the various intact classes of students with and without learning disabilities in different environments. Pintrich et al., 1991 designed the different scales of the MSLQ to be used together or singly as needed, and for the pretest analyses, the total score was reported. The researcher concluded that using intact classes with different teachers and different grade levels did not seriously threaten the validity of the study's results.

Results of Analysis for Students with Learning Disabilities

The following summary table in Table XI presents the results of the mixed

two-factor ANOVA design using students with learning disabilities.

TABLE XI

Summary Table for Students With Learning Disabilities

Source	SS	df	MS	F
Environment	.04	1	.04	.015
S x E	192.93	62	3.11	
Motivation	38.34	3	12.78	16.18*
E x M	4.57	3	1.52	1.93
M x S/E	146.90	186	.78	
Total	382.81	255		

* $p < .05$

The assumptions that are associated with mixed model designs were tested. The

first assumption of independence was met because students were assigned by computer to

classes, and all subjects were individually tested. In addition, the nonsignificant results of

the preliminary analyses ensured use of the computer assigned intact classes was not a

threat to the validity of the study. The second assumption of normality was met because

of equal numbers of subjects per cell (32). The assumption of homogeneity of variance

was met as demonstrated by a nonsignificant Fmax test, $F(2, 31) = 2.58, p > .05$.

Homogeneity of covariance was met as evaluated by covariance matrices for symmetry

and homogeneity of covariance. Covariance matrices are merely correlation matrices

whose values have been multiplied by the standard deviations, thus reattaching the units of

measure. Figures 3, 4, and 5 all depict the pattern of covariance of each group which is

the same as the pattern of the pooled matrix, and the ratio of 3 to 1 assessed indicating

that symmetry and homogeneity of covariance were both met.

Resource Room

	Intr	Extr	Slfef	Tanx
Intr	1.47	0.974	1.05	0.366
Extr		1.9	1.25	0.477
Slfef			1.52	9.07
Tanx				1.5

Figure 3. Matrix of Resource Room Groups for
Students With Learning Disabilities

Team Taught

	Intr	Extr	Slfef	Tanx
Intr	0.884	0.619	0.521	0.344
Extr		1.44	0.641	0.393
Slfef			0.734	2.25
Tanx				1.18

Figure 4. Matrix of Team Taught Groups for
Students With Learning Disabilities

Pooled

	Intr	Extr	Slfef	Tanx
Intr	1.2	0.798	0.798	0.323
Extr		1.67	0.947	0.434
Slfef			1.13	4.08
Tanx				1.38

Figure 5. Matrix of Collapsed Groups of Resource
Room and Team Taught Combined

It was hypothesized that the influence of the different environments of resource

room and team taught would be constant at all four points of motivation and also that the

influence of motivation would be constant at the two levels of environment of resource

room and team taught. The results of the Environment x Motivation was found to be not significant, $F(3, 186) = 1.93, p > .05$; therefore, the null hypothesis of no interaction between environment and motivation was retained.

It was hypothesized that no significant difference would exist among the two environments of resource room and team taught on motivation of students with learning disabilities. The results of the 2 x 4 (Environment x Motivation) repeated measures analysis found the main effect for environment was nonsignificant, $F(1, 62) = .015, p > .05$; therefore, the null hypothesis of no difference in the environments of resource room and team taught was retained.

It was hypothesized that no significant difference would exist among the motivation of each student with learning disabilities in intrinsic goal orientation, extrinsic goal orientation, self-efficacy and test anxiety. The results of the 2 x 4 (Environment x Motivation) repeated measures analysis found the main effect for motivation was significant, $F(3, 186) = 16.18, p < .05$; therefore, the null hypothesis of no difference in the motivation of students with learning disabilities was rejected. Regardless of environment, these students reported differences in motivation. As the F ratio for motivation was significant, omega squared was calculated to provide a measure of the strength of motivation for practical significance. Omega squared was .009 indicating that less than 1% of the variance of motivation of students with learning disabilities was accounted for by differences in intrinsic goal orientation, extrinsic goal orientation, self-efficacy and test anxiety. This according to Cohen (1977) is a small effect. Table XII shows the Table of Means for the motivation main effect.

TABLE XII

Means for Motivation Main Effect for
Students With Learning Disabilities

Motivation

Intr	4.58
Extr	5.2
Slfef	4.96
Tanx	4.18

Figure 6 of motivation main effect shows that the highest value was extrinsic goal orientation with self-efficacy being the next highest. The lowest of the first three motivation scales was the value for intrinsic goal orientation. The value of test anxiety was the lowest of all four.
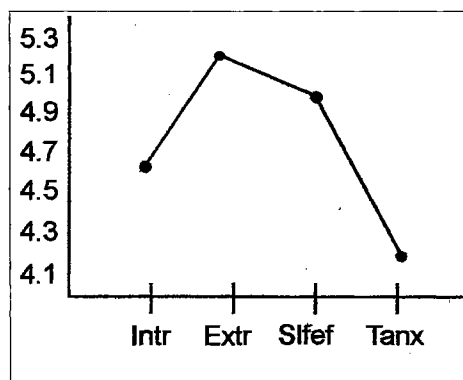
Figure 6. Motivation Main Effect Mean
Scores of Students With Learning
Disabilities on the Motivated Strategies
for Learning Questionnaire

There were three degrees of freedom so a follow-up analysis was conducted using the Tukey post hoc test. The post hoc analysis of Tukey indicated there was a statistically significant difference in the intrinsic and extrinsic goal orientation at the $p < .05$, in intrinsic goal orientation and test anxiety, in extrinsic goal orientation and test anxiety, in

self-efficacy and test anxiety. However, there was no significant difference in extrinsic goal orientation and self-efficacy. In contrast to the high scores on extrinsic and intrinsic goal orientation and self-efficacy which would have indicated a better score, a high score on test anxiety meant more worrying and more anxiety on testing situations.

Results of Analysis for Students without Learning Disabilities

The following summary table in Table XIII presents the results of the mixed-two factor ANOVA design using students without learning disabilities:

TABLE XIII

Summary Table for Students Without Learning Disabilities

Source	SS	df	MS	F
Environment	1.79	1	1.79	.68
S x E	330.62	126	2.62	
Motivation	186.23	3	62.07	48.85*
E x M	3.78	3	1.26	.99
M x S/E	480.29	378	1.27	
Total	1002.73	511		

*$p < .05$

The assumptions that are associated with mixed model designs were tested. The first assumption of independence was met because students were assigned by computer to classes, and all subjects were individually tested. In addition, the nonsignificant results of the preliminary analyses ensured use of the computer assigned intact classes was not a threat to the validity of the study. The second assumption of normality was met because of equal numbers of subjects per cell (64). The assumption of homogeneity of variance was met as demonstrated by a nonsignificant Fmax test, $F(2, 63) = 1.86, p > .05$.

Homogeneity of covariance was met as evaluated by covariance matrices for symmetry and homogeneity of covariance. Covariance matrices are merely correlation matrices whose values have been multiplied by the standard deviations, thus reattaching the units of measure. Figures 7, 8 and 9 all depict the pattern of covariance of each group which is the same pattern of the pooled matrix, and the ratio of 3 to 1 assessed indicating that symmetry and homogeneity of covariance were both met.

Regular Education

	Intr	Extr	Slfef	Tanx
Inter	1.24	0.447	0.867	0.346
Extr		1.43	0.454	0.337
Slfef			1.24	-9.14
Tanx				1.89

Figure 7. Matrix of Regular Education Groups for Students Without Learning Disabilities.

Team Taught

	Intr	Extr	Slfef	Tanx
Inter	1.44	0.904	0.808	5.95
Extr		1.65	0.634	0.143
Slfef			1.46	-0.91
Tanx				2.36

Figure 8. Matrix of Team Taught Groups for Students Without Learning Disabilities.

Pooled

	Intr	Extr	Slfef	Tanx
Inter	1.35	0.687	0.851	0.193
Extr		1.55	0.556	0.231
Slfef			1.36	-0.511
Tanx				2.11

Figure 9. Matrix of Collapsed Groups of Regular Education and Team Taught Combined

It was hypothesized that the influence of the different environments of resource room and team taught would be constant at all four points of motivation and also that the influence of motivation would be constant at the two levels of environment of regular education classes and team taught classes. The results of the Environment x Motivation was found to be not significant, $F(3, 378) = .99, p > .05$; therefore, the null hypothesis of no interaction between environment and motivation was retained.

It was hypothesized that no significant difference would exist among the two environments of regular education and team taught on motivation of students without learning disabilities. The results of the 2 x 4 (Environment x Motivation) repeated measures analysis found the main effect for environment was nonsignificant, $F(1, 126) = .68, p > .05$; therefore, the null hypothesis of no difference in the environments of regular education classes and team taught classes was retained.

It was hypothesized that no significant difference would exist among the motivation of each student without learning disabilities in intrinsic goal orientation, extrinsic goal orientation, self-efficacy and test anxiety. The results of the 2 x 4 (Environment x Motivation) repeated measures analysis found the main effect for motivation was significant, $F(3, 378) = 48.86, p < .05$; therefore, the null hypothesis of no difference in the motivation of students without learning disabilities was rejected. Regardless of environment, these students reported differences in motivation. As the F ratio for motivation was significant, omega squared was calculated to provide a measure of the strength of motivation for practical significance. Omega squared was .18 indicating that 18% of the variance of motivation of students without learning disabilities was accounted for by differences in intrinsic goal orientation, self-efficacy and test anxiety. This according to Cohen (1977) is a large effect. Table XIV shows the Table of Means for the motivation main effect.

TABLE XIV

Means for Motivation Main Effect for
Students Without Learning Disabilities

Motivation

Intr	4.46
Extr	5.07
Slfef	5.08
Tanx	3.6

Figure 10 of motivation main effect shows that the two highest values, almost

identical, were extrinsic goal orientation and self-efficacy. The lowest of the first three

motivation scales was the value for intrinsic goal orientation. The value of test anxiety

was the lowest of all four.
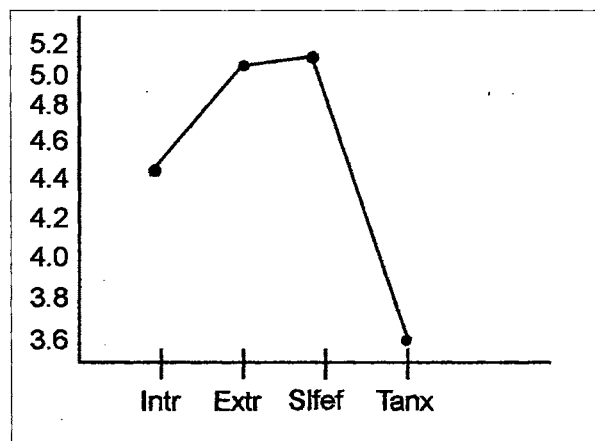
Figure 10. Motivation Main Effect Mean
Scores of Students Without Learning
Disabilities on the Motivated Strategies
for Learning Questionnaire

There were three degrees of freedom so a follow-up test was conducted using the

Tukey post hoc test. The post hoc analysis of Tukey indicated there was a statistically

significant difference in the intrinsic and extrinsic goal orientation, in extrinsic goal orientation and test anxiety and in self-efficacy and test anxiety. However, there was no significant difference in intrinsic goal orientation and self-efficacy, in intrinsic goal orientation and test anxiety and in extrinsic goal orientation and self-efficacy. In contrast to the high scores on extrinsic and intrinsic goal orientation and self-efficacy which would have indicated a better score, a high score on test anxiety meant more worrying and more anxiety on testing situations.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

First, this chapter presents a general summary including the purpose, overview with subjects, procedures and findings of the study. Second, the chapter discusses the conclusions, implications of the findings, limitations of the study and makes recommendations for future research.

Summary

Cognitive strategies have been used successfully in many subject areas and in a wide variety of educational settings. Many studies have investigated the effects of cognitive strategies on learning. Research using motivational variables as the initial focus of the intervention have also been conducted. Few studies have studied the interaction of the learning environment on the effectiveness of strategy instruction as related to motivation and test anxiety of students with and without learning disabilities in different environments.

Purpose of the Study

The purpose of this study was to examine the effect of instruction in different natural environments on students' with and without learning disabilities, intrinsic and extrinsic goal orientation, self-efficacy, and test anxiety. The three types of environments were resource room classes, inclusive team taught classes, and regular education classes. The instruction taught in all environments was a test-taking strategy.

High drop-out rates (Licht, Gard, & Guardino, 1991) a lack of sufficient problem-solving and cognitive strategies (Deshler et al., 1984) and limited self-esteem (Lerner, 1985) on the part of many high school students with learning disabilities indicate a less than bright future for these students in a world that continually demands more of high school graduates. Educators throughout the country are requesting innovative interactive strategies that will motivate students and teach the cognitive strategies that are necessary to meet the challenges of the 21st century (U.S. Department of Education, 1991). As a result, teachers are no longer perceived as being all-knowing dispensers of knowledge but are agents of change in students' learning (Cochran-Smith, 1991). Based upon the favorable results of cognitive strategy instruction and the importance of all students' scores on tests, a test-taking strategy appeared to be a promising technique to instruct high school students with and without learning disabilities in different environments to assess extrinsic and intrinsic goal orientation, self-efficacy and test anxiety. Two experimental questions were addressed. First, for students with learning disabilities will a test taking strategy in the environments of resource room or inclusive team taught class influence intrinsic goal orientation, extrinsic goal orientation, self-efficacy and test anxiety? Second, for students without learning disabilities will a test taking strategy in the environments of regular education class or inclusive team taught class influence intrinsic goal orientation, extrinsic goal orientation, self-efficacy and test anxiety?

Overview of the Study

Fourteen sophomore, junior and senior English classes, composed of students with and without learning disabilities students were selected to participate in this study. All of the students in each class received the test taking strategy and took the pre and post Motivated Strategies for Learning Questionnaire; however, only the data of the students

whose parents signed the permission letter were calculated for the analysis. Also only the data of students who obtained mastery of a minimum of 80 percent on the strategy pretests and/or controlled practice tests was used. Five of the English classes were resource room classes with a total of 32 students with learning disabilities who participated in the study. Six of the English classes were team taught English classes with a total of 32 students with learning disabilities and 64 students without learning disabilities who participated in the study. Three of the English classes were regular English classes with a total of 64 students who participated in the study. The total number of students whose data was used in the study was 192. The total number of students who received the test-taking strategy in the three different environments was 259. Several special education students in the resource room classes and the team taught classes did not qualify for the study even though they returned parent permission because they were classified as mentally retarded, hearing impaired, other health impaired or emotionally disturbed rather than learning disabled. Seventy-four percent of the students who learned the test-taking strategy are included in the study. The three certified special education teachers were trained in the cognitive test taking strategy. Individual discussions were held on a weekly basis with each special education teacher to discuss problems and provide feedback on the progress of the study.

The cognitive test-taking strategy was taught to all classes one hour per week for a total of four weeks. The Motivated Strategies for Learning Questionnaire was administered one week prior to the study as a pretest and one week after the conclusion of the study as a posttest. Pretests and/or controlled practice tests were administered each session of the test-taking strategy so the researcher could incorporate strategy feedback to the students about how well they were applying the strategy and how the strategy use was improving their performance. This was done individually by written comments on the pretests and practice test papers. The information gained from the students' papers also

allowed the researcher to determine if any component of the strategy instruction needed to be retaught or reviewed in greater detail.

The equivalence of the students with and without learning disabilities in the different environments and grade levels with different teachers was measured by performing F tests on the pretest scores. A mixed two-factor analysis of variance was performed on the posttest scores of the dependent variable for the students with learning disabilities in different environments, and a mixed two-factor analysis of variance was performed on the posttest scores of the dependent variable for the students without learning disabilities in different environments.

Findings

The results of the statistical analyses are summarized as follows:

1. The results of the F test for the pretest scores of the students with learning disabilities in the five different resource rooms with different teachers yielded no significant difference between the groups..

2. The results of the F test for the pretest scores of the students with learning disabilities in the three different grade levels with different regular and special education teachers in the six team taught classes yielded no significant difference between the groups.

3. The results of the F test for the pretest scores of the students without learning disabilities in the three different grade levels with different regular education teachers in the three regular education classes yielded no significant difference between the groups.

4. The results of the F test for the pretest scores of the students without learning disabilities in the different grade levels with different regular and special education teachers in the six team taught classes yielded no significant difference between the groups.

5. For the students with learning disabilities, the results of the mixed two-factor analysis of variance yielded no significant difference in the interaction between environment and motivation. A nonsignificant difference was also found for main effect of environment indicating there was no difference in the environments of resource room and team taught classes. However, a significant difference was found at the $p < .05$ level of the main effect of motivation. Further testing using the Tukey post hoc method found a significant difference at the $p < .01$ level between intrinsic goal orientation and extrinsic goal orientation; extrinsic goal orientation and test anxiety; and self-efficacy and test anxiety. The Tukey test yielded no significant difference between the intrinsic goal orientation and self-efficacy, intrinsic goal orientation and test anxiety, and extrinsic goal orientation and self-efficacy (Hypothesis 1).

6. For the students without learning disabilities, the results of the mixed two-factor analysis of variance yielded no significant difference in the interaction between environment and motivation. A nonsignificant difference was also found for main effect of environment indicating there was no difference in the environments of regular education classes and team taught classes. However, a significant difference was found at the $p < .05$ level of the main effect of motivation. Further testing using the Tukey post hoc method found a significant difference at the $p < .01$ level between intrinsic goal orientation and extrinsic goal orientation; intrinsic goal orientation and self-efficacy; intrinsic goal orientation and test anxiety; extrinsic goal orientation and test anxiety; and self-efficacy and test anxiety. The Tukey test yielded no significant difference between extrinsic goal orientation and self-efficacy (Hypothesis 2).

Conclusions

This section summarizes the conclusions obtained from the findings of the statistical analyses of the data. Informal teacher and researcher observations, as well as the

formal teacher interviews provided further evidence to support these conclusions. Factors that were related to the outcome of this study were the student characteristics as defined by the categories of learning disabled and non-learning disabled, the environmental factors of different class placements, the motivational factor as measured in the areas of intrinsic and extrinsic goal orientation, self-efficacy and test anxiety, and finally, the instructional factor of the cognitive test taking strategy.

Learning Environment

The objectives inherent in the inclusion movement as well as the mandates of least restrictive environment and continuum of alternative placements of IDEA were supported. The findings of this study suggested that instruction of a test taking strategy in different learning environments did not significantly affect the interaction between environment and overall motivation of either students with learning disabilities or students without learning disabilities. These results are important because they add evidence to the rationale for including students with learning disabilities in the regular education curriculum classes and, by the same token, support the continuation of special education services in a resource room for other students with learning disabilities since there was no pattern differences across the measures in the resource room environment and the inclusive team taught environment. The results also further support the contention that regular education students are not adversely affected by the inclusion of students with learning disabilities in their classes because there was no significant difference in the inclusive team taught environment and the regular education environment or in the interaction of environment and student motivation. Given that the movement toward inclusion has been controversial for a number of years and has brought the field of special education to a crossroads and generated debate on its future, this study found that different environments were effective and efficient for teaching students with learning disabilities and did not impact motivation.

The data provided by this study in the ecological settings of students with learning disabilities supports the theory that full inclusion may not be the solution for all students with learning disabilities. The continued focus of IDEA on individualized planning and individualized placement decisions for every student with a disability strengthens the concept of least restrictive environment; therefore, every student should be in a learning environment that best meets his or her needs.

Motivation

The ability of students to regulate their motivation depends on their self-efficacy beliefs and their goal orientation and the goal challenges they have set for themselves. Students perceived self-efficacy and goal orientation can specifically affect achievement behavior (Zimmerman et al., 1992). Students' expectations, perceptions of ability and sustained motivation can be increased by using cognitive strategies (Pintrich & Schunk, 1996). The results of this study for both students with and without learning disabilities indicated significant differences in intrinsic goal orientation and extrinsic goal orientation. As anticipated, the higher mean score in extrinsic goal orientation suggested that the students were participating in the class for extrinsic rewards such as grades, evaluation by others (parents) or competition instead of participating in the class for challenge, curiosity or mastery as measured by intrinsic goal orientation. The students without learning disabilities showed a significant difference between intrinsic goal orientation and self-efficacy while the students with learning disabilities showed no significant difference. The higher score on self-efficacy for students without learning disabilities indicated a greater belief and confidence in their ability and skills to accomplish a task than a desire to participate in the class as an end to itself. Students without learning disabilities self-efficacy beliefs could be utilized to increase and sustain intrinsic motivation to learn. The nonsignificant score between self-efficacy and intrinsic goal orientation for the

students with learning disabilities would be consistent with their perception of being ineffective learners whose instructional process is not driven by personal goals. Both groups showed a significant difference between extrinsic goal orientation and test anxiety and self-efficacy and test anxiety. Only the students without learning disabilities showed a significant difference between intrinsic goal orientation and test anxiety. The score of test anxiety measured how much students worried about tests so a lower mean score signified a lower level of anxiety in testing situations. The exposure, experience and practice with different kinds of test formats could have been responsible for the lower scores indicating reduced test related anxiety. Cognitive training on a test taking strategy and increasing test taking skills could have a positive effect of reducing the degree of anxiety.

Test-Taking Strategy

In order to regulate the learning environment for this study, special education services were included in each of the fourteen classrooms. This was accomplished by the special education teachers' presentations of the test-taking strategy. The test-taking strategy addressed the needs of the majority of the students in each class as indicated by the consensus request for the test-taking strategy by all the teachers participating in the study and by the frequency and importance of tests given to students. Due to the six week length of the study, the researcher determined that gain scores on the effectiveness of the strategy itself would be questionable. Therefore, the informal qualitative evaluation of the effectiveness of the study was ascertained by the verbal comments of the students during the study (See Appendix K.), the perceived use of the strategy by the regular and special education teachers who worked with the students involved in the study and the final formal teacher interview.

According to both the regular and special education teachers, the students in the study appeared motivated during instructional sessions. During the instruction students

were surprised that they could underline instructions, code choices, eliminate choices and circle absolute and non-absolute words on their test papers. Students indicated the practice tests were helpful because they were given feedback about where they had made mistakes and why. Many had never realized they needed a consistent "system" to take different kinds of tests.

The regular education teachers received positive feedback from their students about the strategy instruction. Special education teachers who make modifications periodically for the students with learning disabilities observed them using the steps of the strategy when they helped these students take tests in other regular classes. In addition, the teachers whose classes were included in the study noticed evidence of students utilizing the strategy during and after the instruction on their tests and five weeks later on their semester tests. For another example, three weeks after the conclusion of the instruction, one student with learning disabilities in the junior level team taught class told the teacher she found the answer of one question she was unsure of in the question stem of another question. Awareness of this technique was taught in one of the steps of the strategy. A student with learning disabilities in the resource room thanked the teacher for "trying" to teach him how to do better on his tests in all his classes.

The regular education teachers in the team taught and regular classes did not perceive a difference in the attitudes of the students toward class instruction presented by a special education teacher; however, all of the special education teachers perceived that the students in the team taught classes "responded to them more" and were more "open to participation and discussion" than the students in the regular education classes. One special education teacher found that the regular education students appreciated the extra help they received with the test-taking strategy.

All participating regular education teachers were receptive to the idea of special education teachers having a repertoire of strategies available for regular education class as a mini series of lessons to present upon request to help all students. However, one of the

special education teachers felt that strategy instruction would be helpful to the regular education teachers, but did not know how special education teachers could work a repertoire of strategies into an already too hectic schedule.

This study indicated that students' success in any environment directly corresponds to the teacher's willingness and competence to serve the student. The teacher's ability to improve teaching, to diversify methods, and to alter approaches to meet the need of every student in the class improves achievement of all students regardless of the student's educational category. The results of this study on presentation of a cognitive strategy demonstrated that curriculum for students with and without learning disabilities should emphasize thinking, problem solving, and reasoning as facilitated by efficient teaching in the higher order thinking skills. Furthermore, this study indicated that success for students with and without learning disabilities can effectively be enhanced by the shared responsibility and collaboration of the regular education teachers and the special education teachers for all students.

Implications of the Study

Skrtic (1996) pointed out that there have been occurring simultaneously in the separate fields of special education and regular education parallel and similar theories of research that have come to many of the same conclusions about teaching and effective techniques for diverse learners. This study examined both the special education and regular education perspectives of environments for diverse learners. It also determined if inclusive classes were detrimental to students without learning disabilities. Advocates of full inclusion suggest that all students with disabilities be served in regular education classes while advocates of resource rooms for special education placement argue in favor of the effectiveness of resource rooms. This study reflected favorably on resource rooms as well as on inclusive team taught classes and concluded that placement decisions must

continue to be determined on an individual basis. It also verified that the placement of students with learning disabilities in regular education classes did not influence the motivation of students without learning disabilities.

The study also reiterated that special education has much to contribute and that utilization of special education personnel in regular education curriculum can assist in the effectiveness of both special education and regular education initiating one more way for special education teachers to collaborate with colleagues in regular education allowing all teachers to serve all students.

Limitations of the Study

Certain characteristics of design and procedures used in this study limit extrapolation and interpretation of results. First, the study did not quantitatively determine the effectiveness of the test-taking strategy or the durability of effects. Conclusions are limited to the categories of students with and without learning disabilities in sophomore, junior and senior English classes. Relatedly, the environment included in the test-taking strategy were resource rooms, inclusive team taught classes and regular education classes.

A Hawthorne effect could have influenced some of the special education students in the resource room classes normally taught by the researcher and created a threat to external validity. Although a special education teacher other than the researcher taught the strategy to the resource room classes, the fact that the students were aware the research was conducted by their teacher could possibly indicate a bias on their part for the test-taking strategy.

The conclusions of this research are limited to the results of the specific instrument used. Finally, as discussed previously, the generalizations of conclusions to other students with other categories of disabilities, other subject areas, other learning environments, other

grade levels, other instructional strands of strategies, and other geographical areas can not be made.

Recommendations for Future Research

Based upon the results and conclusions of this study, the following recommendations for future research and practice are provided:

1. Additional research to replicate the findings into the efficacy of the different learning environments should be made. These replications should include a larger number of students with learning disabilities in the same environments used in this study as well as different environments not used in this study such as an inclusive regular education class that was not team taught and be based in high school, elementary school or junior high school settings.

2. A longitudinal study could examine the long term and carry over effects of a test-taking strategy. In addition, since test scores determine success in regular classes and school in general, further investigations into whether the test-taking strategy does indeed result in increased test scores could be conducted.

3. Investigating the effects of combining the test-taking strategy with another instructional strategy such as a study skill strategy may not only increase scores on classrooms tests but also further increase extrinsic and intrinsic goal orientation, self-efficacy and further reduce test-taking anxiety and thereby, promote a more positive attitude for students.

4. Lastly, the use of regular education teachers to co-instruct the test taking strategy giving them ownership in the success of the strategy would possibly increase the students' confidence in the worthiness of the technique.

The results of this study lay the foundations for further exploration regarding the natural learning environments in which students with learning disabilities can best be

provided with strategy instruction to increase their intrinsic goal orientation, extrinsic goal orientation, self-efficacy, and reduce their test anxiety in order for them to graduate from high school with a diploma. Additional research could combine other instructional strategies with a test-taking strategy to facilitate the learning of both students with and without learning disabilities while at the same time utilizing the expertise of both special education and regular education teachers.

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APPENDICES

APPENDIX A

PRINCIPAL LETTER

Barbara A. Poynter

Home Phone

March 22, 1997

Mr. Wayne Canady
Head Principal
_____ High School

Dear Mr. Canady:

As a doctoral student at Oklahoma State University in the division of Applied Behavioral Studies in Education, I am conducting a dissertation study entitled:

A Comparison of the Effects of Test-Taking Strategy Instruction
on Goal Orientation, Self-Efficacy, and Test Anxiety Among Secondary Students
With and Without Learning Disabilities in Different Learning Environments

The purpose of this study is to determine whether test-taking strategy instruction effects the goal orientation, self-efficacy and test anxiety of students with or without learning disabilities in a resource room English class, an inclusive team taught English class, and a regular education English class. In order to assess the students' motivation, self-efficacy and test-anxiety, I propose to administer the Motivated Strategies for Learning Questionnaire, Part A. I have enclosed a copy of the questionnaire for your approval.

I request your permission to conduct this study in your school. I will inform the teachers that the names of subjects will be kept confidential, and the anonymity of the school's results as well as your district will be preserved. To this end, principals', teachers' and subjects' names will not be used, nor will there be any identification of the district or particular school that was used.

Instruction will be provided as a part of the regular school program. No experimental techniques or materials will be employed. I thank you for your support and encouragement in carrying out this study.

Sincerely,

Barbara A. Poynter

APPENDIX B

<u>SCRIPT OF THE ORAL SOLICITATION</u>

My name is Barbara Poynter; I have taught at _____ since it opened, and I am a graduate student at Oklahoma State University. As a part of my requirement for my doctorate, I am conducting a dissertation study. I am inviting you to participate in this study which will teach test-taking strategies.

The taking of tests has been described as one of the most frequent problem-solving situations in school, and test-taking skills are necessary for academic success. Your test taking performance depends on both preparation strategies and test-taking strategies. You need to know how to prepare for the type of test and test items as well as how to take the test in a systematic and efficient manner.

This strategy will be presented in your English class by a certified teacher who teaches at _____ High School. The strategy will be presented one hour per week for four weeks. You will be given one short questionnaire at the beginning of the study and one short questionnaire at the conclusion of the study.

Your participation is voluntary, and there is no penalty for refusal to participate. Your names will not be used, only group information will be reported. All data will be coded to prevent specific names with specific scores.

Please take the letter of consent home to your parents to read and sign and return it to your English teacher by (Date).

Do you have any questions or concerns?

APPENDIX C

PARENT PERMISSION LETTER

_____ HIGH SCHOOL

Phone

April 14, 1997

Dear Parents/Guardians:

My name is Barbara Poynter; I have taught at _____ since its opening , and I am a
graduate student at Oklahoma State University. As a part of my requirement for my
doctorate, I am studying how learning test taking skills in the classroom relates to
students' goal orientation, self-efficacy and test anxiety. Students who participate will
complete the Motivated Strategies for Learning Questionnaire, Part A. Both the university
and the principal have reviewed the questionnaire and have given approval for the study to
be conducted.

Your student's participation is voluntary and there is no penalty for refusal to participate,
and you and your child are free to withdraw your consent or participation in this study at
any time. Names of students will not be used, only group information will be reported.

For any information about this study, you may contact Barbara Poynter at _____. You
may also contact Gay Clarkson, IRB Executive Secretary, 305 Whitehurst, Oklahoma
State University, Stillwater, OK 74078 or 405-744-5700.

Thank you for your time and concern.

Sincerely,

Barbara A. Poynter

....

Researcher's Signature_____Date

_____my daughter/son has my permission to

participate in the test-taking strategy study conducted by Barbara Poynter at

_____ High School.

Parent's/Guardian's signature _____Date

Return to: Your student's English teacher by April 18, 1997.

APPENDIX D

INFORMED CONSENT FORM FOR TEACHERS

I have been invited to participate in a study with Barbara Poynter, a graduate
student at Oklahoma State University. The dissertation study is entitled:

> A Comparison of the Effects of Test-Taking Strategy
> Instruction on Goal Orientation, Self-Efficacy, and
> Test Anxiety Among Secondary Students With or
> Without Learning Disabilities In Different Learning
> Environments

The purpose of this study is to examine the effect of instruction in an inclusion or
exclusion environment on the goal orientation, self-efficacy, and test anxiety of students
with and without learning disabilities. The study will be implemented in the following
three types of classrooms environments: (1) resource room English class comprised
exclusively of students with learning disabilities, (2) inclusive team taught English classes
with a regular education teacher and a special education teacher interacting in a team
teaching situation comprised of students with and without learning disabilities, and (3)
regular education English classes comprised exclusively of students without learning
disabilities. The instruction employed in all environments will be a test-taking strategy.

The researcher plans to analyze the data gathered to be used in the following
ways:

1. Doctoral dissertation focusing on effect of instruction
   in different educational environments.

2. Submission for publication in professional journals.

3. Presenting results to educators with the purpose of contributing
   to the field of special education.

The names of subjects will be kept confidential, and the anonymity of the school's results
as well as your district will be preserved. To this end, principals', teachers', and subjects'
names will not be used, nor will there be any identification of the district or particular
school that was used.
You may directly contact the researcher at any time to withdraw from the
project or express concerns as listed below:

Barbara Poynter
_____ High School

You may also contact:

> Gay Clarkson
> IRB Executive Secretary
> 305 Whitehurst
> Oklahoma State University
> Stillwater, OK 74078
> 1-405-744-5700

I have read this consent form, understand what it says and realize I will not be penalized if I refuse to sign the form. I agree to participate in the study voluntarily. I agree to answer five questions at the conclusion of the study and if needed, the researcher has my permission to quote my exact words without identifying me directly.

Signed _____. Date _____

I certify all information has accurately been reported to the subject before requesting the subject to sign it.

Signed _____. Date _____
            (Researcher)

APPENDIX E

<u>Motivated Strategies for Learning Questionnaire</u>

Part A. Motivation

The following questions ask about your motivation for and attitudes about this class. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, circle 7. If a statement is not at all true of you, circle 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

1	2	3	4	5	6	7
not at all of me						very true of me

1. In a class like this, I prefer course material that really challenges me so I can learn new things. 1 2 3 4 5 6 7

2. If I study in appropriate ways, then I will be able to learn the material in this course. 1 2 3 4 5 6 7

3. When I take a test I think about how poorly I am doing compared with other students. 1 2 3 4 5 6 7

4. I think I will be able to use what I learn in this course in other courses. 1 2 3 4 5 6 7

5. I believe I will receive an excellent grade in this class. 1 2 3 4 5 6 7

6. I'm certain I can understand the most difficult material presented in the readings for this course. 1 2 3 4 5 6 7

7. Getting a good grade in this class is the most satisfying thing for me right now. 1 2 3 4 5 6 7

Motivated Strategies for Learning Questionnaire

	Not at all true of me				Very true of me		

8. When I take a test I think about items
    on other parts of the test I can't answer.
    1 2 3 4 5 6 7

9. It is my own fault if I don't learn the
    material in this course.
    1 2 3 4 5 6 7

10. It is important for me to learn the
    course material in this class.
    1 2 3 4 5 6 7

11. The most important thing for me
    right now is improving my overall
    grade point average, so my main
    concern in this class is getting a
    good grade.
    1 2 3 4 5 6 7

12. I'm confident I can learn the basic
    concepts taught in this course.
    1 2 3 4 5 6 7

13. If I can, I want to get better grades in
    this class than most of the other
    students.
    1 2 3 4 5 6 7

14. When I take tests I think of the
    consequences of failing.
    1 2 3 4 5 6 7

15. I'm confident I can understand the
    most complex material presented
    by the instructor in this course.
    1 2 3 4 5 6 7

16. In a class like this, I prefer course
    material that arouses my curiosity,
    even if it is difficult to learn.
    1 2 3 4 5 6 7

17. I am very interested in the content
    area of this course.
    1 2 3 4 5 6 7

18. If I try hard enough, then I will
    understand the course material.
    1 2 3 4 5 6 7

19. I have an uneasy, upset feeling when
    take an exam.
    1 2 3 4 5 6 7I

Motivated Strategies for Learning Questionnaire

		Not at all of me					Very true of me	
20.	I'm confident I can do an excellent job on the assignments and tests in this course.	1	2	3	4	5	6	7
21.	I expect to do well in this class.	1	2	3	4	5	6	7
22.	The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.	1	2	3	4	5	6	7
23.	I think the course material in this class is useful for me to learn.	1	2	3	4	5	6	7
24.	When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.	1	2	3	4	5	6	7
25.	If I don't understand the course material, it is because I didn't try hard enough.	1	2	3	4	5	6	7
26.	I like the subject matter of this course.	1	2	3	4	5	6	7
27.	Understanding the subject matter of this course is very important to me.	1	2	3	4	5	6	7
28.	I feel my heart beating fast when I take an exam.	1	2	3	4	5	6	7
29.	I'm certain I can master the skills being taught in this class.	1	2	3	4	5	6	7
30.	I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.	1	2	3	4	5	6	7
31.	Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this course.	1	2	3	4	5	6	7

APPENDIX F

INSTRUCTIONAL PROCEDURES

Step 1: Pretest

The purpose of this step is to determine how well subjects take tests and what kinds of strategies they use when they take a test and to motivate subjects with verbal commitment to improve their skills. The following sequence will be used:

1. The Test-Taking Pretest will be handed out to the subjects with explanation that the purpose of the test is to determine how well they take tests and the kinds of strategies they use when they take a test. The subjects will be told that some questions are easy and others are more difficult. Also they will be told that they should try to earn the best grade possible, but that the results of the test will not affect their grades in the class and that no one else other than the researcher will know how they did. Any questions regarding the instructions will be answered.

2. The percentage of points earned on a test will be calculated by summing the total points earned for general responses and for test item responses and dividing by the total number of points available and multiplying by 100. The subjects' test score will be individually communicated to them on the subjects' test paper by the researcher and returned to them by the special education teacher during the next session of instruction.

3. The certified special education teacher will make a commitment to the subjects participating in the study that she will do her very best to teach the test-taking strategy.

Step 2: Describe

The purpose of this step will be to describe the steps in the PIRATES test-taking strategy and to provide a rationale for using the

strategy. The following sequence will be used:

    1. The special education teacher will describe the concepts of test-taking and test-wiseness.

    2. The special education teacher will describe that learning a test taking strategy called PIRATES will help subjects to score higher on tests, and then she will provide information about the results subjects can expect by providing examples of how some students' scores on tests have improved when they learned the test-taking strategy.

    3. The special education teacher will explain the steps and the substeps (PASS, RUN, and ACE) of the PIRATES test-taking strategy.

        a. Prepare to succeed.

            1. Put name and PIRATES on test

            2. Allot time and order to test sections

            3. Say affirmations

            4. Start test within 2 minutes

        b. Inspect the instructions.

            1. Read the instructions.

            2. Understand what to do and where to do it.

            3. Note special requirements

        c. Read, remember, and reduce.

        d. Answer or abandon.

        e. Turn back.

        f. Estimate.

            1. Avoid absolutes.

            2. Choose longest or most detailed choice.

            3. Eliminate similar choices.

        g. Survey.

4. The teacher will review and answer questions.

<u>Step 3: Model</u>

The purpose of this step is to demonstrate and verbally model the test-taking strategy in its entirety so subjects can witness all the processes involved. The following sequence will be used:

1. The special education teacher will review the steps of the strategy and as a verbal advance organizer, the teacher will review the purpose of the previous and present lesson, will specify expectations, and answer questions.

2. The special education teacher will demonstrate the test-taking strategy by verbally describing the sequence of PIRATES while using an overhead projector and transparency of the pretest.

3. The special education teacher will summarize the lesson and ask subjects if they have any questions.

<u>Step 4: Verbal Practice</u>

The purpose of this step is to ensure subjects can name and explain the strategy steps at the automatic level. The following sequence will be used:

1. The special education teacher will review the strategy steps by asking subjects to name the steps and explain them. Subjects may use cues provided on an overhead projector if needed.

2. The special education teacher will provide a verbal advance organizer by reviewing the previous lesson, giving the purpose of this one, providing a rationale for memorization, and stating expectations.

3. The special education teacher will use a rapid-fire verbal rehearsal with the subjects naming the steps and the components as fast as they can. After several times, the overhead projector with the cue transparency will be turned off.

4. If extra time is needed, the special education teacher will allow for individual or paired practice.

5. When subjects indicate they are ready, they will list the steps and components on a sheet of paper to be evaluated by the researcher.

6. When subjects have finished, they will begin a controlled practice test.

Step 5: Controlled Practice and Feedback

The purpose of this step is to give subjects practice applying all the steps of the strategy to classroom-type tests. The following sequence will be used:

1. The special education teacher will review the strategy and have the subjects name the steps and components of the strategy. If necessary, the subjects may refer to a cue card with strategy acronyms and names of the components.

2. The special education teacher will provide controlled practice tests and direct the subjects to begin practicing.

3. The special education teacher will monitor the practice and answer questions and give corrective feedback.

4. As the students hand in their papers, the special education teacher will provide positive feedback and enthusiastically specify at least three things the subjects did well or correctly.

Step 6: Advanced Practice and Feedback

The purpose of this step will be to give subjects practice applying all the steps of the strategy to content tests and to assess whether students are proficient in the use of the strategy. The following sequence will be used:

1. The special education teacher will review the PIRATES strategy and the substep sentence: "If you PASS and RUN, you'll make more points and ACE the test." The subjects will name the steps and the components of the strategy.

2. The special education teacher will provide an advance organizer by s stating the subjects are expected to use everything they have learned on a real classroom test. The subjects will be told to use the strategy steps just like they applied the steps to the practice steps.

3. The special education teacher will monitor the subjects' practice and give immediate feedback of corrective feedback. As the subjects hand in their papers, the special education teacher will give both positive and corrective feedback.

Step 7: Posttest

The purpose of this step will be to measure subjects' progress in learning the strategy and to encourage subjects to make use of the strategy in a variety of settings. The following sequence will be used:

1. The special education teacher will state the purpose of the final measure is to determine how much the subjects have improved.

2. The special education teacher will give the subjects the posttest and will monitor the subjects' work.

3. The subjects' test scores will be individually communicated to them on their paper. The subjects will be asked to compare the results of the posttest to previous practice test results and the pretest results. Any improvement will be indicated on their paper and if the subjects did not reach mastery level, the researcher will make suggestions for improvement on their test paper.

4. The special education teacher will explain the generalization process and provide rationales for generalization.

APPENDIX G

<u>LESSON PLANS</u>

LESSON PLANS ONE AND TWO

"You have probably received a score lower than you deserved on many tests. In fact, sometimes your test scores may reflect less than you really know. Almost everyone of us has had the uncomfortable feeling after a test that, even though we knew the material covered, we did not do well, or even worse, we may have believed we did very well on a test, only to get a lower grade than we expected. Sometimes these feelings of frustration are made worse when we find that a fellow student, who did not seem to know the material as well as we did, received a higher grade. Anyone can significantly improve test scores by learning the characteristics of tests. In other words, you must learn how to take tests.

To some of you it may sound foolish to say you need to learn how to take tests. After all you have been taking tests for ten to twelve years. The majority of students, because they receive no help in learning how to take tests, develop bad habits that reduce their ability to get good test scores. When you are being tested, your success depends not only upon how much you know, but upon how well you use your knowledge of the material covered on the test. Test-taking is a skill in itself, and it is one that you can learn and apply to every type of test, from classroom quizzes, to course exams, to standardized tests, such as the SAT and ACT."

1. "We need to find out how well you take tests and what kinds of strategies you use when you take a test. For that reason, you are going to take a test that will help us determine the skills or strategies that you use."

2. (Hand out the Pretest to each student.)

3. (Give instructions for the Pretest.) "Look over this test briefly." (Allow 1-2 minutes for students to look at test.) "Notice that many of the questions are about information with which you may not be familiar. For example, look at Question Number 4 in the first section of the test. Does anyone know what the term 'Argualan colonist' means?"

"No, That's okay. When you come to a question or statement with words or terms that are unfamiliar to you, just answer as best you can. We need to find out how you handle questions when you are not familiar with the information. You will have 10-15 minutes to take the test. Do everything you would normally do to try to earn the best grade possible. Remember, the results of this test will not affect your grade in this class. The test is only intended to help us find out how you take tests."

4. (When a student indicates he has completed the test, collect it.)

5. "I think we would all agree that success in a variety of settings, like at school, in this class, and on the job, is an important goal for you. The purpose of these four lessons is to help you make yourself into a skilled test taker. I believe I know something that you can use to help you achieve good grades and pass your courses. It's called the "Test-Taking Strategy'. The strategy is used to help you get the best grade you can on tests. An important point to remember is that no matter how well designed the strategy is and no matter how well I teach it, the instruction won't work unless you make it work for you. Your effort and your willingness to work with the strategy and adapt or change it to fit your own needs plus your willingness to try hard complete the formula for success. As this success formula indicates, you and I need to form a partnership to create success for you in the area of test-taking."

7. "What you will be learning is a method or strategy to use when you are actually taking a test in a class such as English, social studies, or science. The strategy will help you answer questions carefully, avoid careless mistakes, and make the best possible guess if you don't know an answer. A person who knows how to use these methods when taking a test is called 'test-wise' or 'a skilled test taker'. A skilled test taker is an aggressive test taker. Skilled test takers are not lucky, they are smart and aggressive in the way they attack tests by preparing for the test and knowing how to take the test. Remember, though, using the test-taking strategy doesn't mean you don't have to study for tests. You can prepare yourself to attack tests aggressively and with confidence. By studying and using the test-taking strategy, you will be in charge or in control of the grades you receive on tests. Remember: Study plus the test-taking strategy equal better grades."

8. "Now that we've set our goals, let's go over the steps of the test-taking strategy."

9. (Uncover Step 1 of transparency #1. Students should take notes as they will need to repeat the steps later.) "The first step is: prepare to succeed. When the teacher passes out a test for you to take in one of your classes, you can get ready to take it by doing several things. What is the first thing you should do after you have been given a test to take, but before you start answering the questions?" (Student response: put your name on the test.) (Put up transparency #2.) "It is important that you put your name on the test so you can get credit for taking the test. The word 'PIRATES' is important because the letters in 'PIRATES' will help you remember the steps of the test-taking strategy. If you write this word on your test, you are reminding yourself to use the strategy. To get your points for doing this part of the strategy, you must write your name on the test and put 'PIRATES' at the top. What do you have to do to earn points for this part of the strategy?" (Write your name and PIRATES on the top of the test.)

10. "Have you ever been working hard on a test and you're only part way through it when the teacher says your time is up? How might you avoid this problem?" (Pay more attention to time.) "You need to pay attention to the time while you take the test. The only way you'll know how well you're doing with regard to time is by

allotting time and order to the sections of the test before you start taking the test. To do this, you will need to decide how much time to spend on each section of the test. A good way to do this is to divide the number of minutes the teacher has allowed for the test by the number of sections on the test. For example, if the test has 5 sections and there are 50 minutes to complete it, you'd divide 50 minutes by 5 and get 10 minutes. You should spend 10 minutes on each section. If you had 30 minutes and 6 sections, how much time could you spend per section? (5 minutes) "What should you do if the teacher tells you that one section of the test is worth 80 points and the other two sections are worth 10 points each? (Spend most of the time on the section worth 80 points and only a few minutes on the other two sections.) "To summarize: You have to look over the test quickly to determine how many sections there are. Then you must decide how much time to spend on each section. To earn points on this part of the strategy, you must write the number of minutes you intend to spend on each section next to that section on the test. Then you must occasionally check the clock as you take the test to help you stick to your schedule. To review, what do you need to do to earn points on the time allotment part of the strategy? (Figure the number of minutes per section and write it next to the section.) "Great."

11. "After you've allotted time, you need to decide the order in which you'll complete the sections of the test. Starting with the easiest sections and saving the hard ones until last is an efficient way to use your time when you are taking a test. One reason to start with the easiest parts is to capture as many points as you can as soon as you can. Another reason is to build up your confidence so that you'll feel stronger when you tackle the harder questions. What can you do the help you remember to complete the easy sections first? (Number the sections in the order from easiest to hard.) To earn points for using this part of the strategy, you must mark the sections with numbers to indicate the order in which you want to complete them. For example, mark the easiest section '1', the next easiest '2', and so on. Be sure to put a circle around these numbers to distinguish them from the number of minutes you've allotted for each section. To review what we've discussed: Before you get started on a test, you write your name, 'PIRATES', the number of minutes you're going to spend on each section, and the order in which you intend to complete the sections on the test. You'll circle the numbers indicating order."

12. "You'll do one more thing to prepare to succeed. You'll say affirmations to yourself. Does anyone know what an affirmation is? (Something good you say.) "That's right on target! An affirmation is a positive statement. Before you start the test, you're going to say at least one positive statement to yourself like, "I will do well on this test because I've studied.' 'I will stay calm.' 'I will pass this test.' 'I will be positive about this test.' What do you suppose might happen if you started working on a test with negative thoughts like, 'I'm going to flunk this test.' in your mind? Research has shown that if you think positive thoughts while you do a task, you'll do better on the task than if you think negative thoughts. That's why each of you will say at least one affirmation to yourself before you start the test and why you must avoid thinking negative thoughts. One time that is good for using affirmations

is when the teacher is passing out the test. How do you usually feel then? (Nervous, uptight) This is a time you need to be filling your mind with positive thoughts. After you learn this strategy, you can be positive because you will have a strategy that helps you perform well. Other times you might want to say affirmations are just as you begin the test and whenever you get nervous and uptight. To earn points for saying affirmations, you must write a capital "A' after your name."

13. "For the Prepare step of the strategy, you need to write your name, write PIRATES, allot time and order, and say affirmations. You need to do all these things under the Prepare Step with 2 minutes. You need lots of time to answer the questions, so don't waste time getting started. A way to remember the four parts of the Prepare to Succeed Step is the mnemonic device 'PASS'. (Refer to transparency #2.) PASS is a good word to use to remember the four parts of this step because you want to PASS every test. Also a good way to fool your opponents and start a football game is to PASS on the first play. Think of PASS each time you start working on a test. I'm sure you will find that the PASS steps will start you out on the right foot. As you begin each test, you should have no trouble using them."

14. (Transparency #1) "The second step of the test-taking strategy is to "Inspect the instructions." Generally, there are instructions at the beginning of a test and at the beginning of each section of a test. These instructions tell us what to do to indicate the correct answer and where to put the answer. What are some different ways in which you are asked to indicate your answers?" (Circle the number or letter. Fill in the blank. Write T or F.) "Good. There are many ways to answer questions on tests. Why is it important to read test instructions carefully and follow them correctly?" (The teacher may score your answers as wrong if it is written incorrectly or in the wrong place.) "That's right. You must mark the answer how and where the teacher wants it. Otherwise, the teacher may not know where the answer is and will mark it incorrect. Many students lose points on tests simply by not following directions."

15. "You must read the directions carefully so you can be sure you know exactly what the teacher wants you to do." (Transparency # 3) "As you read the instructions, underline what to do and where to respond."

16. (Transparency #4) "In this instruction (Circle the letter next to the most appropriate choice), what do you need to do to make your response? What are you to make on the paper?" (A circle. Underline "Circle" in the instructions.) "Right. Where are you to put the circle?"
(Around the letter next to the answer. Underline "letter" in the instruction.)

"I've underlined 'circle' and 'letter' in this instruction because those two key words tell us what to do and where to respond. Let's look at another example. What words in the next instruction (Transparency #4) tell us what to do? (Write "T". Write "F". Underline these phrases.) "Great! What words tell us where to put the answers?" ("In front of statements that are true" and "In front of statements that are

false." Underline those words in both sentences.) **"Good. Why do you think underlining the key phrases will help you?"** (It slows you done and makes you think about the instructions" or "It makes you really notice the instructions.")

17. (Transparency #3) **"As you underline the 'what' and 'where' phrases, be sure you take particular notice of any special requirements."**

18. **"For example, if you are used to writing 'T' or 'F' for answers to true/false questions and a teacher asks you on a test to write a plus or a minus sign like this in an instruction....** (Transparency #4) **..... this is a time to pause and make a mental note of the new instructions. Can you think of other special requirements you might see?"** (A teacher might ask you to indicate which answer is not correct.) **"Take the time to reflect on special requirements because most teachers mark answers wrong if the student hasn't followed the instructions."**

19. **"A good way to remember the three parts of the 'Inspect the instructions' step is the mnemonic 'RUN'. 'RUN' is a good device to use because if you're going to confuse the defense in football and score a lot of points, you've got to 'RUN' as well as 'PASS', Think of 'RUN' each time you start working on instructions, and you'll be able to remember what to do."**

20. **"To review, what are the three parts of the 'Inspect the instructions' step?"** (Have three different students give one part.) **"In order to earn points for doing the 'Inspect' steps, you must underline the 'What' and 'Where' words in the instructions, and you must follow the instructions for each section of the test."**

21. **"Once you've prepared to succeed, and you've inspected the instruction for the first section, you need to start answering the questions in the first section. This takes us to Step 3: Read, remember, and reduce. To complete this step, you must do three things. First, you must read the whole question or statement all the way to the very last word. If you don't read the entire question, you might misunderstand the question and choose the wrong answer. Sometimes the very last word in a question changes the meaning of the rest of the words in the question. Sometimes the very last answer in the multiple-choice options is slightly better than the other options. Questions are sometimes written like this to trip you up. Sometimes when people answer multiple-choice or matching questions, they choose an answer they think is right without reading all the choices. The problem with doing that is that one of the choices they didn't read may be the best answer to the question. To summarize, you need to read all the parts of a question before you answer it."**

22. **"After you've read the question and before you've answered the question, you need to remember what you've studied.** (Transparency #5) **"You need to ask yourself, 'What did I study that will help me answer this question?' If you need to, you can write the list or other information you've memorized in the margin of the test or on the back of the test. You'll probably do a better job answering the**

question if you have something like a list to guide you. You should do this for essay questions as well as multiple-choice and other objective-type questions. If the question is an essay question, include as much important information as possible in your answer. One way to ensure you include many important facts is to list them before writing your answer and then check to see that you have included them in your response. When you write an answer for an essay question, it's a good idea to write a sentence for each item you have listed."

23. "After you've remembered the information you studied and while you're reading the answer choices, it helps to eliminate the choices you know to be wrong. Thus, you need to reduce the choices as you read them. Crossing off obviously wrong or absurd choices will help you because if you cross those choices off, you'll be reminded that you don't have to worry about them and can concentrate on the other choices. It also reminds you not to mark a certain choice as the correct one. How many of you have known the correct answer to a question but marked the wrong answer? It's really frustrating when that happens. Crossing off obviously wrong choices can help you avoid making that type of careless mistake."

24. "To complete Step 3 of the test-taking strategy, you must remember to read, remember, and reduce. To earn points for this part of the strategy, you will need to read every word in every question, remember and make notes in the margin of your test, and reduce or cross out wrong choices. You can remember Step 3 by the three R's or RRR since there are three words beginning with 'R': Read, remember, and reduce."

25. "Let's quickly review the first three steps of the strategy. What are they? (Elicit responses.) "Right. First we prepare to succeed, then we inspect the instructions, and then we begin to tackle the questions by reading remembering, and reducing. As you see, this strategy has steps that you can easily do."

26. "After you have read a question, remembered the information, and reduced your choices, it's time to do the fourth step of the strategy: Answer or abandon. (Transparency #1) "If your certain about an answer, mark it correctly as you were instructed. Always follow the instructions when you answer a question. Answer the question only if you're sure of the answer. (Transparency #6) "If you don't know the answer, abandon the question for the moment. You'll be coming back to it after you've answered all the questions you can. Since you will be coming back to the abandoned questions a good way of telling yourself which questions you still need to answer would be to mark the questions in some way that would not clutter up the test form, but it should be big enough to remind you to go back to it. You don't want to confuse the teacher when he/she is grading the test so a good place to make the mark is in the right-hand margin of the test papers. What can you do is you're not allowed to write on the test paper? (You can write the numbers on a piece of scrap paper or you can make a mark on the answer form.) If you're using an answer form that is to be read by a machine, place your mark away from the answer section and

always erase your marks before you hand in the answer form. You need to decide what mark you will use when you abandon a question. It should be different from the marks the teacher will use when grading your test. A star, an arrow, or a dot are simple types of marks that would be appropriate. Let' choose a mark that you will use all the time." (Choose a mark the class will all use.)

27. "For Step 4, you have a choice; you can answer the question or abandon it for the moment. To earn points for this part of the strategy, answer questions or mark questions as abandoned. Both 'Answer' and 'Abandon" start with the letter 'A' so they are easy to remember. After you answer or abandon one question, you'll need to go on to the next question. This arrow (the small arrow on transparency #1 that recycles to Step 3) indicates that you read, remember, and reduce, then answer or abandon every question in a given section of the test. When you get to the end of one section of the test and you come to a new set of instructions, what do you think you should do? (Inspect the instructions.) This arrow (the larger arrow on the transparency #1) indicates that, every time you get to a new set of instructions, you should start a new cycle through Steps 2, 3, and 4 of the strategy. Thus you are expected to do Steps 2, 3, and 4 for each section of a test."

28. "When you get to the end of the test, you're ready for Step 5: Turn back. 'Turn back' simply means that you should go back to the abandoned questions and answer them. You may have remembered the answers by the end of the test or seen the answer somewhere on the test. Thus, you may be able to answer the questions later during the test. As you turn back, tell yourself, 'Even if I don't know the answers, I can get more points with my estimating skills.'"

29. "That's what Step 6 is: Estimate. (Transparency #1) An estimate is a best guess as to the right answer. That's what you have to do in this step; make your best guess as to the right answer. You should guess only after you have tried every technique you know for remembering an answer. Guess only as a last resort. If you do answer a question using your best guess, you may get it right. Remember, though, some tests penalize guessing, but you will be told that before you take the test."

30. "There are three methods you can use to make good guesses if you have no idea what the correct answer is. We call these the 'ACE' Guessing Techniques. The first guessing method can be used with both true/false and multiple-choice items. Have you ever seen multiple-choice items or true/false statements that have words like 'never' or 'always'? What are some other words that are similar to 'never' and 'always'? (No, none, all and every) We call these 'absolute words' or absolute qualifiers. Here is a list of absolute words. (Transparency #7) When you have no idea what the answer to a question is and you have to guess, true/false questions with these absolute words should be marked false and choices in multiple-choice items that have these words should not be chosen. Why?

always erase your marks before you hand in the answer form. You need to decide what mark you will use when you abandon a question. It should be different from the marks the teacher will use when grading your test. A star, an arrow, or a dot are simple types of marks that would be appropriate. Let' choose a mark that you will use all the time." (Choose a mark the class will all use.)

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or most detailed choice'. (Transparency #8) **Let's look at an example.** (Transparency of page 1 of the Pretest) **"Did you know what 'Argualan colonist' meant when you took the Pretest? Right. You wouldn't have known because it is a fictitious term. You would have had to guess. Which answer choice for this question is described in greater detail and is longer than the other choices?** (D) **Right. If you used the 'Choose the longest or most detailed choice' guessing technique for this question, you would have chosen 'd'. Remember, before you use this method, make sure the choice is at least three or four words longer than the rest, not just one or two words longer."**

38. **"If the correct answer is not immediately obvious, eliminate alternatives that are obviously absurd, silly, or incorrect."**

39. **"Compare each choice to the question and to the other choices. The correct answer must effectively answer the question or complete the sentence presented in the question. Do not make the question more difficult than it really is. Relate each choice to the other choices to compare them and analyze how they are different. Focus directly on key points that make one correct and the other incorrect."**

40. **"Choose the alternative that is most inclusive because these kinds of choices are used to combine a lot of information to produce a correct answer."**

41. **"Another logical skill that can be helpful in multiple-choice tests is to look for the answer to questions in the other questions. Sometimes cues or outright answers are given in other questions included in the test. This is a reason for reading all the questions before attempting to answer ones you do not know."**

42. **"Another effective guessing method is to notice whether two choices in a multiple-choice item are the same or very similar. Since there can only be one correct answer, the two similar choices may be eliminated. Then you only have to guess between the remaining choices. This increases your chances on being correct. This method is called 'Eliminate similar choices."** (Transparency #8) **Let's look at Question 3 in Section 1 on page 1.** (Transparency page 1 of Pretest) **Which two answer choices for this question are the same?** (a and b) **Right. Choices 'a' and 'b' have the same meaning. Since we know that 'a foot' and '12 inches' are the same, and since there can be only one right answer, neither of these choices can be correct. When you find two choices that are the same, cross them off the same way you do when you find an absurd choice. Then you can choose from the remaining choices."**

43. **"The first letters of three effective estimating methods spell 'ACE'. What does it mean when someone 'aces' a test?** (The person scores high on the test or the person gets an 'A') **Usually 'acing' a test means the person did very well on the test. Use the word 'ACE' to help you remember the three most effective guessing techniques. These techniques can help you 'ace' your tests."**

44. "Will you always guess correctly using the guessing methods we have discussed? (No) That's right. The use of these methods does not ensure that you always guess correctly. Their use will not ensure a good grade. Their use will just increase your chances of getting a good grade. What is the most effective method of getting a high score on a test? (Studying hard before the test) Correct. Remember, studying before the test plus using the test-taking strategy during a test will result in good grades."

45. "Once you've answered all the abandoned questions using the information you've remembered and the 'ACE' guessing techniques, it's time to use the last step of the strategy, 'Step 7: Survey'. (Transparency #1) Survey means to look over something. After you finish a test, you should survey it or look it over. What do you suppose you should look for when you survey a test? (Make sure all the questions are answered. Make sure all the questions are marked in the correct manner. Transparency #9) Good. One important thing to look for is whether or not you answered all the questions. There is no way you can get credit for an answer if you don't mark it. Make sure every question has an answer. Be sure to erase any marks you put on the test to remind yourself to go back to abandoned questions. Also check to make sure you answered the questions the way you wanted. Should you change your answers? (Not unless you're sure about the change.) Only change an answer if you find you marked it in the wrong place or if you're completely sure another answer is better. Usually your first choice is the correct one. If you're not sure, don't change it."

46. "Notice that the words 'Prepare', 'Inspect', 'Read', 'Answer', 'Turn', 'Estimate', and 'Survey' start with the letters 'P', 'I', 'R', 'A', 'T', 'E', and 'S'. Pirates used to take as much treasure as they could get, and the test-taking strategy will help you get as much treasure (points) as you can on tests. The word 'PIRATES' will help you to remember the steps, think of the word 'PIRATES', and you'll be able quickly to think of the steps. The three other words that will help you to remember what to do are 'PASS', 'RUN', and "ACE'. If you PASS and RUN you'll make more points and ACE the test."

47. "When you take a test, remember to write 'PIRATES' at the top of the test form. Also say to yourself this sentence, 'When you PASS and RUN, you'll score more points and ACE the test.' With these helpful mnemonics and the other strategies you've learned, I'm sure you'll ACE this strategy in nothing flat."

48. "At first it will take you extra time to use the steps of the strategy. This is to be expected since you need to practice any new skill many times before you become a fluent user of it. The goal is using the PIRATES steps in a fluent and nonlaborious manner. After practice you will be able to use the PIRATES steps during a test and only add a few minutes to the total time you'd normally spend on the test."

49. In these two lessons we've begun to learn about the test-taking strategy. It consists of seven steps that we can remember using the word 'PIRATES' and the

sentence 'When you PASS and RUN, you'll score more points and ACE the test.'
Each time you take a test, you can use the PIRATES steps and you can expect to
improve your grade. I know you'll be able to learn this strategy quickly and easily."

50. (If time remains, give them the Controlled Practice Test #1 to practice the strategy.
Remind them to get full points they have to write their name and PIRATES on the test,
figure the number of minutes per section and write it next to the section, write the order in
which they intend to answer the sections and circle the number, write an "A' after their
name when they say an affirmation, underline the 'what' and 'where' words in the
instructions, reduce or cross out wrong choices, and answer questions or mark as
abandoned to come back to them.)

LESSON PLAN THREE

"Anyone can become a good test taker. All that is required is a little effort and belief
in yourself that you can succeed. We have seen many students who feared and
dreaded taking tests learn to actually look forward to their next test. This change
was the result of these students learning how to study and how to take tests."

"What is involved in learning to look forward to taking tests? The first thing is to
consider tests as opportunities to demonstrate what you know. You cannot view
yourself as stupid and your teacher as interested in seeing just how stupid you are.
On the contrary, you must see yourself as an able and prepared student who knows
a lot. You must attack tests with relish and enthusiasm. You must want to let out,
as it were, all the knowledge inside you. You must want to show you can do it; you
can be a good student."

"Anyone can develop such an attitude with a little effort because all of us can
control what we learn. We can study aggressively by attacking new information as
an opportunity to improve our understanding. We can develop a variety of learning
skills that we can use to help us learn even very difficult information. Using a single
learning skill is unsuccessful. It is surprising how many students have only one way
of studying. Even when they are unsuccessful, some students continue to use just
one strategy. They do not seem to realize that not understanding is a clue that
another learning skill is needed. Sometimes, these students think not understanding
right away is an indication that they are incapable.

teachers choose to give a certain kind of test. Even worse, many students do not
they can learn to take tests by learning about the special characteristics of tests. Let
me assure you, if you are willing to learn about tests and believe in yourself, you can
get good test grades."

"The main problem with any test is to figure out how you can demonstrate what you
know. Just knowing something is not enough in school: You must know how to

demonstrate what you know. Knowing how to take tests helps you learn to demonstrate what you know."

"Most good students are successful because they know how to study well. Studying is something you must do for yourself; it is a self-directed activity. You must aggressively take charge of your study, directing and controlling your use of study skills so that you will learn more and get good test scores. Let us look at five important characteristics of effective, aggressive students (Transparency #10)."

1. Active involvement. The first thing noticeable about good students is that they are actively involved in their study. They read actively, listen actively, concentrate, and pay attention. For many of us it is difficult to understand how to maintain this active involvement. It is so easy to let our thoughts wander, rather than to pay attention.

2. Recognizing that you can understand the material. Many of us get discouraged when we fail to understand something we are studying. Do not be fooled into thinking you cannot understand some material because it is difficult or because you did not understand it the first time you tried. Recognizing that you do not understand usually means you need to use a stronger study activity.

3. Relating the material. Another thing good students do is to relate what they are studying to what they already know. You know how much easier it is to study for a test in a subject you know well.

4. Interest. Lack of interest in the material studied is probably the main cause of poor test grades. Low interest makes active attention difficult and makes expanding what is already known impossible. Lack of interest is also the main reason students stop studying before they understand the material. Good students develop and maintain their interest. Developing positive attitudes about school and study is one way you can develop interest and positive attitudes about study.

5. Self-testing. A final, significant characteristic of effective students is that they often test themselves on what they are studying. They do this by asking themselves questions, asking questions in class, asking questions of other students, making up possible test questions, and using review and study questions in textbooks. Good students are rarely content with only reading or reviewing material to prepare for a test. Instead, they frequently test themselves, looking for what they understand and noting what they fail to understand.

"Last week I showed you how to use the test-taking strategy. You tried out some of the steps of the strategy yourself when you did the controlled practice test."

"Before you begin practicing the whole strategy, you need to memorize the names of the steps and substeps of the strategy. If you are able to name the steps, you'll be

able to tell yourself exactly what to do every time you take a test. We will have a quiz in a few minutes after we review the steps of the strategy."

"First, let's make sure you understand what you are to do for each step of the strategy and why you are to do it."

"What is the major purpose of the test-taking strategy? (To help you take tests better.)

"When would you use this strategy?" (When taking tests in classes.)

"In your own words, tell me what you are doing as you use the test-taking strategy. (First, I'm getting ready to start by looking over the test and making decisions about how much time to spend and the order in which I'll complete sections. Then each time I come to new directions, I read them carefully and make sure I know what to do. Each time I come to a new question, I read it, think about what I know, and cross out any answers I know are wrong. I answer the question or mark it as abandoned. Then I move on to the next question. I'm always looking for clues for answers to abandoned questions. When I get to the end of the test, I go back to abandoned questions and make the best guess I can using the ACE guessing techniques. I always check over the test at the very end one last time to make sure every question has an answer.)

"Why is allotting time and order to different sections of a test important? (So you won't run out of time; so you have an idea of how much time you will have to work on each section; so you can do the easier arts first.)

"How will reading instructions and underlining key words help?" (It helps you make sure you know how and where to write/mark your answers.)

"If you don't read all the choices on a multiple-choice question, what might happen?" (You may not choose the best answer if you don't look at all the choices.)

"Why is it usually a good idea to abandon or skip questions to which you don't know the answer and come back later?" (You may think of the answer later or there may be a clue in another test question that will help you remember or figure out the answer.) For example, I have two pages from two different tests given by _____ teachers last week. The first page is from an American history test. (Transparency #11) Read question 13; now read question 14. The answer to question 13 is in the question stem of #14. What is the answer to question 13? (D) The second page is from a driver's education test. (Transparency #12) Read question 4 ; now read question 5. The answer to question 4 is in the question stem of # 5. What is the answer to question ? (C)

"When should you guess and when should you not guess when taking a test? (You only guess when you have no idea of what the answer is; you shouldn't guess if guessing is penalized, although most teachers don't do this.)

"When you survey your test, should you change any of your answers? (You should only change your answers if you are <u>absolutely sure</u> that your first answer is wrong.)

"Will using the test-taking strategy ensure that you will pass? (No. You will also need to study.)

"To help you memorize the strategy steps, we are going to do an exercise called 'rapid-fire verbal rehearsal." I'll be calling on each of you in succession. When I call on you, I want you to name the next step of the strategy. This is called 'rapid-fire' because you are supposed to fire back the name of the step as rapidly as you can. When I call on you, name the step as quickly as you can, and try not to look at the screen (Transparency #1). **If you need to look at the screen, you may; however, don't rely on the screen too much because I'm going to turn it off after a few rounds of rapid-fire rehearsal. Instead, rely on the mnemonic device PIRATES and your own memory."**

"Let's see how fast we can go and how quickly we can remember these steps." (Each time a student correctly names a step, make a brief, positive comment before immediately calling on another student for the next step. Each time you begin a new round with the first step of the strategy, start with a different person. This allows everyone to say each of the steps. Gradually fade cues by covering one word from each step (e.g., the word 'Succeed' from the "Prepare to Succeed' step, the word 'Instructions' from the 'Inspect the Instructions" and so on. When students are able to say the name of the steps, erase another word and so on until only the first letters of the steps are visible. After students can quickly name the steps, turn off the projector.

"Now that I've turned off the projector, you must rely totally on your own memory. Remember to use the letters in PIRATES to help you think of the steps. Let's begin." (Conduct more practice rounds. This procedure should be conducted at a lively pace with great enthusiasm. It is a quick way of ensuring that most of the students know the strategy steps "cold".

"Let's use the same method to memorize the PASS substeps for 'Prepare to Succeed'. (Transparency #2). **Here is what to say. The first person should say, 'Put your name and PIRATES on the test'; the second should say, 'Allot time and order'; the third, 'Say affirmations'; and the last, 'Start within two minutes'."** Let's begin." (Do several rounds as before. Stop the activity when you are sure most of the students can name the substeps.)

"Now let's memorize the 'RUN' substeps for 'Inspect the Instructions'. (Transparency #3) **The first person should say, 'Read the instructions'; the second person, 'Underline what and where'; the last person should say, "Note special requirements'." Let's begin."** (Do several rounds as before. Stop the activity when you are sure most of the students can name the substeps.)

"Now you're ready to memorize the 'ACE' guessing techniques. (Transparency # 8). The first person should say 'Avoid absolutes'; the next should say, 'Choose the longest or most detailed choice'; the last should say, 'Eliminate similar choices'. (Do several rounds as before. Stop the activity when you are sure most of the students can name the substeps.) (After the verbal practice explain to the students that they must be able to name in order all the 'PIRATES' steps, the 'PASS' and 'RUN' substeps, and the 'ACE' Guessing Techniques in a written quiz. If necessary give them time to review and study individually or with a partner.

"Now that you've memorized the steps and substeps, write PIRATES, PASS, RUN, and ACE vertically on your paper and list each step." (Allow time for them to write the steps and hand in papers.)

"Now that you have memorized the steps and substeps of the test-taking strategy, I will give you another practice test. You're to take the test using the test-taking strategy. In order to reach mastery on this test you must use all the steps of the test-taking strategy. For each step you follow correctly, you will earn points. You must earn 90% of the available points to reach mastery. Let's review how you can earn points."

1. **"What's the first thing you need to do in the 'Prepare to succeed' step?"** **The 'P' substep?** (Put your name and PIRATES on the test.)

a. **"What should you do in the 'A' substep?"** (Allot time and order to the sections.) **"Right. In order to receive a point for this substep, you must place two numbers next to each section: a number for time and order. The number indicating time should not be circled. The numbers must also make sense. That is, the numbers indicating time must approximately add up to the number of minutes you have to complete the test. The numbers for order must be in sequence and they must show that you have given thought to a different order than the one in which the sections are presented."**

b. **"What should you do for the first 'S' substep?"** (Say affirmations.) **Correct. You must say at least one affirmation to yourself. To earn a point for this substep write the letter 'A' by your name as you say the affirmation to yourself.**

c. **"How should you finish the 'Prepare to succeed step?"** (By starting the test within 2 minutes.)

2. "On the 'Inspect the instructions' step, what do you need to do for the 'R' and 'U' substeps? (Read the instructions and underline what to do and where to do it.) "That's good. To earn a point for each set of instructions you must underline the words for what to do and where to do it."

     a. "What should you do for the next substep under the 'Inspect the instructions' step? (Note special requirements.) "Correct. Be sure you notice whether the requirements are different from what you're used to doing. You'll earn a point for each set of instructions if you follow the instructions correctly."

3. "On the 'Read, remember, and reduce step, you must read each question to the very last word. There are questions on this test which you can answer correctly only if you've read the whole question. To earn points for this substep, you must answer these particular questions correctly."

     a. To earn points for the 'Remember' substep, you must list what you remember in the margin of the test. This is especially required for the essay question. You must make a list before you write the answer to the essay question."

     b. To earn points for the 'Reduce' substep, you must cross off obviously wrong answers or answers you have used in a set of matching questions. Then you must answer the questions correctly."

4. "What is the next step of the strategy? (Answer or abandon.) "Okay. To earn a point for each question, you must either answer the question right away if it's easy, or you must abandon it. If you abandon a question, put your mark in the right-hand column. Don't erase them, because I need to see them to give you points.

5. "On the 'Turn back" step, you earn points for this step by going back and answering the abandoned questions. Again, don't erase your marks even after you've answered a question. I need to see those marks to give you your points."

6. "What's the next step of the strategy?" (Estimate) "Right. On each test there will be questions for which you can get the correct answer by using the right 'ACE" questioning technique. To earn points for this step, you must answer those questions correctly. Remember the 'A' technique is 'Avoid absolutes", and the 'C' technique is 'Choose the longest or most detailed choice', and the 'E' technique is 'Eliminate similar choices'."

7. "Of course, the last strategy step is 'Survey'. To earn a point for this step, you must have an answer for every question on the test. This shows you have surveyed the test and checked for unanswered questions.'

Pass out the practice tests.

LESSON PLAN FOUR

"The purpose of this lesson is to help you prepare to take tests. Seven study skill principles will help you to become actively involved. Seven principles will also be discussed to help you increase your confidence."

"Most of your studying will be for tests. Yet many students do not study specifically for the test they will be given. Instead, they study be reading textbooks and reviewing class notes in a general way, often trying to remember everything they read. Many students also use the same study methods for every test and every subject. But just spending time with your books and notes will not always result in high test grades. Here are seven study principles to help you focus your study efforts. Get information about the test. Learn as much as you can about the test you will take. This will allow you to focus your study on important issues. Find out what information a test will cover and what kinds of questions will be asked, and the sources (book, notes, etc.) the questions will cover."
(Transparency #13).

"1. Set study goals. Study goals are developed to help you focus your study. You must decide what your goals are, not someone else. These goals should describe what you must learn to be successful on a test. Good goals let you focus your study on the specific information you need to know to do well on a test."

"2. Survey first. All effective study is preceded by a survey to look over the material before you study. You want to get an idea of what you will study before you actually study. Surveying allows you to judge how much of the information you already know and how much time you will need to study. Look at headings, summary sections, and questions."

"3. Prepare study questions. A good way to focus your study is to have questions you must answer to understand the material. You can make up test questions, predict test questions, use old tests, and use listed objectives and study questions."

"4. Plan your study time. Learning can sometimes appear to be a monumental task. As with any management activity, managing your study time and activities requires planning. This planning can make studying and learning appear much more realistic for you. Plan how much material to cover. Plan how much time you will spend. Plan how the time will be used."

"5. Read for main ideas. The first goal in reading books and notes is to find the main idea. As you read, frequently ask yourself questions about what you read. Understanding is something that will not come automatically just because you have read every word on every page. You must make the information have meaning by searching through it for the main ideas."

"6. Regularly test your confidence. As you study, regularly check to see how well you know what you are studying."

"7. Solidify learning by summarizing. One of the things you can do to help you on a test is to actively summarize what you have studied. These summaries should be relatively short, but should cover all the material you have studied. Two activities to help you make your learning stick are to write a general summary and develop a study and review guide."

"Next we will discuss the importance of a good attitude towards tests. For an aggressive and confident test taker, a test is an opportunity to demonstrate what has been learned."

"A positive attitude is important for getting good test grades. You must believe in yourself and your ability to do well on a test. Do not think of a test as something to show, or to trick you into showing, ignorance. Think of a test as an opportunity to demonstrate what you have learned through your hard work. One thing that can get in the way of believing in yourself is worry. Part of this session will describe how you can control anxiety about tests."

"The first step in controlling anxiety is recognizing that worrying about tests is normal. All good students are concerned about tests; this anxiety motivates study. Psychologists who have studied anxiety have concluded that some anxiety is good. In fact, students with some anxiety usually get higher test grades than students with no anxiety. However, too much anxiety usually means more test scores."

"If you believe you have too much anxiety, you can take action to reduce your anxiety. The following are indicators of too much anxiety:

1. You study using the suggestions and principles in these lessons and still get low test scores.
2. You feel sick, dizzy, nervous, and/or afraid before taking a test.
3. You do well on all homework assignments, but never do well on tests.
4. You "feel" you know the material and can discuss the test topics with other students but "freeze up" or your "mind goes blank" when you have a test."

"Test anxiety is quite common in students and is relatively easily controlled. Here are seven suggestions on how to mentally develop a good, positive attitude for test taking. However, if you think you have test anxiety, contact your school counselor for more help in overcoming the problem."

"Here are seven steps to help you be positive about your ability and to aggressively attack tests." (Transparency #14)

"1. **Practice for the test.** If you practice answering questions like the ones that will be on the test, this will increase your confidence. By checking your answers, you will also be able to judge how well you know the material. If you are consistently answering your study questions correctly, you can believe that you will also answer test questions correctly."

"2. **Find out as much as you can about the test.** One reason people worry is fear of the unknown. If you can find out about your test and specifically prepare for it, there is no need to worry about the unknown. Of course, you will usually not know the exact questions. But if you study and practice a wide range of questions that are like questions to be on your test, you should feel very confident."

"3. **Make sure you understand the test directions.** Many students have panicked when they first saw a test because they did not understand the directions. If test directions seem unclear or confusing, ask for help from your teacher. It is always better to ask than to just sit and worry and waste valuable test time."

"4. **Relax before the test.** Get to the room early and just relax until you are given the test. You may want to do a last-minute check of some memorized facts, but, other than this, be confident in your study. Tense and then relax each of your body muscles, and take a few deep breaths."

"5. **Force worry out of your mind.** If you find you are worrying, you can do two things: (1) Tell yourself you do not need to worry, you are probably the best prepared student in the class. (2) Think about something else that is pleasant, such as a date or a hobby. Do not let yourself get caught in a worry trap, which could affect your test grade."

"6. **Use luck to your advantage.** We all feel better about ourselves sometimes than other times. These positive feelings can be associated with certain clothes, seat location, type of pen or pencil, or many other things. We often believe these things bring us good luck. If you have some lucky items, be sure to take them to the test with you. No one knows why, but these things help us be more confident."

"7. **Do not wait until the last minute to prepare for a test.** Most students who study for a test all night and only the night before the test are nervous. They have every right to worry. They are tired, probably hungry, know very little, have essentially no practice, and have very little chance of remembering much. This kind of reparation promotes worry and anxiety. You are at your best when you are rested, relaxed, and confident. This condition is difficult to achieve if you've been up all night in a panic studying for the test."

"You've been practicing using the test-taking strategy and the last time you practiced, many of you mastered it which is great! This strategy is now part of the toolbox you can choose to use as a student. You'll get better grades if you use the test-taking strategy at every opportunity. In addition, you'll feel better when you are taking a test because you have a plan about how to take it. Being able to do so will enable you to feel good about yourself as a strategic learner. However, you will also need to study hard besides using this strategy to help you get good grades on tests. You've done a great job learning this strategy. Using it helps you take tests systematically so you don't make careless errors. You also know better ways to guess when you don't know the answer to a question. Remember though, this strategy doesn't take the place of studying hard. You have worked hard and invested time in learning the strategy so adapt the strategy to what works best for you and apply the strategy in ways that will pay off for you to get better grades on tests."

"Anyone can become a good test taker. All that is required is a little effort and belief in yourself that you can succeed. Many students who feared and dreaded taking tests learn to actually look forward to their next test. This change was the result of these students learning how to study and how to take tests. The main problem with any test is to figure out how you can demonstrate what you know. Just knowing something is not enough in school: you must also know how to demonstrate what you know. knowing how to take tests helps you to demonstrate what you know."

"This is the final assignment of this study. Please fill out the <u>Motivated Strategies for Learning Questionnaire again.</u>   The questionnaire asks you about your motivation for work in this course. There are no right or wrong answers to this questionnaire. This is not a test. Respond to the questionnaire as accurately as possible, reflecting your own attitudes and behaviors in this course. Only the researcher will have access to your scores, and your answer sheet will be numerically coded, and your name cut off. Your answers to this questionnaire and the first one you completed will be analyzed by computer and you will receive an individual report. The individual report will help you identify motivation skills you may want to improve, and the feedback on your motivation may be useful to you in your high school and college career.

APPENDIX H

TRANSPARENCIES

<div align="right">#1</div>

THE STEPS OF THE
TEST-TAKING STRATEGY

Step 1: Prepare to succeed

Step 2: Inspect the instructions

Step 3: Read, remember, reduce

Step 4: Answer or abandon

Step 5: Turn back

Step 6: Estimate

Step 7: Survey

<div align="right">#2</div>

STEP 1: PREPARE TO SUCCEED

Put your name and PIRATES on
the test.

Allot time and order to sections.

Say affirmations.

Start within 2 minutes.

STEP 2: INSPECT THE INSTRUCTIONS

Read instructions carefully.

Underline what to do and where to respond.

Notice special requirements.

UNDERLINE WHAT TO DO AND WHERE TO RESPOND

Circle the letter next to the most appropriate choice.

Write "T" in front of statements that are true.

Write "F" in front of statements that are false.

Make a "+" in front of statements that are true.

Make a "-" in front of statements that are false.

STEP 3: READ, REMEMBER, REDUCE

Read the whole question.

Remember what you studied.

Reduce the choices.

STEP 4: ANSWER OR ABANDON

Answer the question.

Abandon the question for the moment.

ABSOLUTE WORDS

All	No
Always	None
Every	Never
Only	

NON-ABSOLUTE WORDS

Few	Most
Some	Many
Seldom	Often
Sometimes	Usually

STEP 6: ESTIMATE

Avoid absolutes.

Choose the longest or most detailed choice.

Eliminate similar choices.

STEP 7: SURVEY

Survey to ensure all questions are answered.

Switch an answer only if you're sure.

FIVE IMPORTANT CHARACTERISTICS OF EFFECTIVE, AGGRESSIVE STUDENTS

1. Active involvement: read actively, listen actively, concentrate, and pay attention.

2. Recognizing that you can understand the material.

3. Relating the material: relate what you are studying to what you already know.

4. Interest.

5. Self-testing

12. Where did Freedom Riders encounter the greatest resistance?
    a. in the Northwest   b. in the Midwest
    c. in the Deep South   c. in the Southwest

13. Southerners responded to the Freedom Rides with
    a. compassion and understanding   b. peaceful boycotts
    c. disinterest and boredom   d. violence

14. After Freedom Riders were violently attacked in Alabama, they
    a. moved the protest to Chicago b. armed themselves for
                                            protection
    c. abandoned the protest   d. received federal protection

15. The highlights of the March on Washington was
    a. President Kennedy's opening remarks.
    b. the appearance of Vice President Johnson.
    c. the singing of "We Shall Overcome".
    d. Martin Luther King, jr.'s, "I Have a Dream" speech.

16. Which was true of the Civil Rights Act of 1964.
    a. It marked the end of the civil rights movement.
    b. It brought an end to de facto segregation.
    c. It prohibited discriminatory hiring on the basis of race, sex,
       religion, or nationality.
    d. It made lynching illegal and greatly reduced violence.

17. After Congress passed the Voting Rights Act of 1965,
    a. the civil rights movement fizzled out
    b. white Southerners launched a campaign to prevent African
       Americans from voting
    c. violence between whites and African Americans was
       eliminated

18. What message did Malcolm X preach to African Americans?
    a. to fight for greater integration with white society
    b. to completely separate themselves from white society
    c. to love and pray for white peopled. to abandon violent,
       militant tactics in favor of civil disobedience

19. The Nation of Islam and the Black Power movement both taught that African Americans should
    a. strive to integrate themselves with white society
    b. separate themselves from white communities
    c. emigrate to Africa
    d. use peaceful, nonviolent protest as a means of effecting change

20. Formed in 1966, the Black Panthers was a
    a. group of presidential advisers b. radical political party
    c. religious group   d. "back-to-Africa" movement

21. Which of the following was not a result of the civil rights movement?
    a. African Americans were assured right to vote
    b. Segregation became illegal
    c. African Americans served in politics
    d. Government rebuilt ghettos

Name   Section   Date

Emergencies

Circle the letter of the best answer.

1. A left front tire blows out. Unless you control the car, what will probably happen?
    a. Depress the clutch pedal.
    b. Your car will pull to the left.
    c. Your car will pull toward the shoulder.
    d. Your car will sway from left to right.

2. While driving at 50 m.p.h., you have a left rear tire blowout. You should first
    a. hold the steering wheel firmly
    b. turn off the roadway quickly.
    c. turn the ignition off.
    d. hit the brake pedal and hold it down.

3. In case of a blowout, which procedure is incorrect?
    a. Grip the steering wheel firmly
    b. Brake immediately to avoid tire damage.
    c. Brake gently after the car is under control.
    d. Slow down and pull off onto the shoulder.

4. As you apply the foot brake, the pedal goes to the floor. What should you do first?
    a. Shift to a lower gear.
    b. Turn off the ignition.
    c. Pump the brake pedal rapidly.
    d. Apply the parking brake.

5. Your brakes fail. You pump the brake three or four times. The brakes still do not hold. What should you do next?
    a. Pump the brakes more rapidly
    b. Turn off the ignition.
    c. Turn off the ignition.
    d. Swerve onto the roadway shoulder.

6. If you experience brake fade,
    a. pump the brakes.
    b. stop and let the brakes cool
    c. apply the parking brake
    d. shift to a lower gear

8. As you are driving your stickshift car your accelerator sticks. What should you do first?
    a. You will slide in straight line.
    b. Turn off the ignition switch.
    c. Pull the pedal up with your toe.
    d. Apply the brake.

9. You are driving in traffic. The engine of your automatic transmission car stalls. You should
    a. shift to NEUTRAL and restart
    b. shift to PARK and restart.
    c. leave in DRIVE and restart.
    d. shift to a lower gear and restart.

10. When steering failure occurs, you is should immediately
    a. relax your grip on the steering wheel.
    b. lift your foot from the accelerator and avoid braking.
    c. pull quickly to the side of the road
    d. brake quickly and carefully.

11. What happens if the power-steering unit fails?
    a. The steering will be harder to turn.
    b. The steering will be easier to turn.
    c. The steering will be the same.
    d. The steering will feel looser.

12. The hood of your car flies open while you are driving. What should you do first?
    a. Immediately brake as hard as you can
    b. Scan for a safe place to slow down.
    c. Steer by looking through the crack below the open hood or out the left window.
    d. Apply the parking brake.

13. Which emergency is best handled by shifting to NEUTRAL?
    a. brakes fail.
    b. steering fails
    c. accelerator sticks
    d. hood flies up

SEVEN CHARACTERISTICS OF
EFFECTIVE STUDY

1. Set study goals.

2. Survey first.

3. Prepare study questions.

4. Plan your study time.

5. Read for main ideas.

6. Regularly test your confidence.

7. Solidify learning by summarizing.

SEVEN IMPORTANT STEPS TO A POSITIVE ATTITUDE

1. Practice for the test.

2. Find out as much as you can about the test.

3. Make sure you understand the test directions.

4. Relax before the test.

5. Force worry out of your mind.

6. Use luck to your advantage.

7. Do not wait until the last minute to prepare for a test.

APPENDIX I

STUDENT FEEDBACK LETTER

Earlier you took a questionnaire called the Motivated Strategies for Learning Questionnaire (MSLQ). The purpose of this questionnaire was to gather information about your motivation for school work. I am providing you with feedback from the MSLQ on your motivation. This handout describes how to interpret your scores, so you can figure out what the scores mean.

This feedback is intended to help you determine your own strengths and weaknesses as a student. I have included information about the average levels of motivation for the students in your English class. Your class as a whole may be generally high in some areas and low others, so think about skills rather than comparison with others. You may want to use this feedback to do something about changing your motivation. All of the motivational skills mentioned on your feedback sheet are learnable. This is an important idea to remember, especially in college. You can decide whether you want to change these aspects of your learning style. I have provided some hints to go along with each scale, but keep in mind that these are not the only ways to improve each area.

All the scales are based on a seven point scale. In general, a higher score such as a 4, 5, 6, or 7 is better than a lower score like a 1, 2, or 3. The only exception is the test anxiety scale, where a high score means more worrying.

The average score for your class, as well as the breakdown of the scores for the bottom 25%, middle 50%, and the top 25%, is provided for each scale. If your score is at the bottom 25% on a scale, this means that most of the students in your class are reporting more motivation than you. If your score is in the middle 50%, then you are similar to most students. If your score is in the top 25%, then you think you are more motivated than other students.

THANK YOU FOR ALL OF YOUR EFFORT IN THIS STUDY. YOU ARE GREATLY APPRECIATED!!!

APPENDIX J

STUDENT FEEDBACK FORM

MOTIVATION SCALES: The first three scales refer to your motivation for the course, confidence in doing well in school, and your anxiety about taking tests.

I. Motivation: Interest

This is a measure of how interested you are in the material being covered in this course. A high score means you like the subject matter and are very interested in the content area of this class.

Your score: _____

Class mean: _____

Bottom 25 %: _____

Middle 50%: _____

Top 25%: _____

Suggestions: Skim the table of contents of the class textbook or take a look at the course syllabus and make a list of the three topics that most interest you and of the three topics that least interest you. Pay particular attention to these topics. What is it about the three most interesting topics that makes you like them so much? What is it about the other three topics that makes them uninteresting? Can you find any of the characteristics of the three most interesting topics in the three least interesting topics? If you identify what it is about the three most interesting topics that makes you like them so much, you may be able to apply what you found to the three least interesting ones, and perhaps you'll find that those uninteresting topics aren't so uninteresting after all!

II. Motivation: Expectancy for Success

This is a measure of your perceptions of your potential success in this course and of your self-confidence for understanding the course content. A high score means that you think you will do well in the course, and feel confident that you will be able to master the course material.

Your score: _____

Class mean: _____

Bottom 25%: _____

Middle 50%: _____

Top 25%: _____

Suggestions: Evaluate your current approach to a course assignment from different points of view. For example, describe the effectiveness and ineffectiveness of your own approach from your own perspective. Then imagine how a classmate might evaluate your approach. By analyzing the way you are tackling an assignment, you may be able to figure out what you're doing right and what you're doing wrong and can change your approach. A better understanding of the way you learn, what works and what doesn't work, may help increase your confidence in doing well in this course.

III. Test Anxiety

This is a measure of how much you worry about tests and how often you have distracting thoughts when you take an exam. In contrast to the other scales, a high score here means that you are anxious in testing situations.

Your score: _____

Class mean: _____

Bottom 25%: _____

Middle 50%: _____

Top 25%: _____

Suggestions: Developing better study skills usually results in less anxiety. Prepare well for class and try to complete assignments on time. Try not to wait until the last minute to get things done or to get ready for an exam. Doing this should help build your confidence at test time and hopefully reduce test anxiety. When taking a test, concentrate on one item at a time, and if you're stumped on a question, move on and go back to the question later. Remind yourself that you've prepared well and if you can't answer some questions, it's OK, you'll still be able to answer the others.

APPENDIX K

COMMENTS SAID TO TEACHERS BY STUDENTS
ABOUT THE TEST-TAKING STRATEGY

Reported by: regular education teacher - regular education student (12th grade) "I didn't know we could underline and mark things on our tests."

Reported by: regular education teacher - regular education student (12th grade) "Why didn't you tell us we could do this on our tests."

Reported by: special education teacher - regular education student (10th grade) "Now I see why I miss questions." (After feedback on practice test)

Reported by special education teacher - special education student (10th grade) "I don't know this answer so I'll mark "c" the longest answer." (On a regular American history test - "c" was the right choice)

Reported by regular education teachers - regular education and special education students Evidence of strategy use on tests and semester tests after strategy instruction such underlining, circling, and marking out

Reported by special education teacher - special education student (11th grade) "I found the answer to that question I didn't know in another question!" (Laughing)

Reported by special education teacher - special education student (10th grade) "I didn't know I could do this." (Have a system for taking tests)

Reported by special education teacher - special education student (10th grade) "Thank you for trying to teach me how to do better on tests."

Reported by regular education teacher - regular education student (11th grade) "It was helpful to give me a practice test and then show me where I messed up and why."

Reported by regular education teacher - regular education student (11th grade) "I have used this strategy in other classes."

Reported by special education teacher - special education student (12th grade) "I like the extra help."

APPENDIX L

<u>FINAL TEACHER EVALUATION INTERVIEW</u>

1. How do you feel about the effectiveness of the strategy that was used to help students improve their test performance?

2. What do you feel was helpful and not helpful?

3. What would you want to change and why?

4. What was your perception of students' attitudes toward class instruction presented by a special education teacher? Was there a difference in students' attitudes in a team taught class and a regular class with no team teacher? Explain.

5. What is your opinion of special education teachers having a repertoire of strategies available for regular education classes as a mini series of lessons to present upon request to help all students?

APPENDIX M

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 04-04-97   IRB#:   ED-97-096

Proposal Title: A COMPARISON OF THE EFFECTS OF TEST-TAKING STRATEGY INSTRUCTION ON GOAL ORIENTATION, SELF-EFFICACY, AND TEST ANXIETY AMONG SECONDARY STUDENTS IN DIFFERENT LEARNING ENVIRONMENTS

Principal Investigator(s): Diane Montgomery, Barbara A. Poynter

Reviewed and Processed as: Full Board

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING, AS WELL AS ARE SUBJECT TO MONITORING AT ANY TIME DURING THE APPROVAL PERIOD.
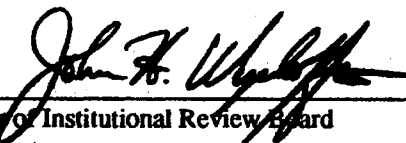APPROVAL STATUS PERIOD VALID FOR DATA COLLECTION FOR A ONE CALENDAR YEAR PERIOD AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Disapproval are as follows:

Signature: Date: April 15, 1997

Chair of Institutional Review Board

cc: Barbara Poynter

March 4, 1998

To Whom It May Concern:

On the Oklahoma State University Institutional Review Board Human Subjects Review approval form dated April 15, 1997, the title of this dissertation is "A Comparison of the Effects of Test-Taking Strategy Instruction on Goal Orientation, Self-Efficacy, and Test Anxiety Between Secondary Students in Different Learning Environments". (See Appendix M.)

The title is being changed to more completely and accurately identify the population of the study. The new title is "A Comparison of the Effects of Test-Taking Strategy Instruction on Goal Orientation, Self-Efficacy, and Test Anxiety Between Secondary Students With and Without Learning Disabilities in Different Learning Environments".

Sincerely,

Barbara A. Poynter

VITA

Barbara Ann Poynter

Candidate for the Degree of

Doctor of Philosophy

Thesis: A COMPARISON OF THE EFFECTS OF TEST-TAKING
STRATEGY INSTRUCTION ON GOAL ORIENTATION,
SELF-EFFICACY, AND TEST ANXIETY BETWEEN
SECONDARY STUDENTS WITH AND WITHOUT
LEARNING DISABILITIES IN DIFFERENT LEARNING
ENVIRONMENTS

Major Field: Applied Behavioral Studies

Biographical:

Education: Graduated from Enid High School, Enid, Oklahoma
in May 1962; received Bachelor of Science degree in English and
Education from Phillips University, Enid, Oklahoma in June 1966; received
Masters in Education in Special Education from University of Oklahoma,
Norman, Oklahoma in May 1989. Completed the requirements for
Doctor of Philosophy degree with a major in Special Education at
Oklahoma State University in May 1998.

Experience: taught English at Argentine High School and Wyandotte High School
in Kansas City, Kansas, 1965 to 1969; taught English and American
History at Dibble High School in Dibble, Oklahoma, 1979 to 1983; taught
English and Reading at Sacred Heart School in Oklahoma City, Oklahoma,
1983 to 1987; taught Learning Disabilities at Moore West Junior High
School and Westmoore High School in Moore, Oklahoma, 1987 to
present; served Internship at Oklahoma State Department of Education
Special Education Section in Oklahoma City, Oklahoma ,the Summer of
1993; taught reading at Community Literacy Centers, Inc. in Oklahoma
City, Oklahoma, Summer of 1996; served on KC Foundation Committee at
Moore Public Schools in Moore, Oklahoma, 1993 to present; served as
graduate teaching assistant at Oklahoma State University in Stillwater,
Oklahoma, Fall of 1997.