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Teaching Students to Regulate Their Emotions and Writing Performance Through Relaxation/Thought Replacement and Learning Strategy Use

By

James V. La Femina

A dissertation submitted to the Graduate Faculty in Educational Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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Abstract

Teaching Students to Regulate Their Emotions and Writing Performance Through Relaxation/Thought Replacement and Learning Strategy Use

By

James V. La Femina

Advisor: Professor Barry J. Zimmerman

This study examined the effectiveness of relaxation/thought replacement training (RTR) and strategic training (ST) for improving both writing quality and self-efficacy, and decreasing writing anxiety. The study also tested three theoretical positions, the interference and skills deficit models of anxiety, and a social cognitive model of learning. Forty females and 34 males (n=74) enrolled in a writing skills workshop were recruited for this study. All were non-matriculated undergraduate students who had failed the college's entrance writing test.

This study utilized a pretest/posttest 2 X 2 factorial design to test the effectiveness of RTR and ST. The subjects received either, RTR, ST, both RTR and ST, or the workshop training. The outcome variables were measured using the Writing Quality Primary Trait Scoring Scale, and modified versions the Test Anxiety Inventory and the Self-Efficacy for Writing Questionnaire.

The effects of RTR and ST were analyzed using three separate analysis of covariance for each of the outcome measures. A path analysis was utilized to test the predictive and mediational role of self-efficacy. The results revealed a significant main effect for ST on writing quality and self-efficacy, and a significant main effect for both ST and RTR on anxiety. No treatment interaction was found. Results of the path analysis revealed a significant direct path from ST to writing quality and a significant indirect path to writing quality through self-efficacy. No path was found from writing anxiety to writing quality. A significant negative path was found from RTR to writing quality.

The results support the utility of graphic organizers as a powerful tool for improving both cognitive and affective factors. The findings also support a social-cognitive model which postulates that ST would be more effective than RTR for improving students' writing performance and increasing self-efficacy beliefs. Additionally, a social-cognitive model predicted that the effect of ST would be mediated through self-efficacy, not anxiety.

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Teaching Students to Regulate Their Emotions and Writing Performance Through Relaxation/Thought Replacement and Learning Strategy Use

Chapter I

Introduction

Teaching students to write effectively is an important part of the education process today. No longer is writing just considered one of the "polite arts" (Faigley, Cherry, Jolliffe, & Skinner, 1985 p.xi), a skill that is only relevant to the college educated elite, but writing effectively is now a professional necessity. When students enter colleges and universities, the expectation of the faculty and administration is that they will possess at least the minimal skills necessary to express their ideas on paper. However, this is not the case for many students. Large numbers of students have difficulty writing but still must face writing evaluation examinations, either before they enter schools or sometime early in their undergraduate work. Students are usually given a certain number of chances to pass these examinations and often, remedial writing courses or workshops are offered to help. Even for students who do pass writing evaluation examinations, some continue to have difficulty writing or feel anxious about writing. There is a tendency for these students to avoid courses that have significant writing requirements, which can affect their choice of academic major and occupation (Daly & Shamo, 1976).

Writing is a solitary and very complex task. It requires the simultaneous use of many skills such as spelling, punctuation, grammar, and

organization. (Flower & Hayes, 1980). Writing requires the smooth connection of ideas, while considering the overall structure of the text and the specific parts of the text (i.e., paragraphs, sentences, and words). Due to its solitary nature and complexity, writing places demands on effort, attention, and cognitive capacity, which makes it an endeavor that should benefit from the use of self-regulatory strategies. There is some evidence to suggest that effective writers know how to finesse all of these constraints without becoming overwhelmed. Often, these writers will employ strategies such as goal setting, outlining, and monitoring (Humes, 1983) to help them deal with the complexities and intricacies of composing. Ineffective writers however, can easily become overwhelmed handling all these constraints at the same time. This may lead to a loss of confidence and motivation, while increasing worry and anxiety. Few researchers however, have examined how the use of self-regulatory strategies may influence both cognitive and affective factors.

According to social cognitive theory, judgments of confidence in what one can accomplish, or self-efficacy beliefs, are excellent predictors of academic achievement (Bandura, 1997). Self- efficacy beliefs are said to mediate other influences on academic achievement, such as skill and ability (Pajares, Miller, & Johnson, 1999). Therefore, academic accomplishments are at least, in part, a result of what students believe they can accomplish. When students believe they are capable of accomplishing a task, they are more likely to sustain effort, increase perseverance and resiliency when obstacles are encountered, and decrease feelings of anxiety (Pajares et al.,

1999). Although there is considerable evidence that self-efficacy beliefs serve predictive and mediational roles in academic achievement within many domains (McCarthy, Mier, & Rinderer 1985; Multon, Brown, & Lent, 1991; Shell, Murphy, & Bruning, 1989), only a few researchers have examined the role that self-efficacy beliefs play in writing performance (Pajares et al., 1999).

When students have a low sense of self-efficacy, they seem to be vulnerable to achievement anxiety or apprehension (Bandura, 1997). These students may experience cognitive concerns about performance, for example, while taking a test an individual may begin to think about the consequences of failure or think about how others in the class are doing on the test (Sarason, 1975; Wine, 1971). In addition, they may experience self-perceived physiological arousal; (e.g., sweaty palms, muscle tension, and racing heart) (Deffenbacher, 1978). It is believed that cognitive concerns in concert with physiological cues will result in task interference, which adversely affects academic performance (Spielberger, 1980). Most of the research in this area has examined the relationship between anxiety and mathematics achievement (Bandura, 1997), and the literature on anxiety and writing performance is scant.

Theories of writing (Flower & Hayes, 1981; Rohman, 1965) have maintained a focus on the cognitive aspects of the writing process but neglect to fully consider affective factors such as anxiety. Although Flower and Hayes (1977,1981) have speculated that writing anxiety results from

ineffective strategy use, very little research has tested this idea. Recently, social cognitive researchers have begun to focus more attention on affective factors, but only through correlational designs. Although there are experimental studies that have examined the effect of strategy use on writing achievement, no studies to date have specifically examined how self-regulated strategy use affects emotional arousal during writing tasks. Therefore, it is the purpose of this study to examine the effect of both emotional self-regulation strategies and learning self-regulation strategies to determine their individual and combined effect on writing quality, self-efficacy beliefs, and anxiety. In addition, this study will explore the predictive and mediational role that self-efficacy beliefs have on writing quality and writing anxiety.

Chapter II

Literature Review

This literature review will begin with an examination of cognitive models of writing. This will be followed by a review of the processes involved in self-regulated learning and the development of self-regulatory behavior from a social cognitive perspective. Self-regulatory strategy use and the link between self-efficacy and self-regulation will also be included. Models of test anxiety will then be presented along with research findings on the relationship between anxiety, writing quality, and writing self-efficacy beliefs. This review will conclude with an examination of cognitive-behavioral treatments of test anxiety.

Models of Writing

Prior to 1963, researchers almost exclusively tested writing pedagogical methods and curricula with the intent to improve writing quality. Questions of how writers compose or how writing skills develop were virtually ignored. The focus of research was on the product of writing, not the process of writing.

One of the most influential models to examine pedagogical methods was developed by Rohman and Wlecke (Rohman, 1965). These investigators postulated that composing consisted of three linear stages, "Pre-Writing", "Writing", and "Re-writing." According to this model, writing only begins

after the pre-writing, or the planning stage is completed. This model was widely accepted and implemented by writing teachers.

In reaction to Rohman and Wlecke's model, researchers began to question the linear view of composing. For example, Emig (1971) observed twelfth-graders as they wrote and asked them to record their thoughts, a technique which came to be known as "thinking-aloud protocols." Emig (1971) concluded that stages of composing are not clear cut. For instance, the planning process does not only occur before writing, but continues throughout composing. This research was the forerunner of a new generation of investigation that was moving away from pedagogical methods and product to strategy use and process. One major advantage of this new line of inquiry is that researchers now can compare the strategies of good and poor writers.

During the 1970's and 1980's, researchers began to view writing as an act of problem solving and focused their attention on writers' use of strategies (Bereiter & Scardamalia, 1987). This new line of inquiry inferred strategies from thinking-aloud protocols. At this time, a new model was constructed by Flower and Hayes (1981) (see Figure 1). This model included the three stages put forth by Rohman and Wlecke, but now identified as planning, translating, and reviewing. In addition, this newer model included the task environment and the writer's long-term memory. The major difference, however, between Flower and Hayes' model and Rohman and Wlecke's model was that Flower and Hayes (1981) included a "monitor." The monitor is similar to a "feedback loop" which regulates performance by receiving data and making

adjustments. This enables a writer to go from one process to the next and back again.

Flower and Hayes (1981) consider composing to begin when the writer is given a "rhetorical problem," such as a school writing assignment. Rhetorical problems are rather complex, therefore, writers often create a hierarchy of goals and subgoals. The rhetorical problem forces writers to contend with the topic, an audience, and exigency. These three factors are part of what Flower and Hayes (1981) refer to as the task environment. In theory, a good writer is a person who can juggle the aforementioned demands.

Within the task environment, Flower and Hayes (1981) also consider the production of the text. As a writer composes, the text itself becomes part of the task environment. For example, the topic places constraints on what a writer can write. Just as a title limits the content of a paper, a topic constrains the options of a paragraph, and each written word limits one's choices of what to write next. As the text grows, it places more demands on the writer's attention and knowledge store. The knowledge store refers to knowledge about a topic as well as knowledge of audience and writing plans. The writer's knowledge store can be situated in one's long-term memory, as well as outside resources such as books and computers.

The planning process consists of three subprocesses: generating, organizing, and goal setting. According to Flower and Hayes (1980), the function of the planning process is to take information from the task environment and long-term memory, and use it to establish a plan to reach

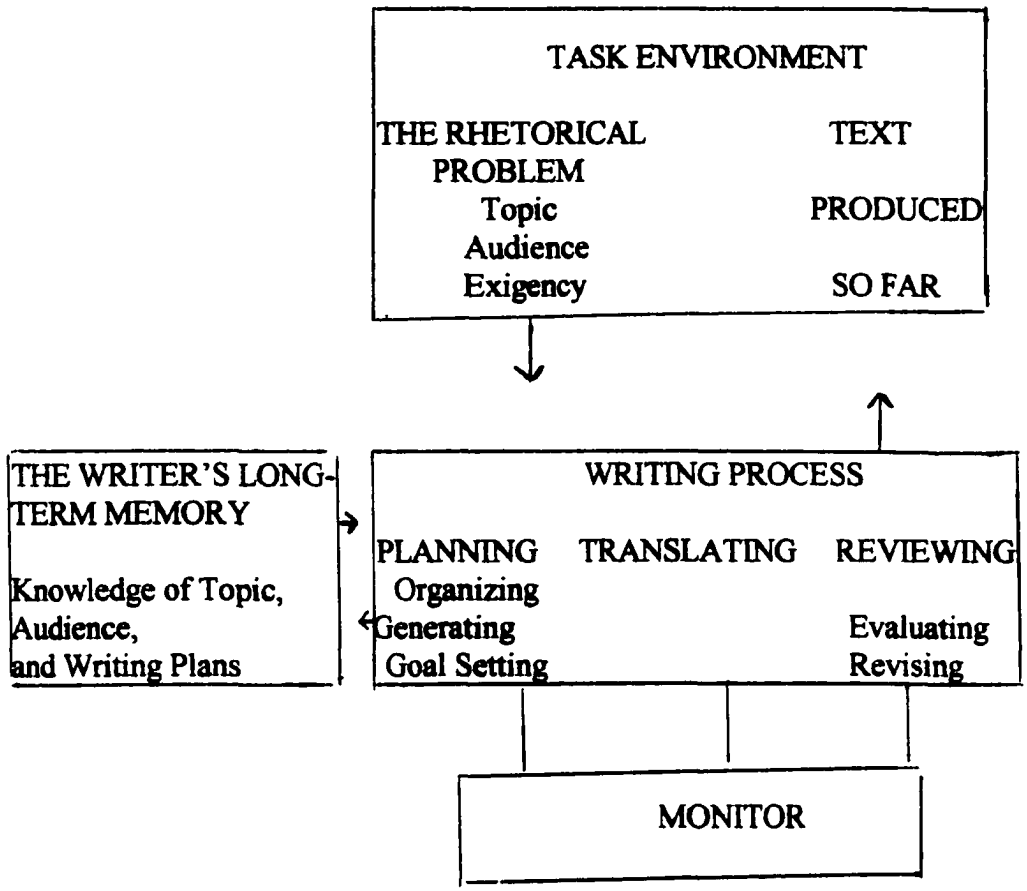


Figure 1. Flower and Hayes' (1981) cognitive model of the writing process.

goals. These goals are arranged in a hierarchy of importance and can change during the writing process. Generating is the retrieval of information relative to the writing task from long term memory. The ideas however, are not organized. It is during the organization process that the writer selects the most useful information retrieved and organizes it.

Translating is the process of taking information under the guidance of the writing plan and transforming it into acceptable sentences. In addition, during this process, the writer must tackle the constraints of language, such as grammar, punctuation, and spelling.

The next process of writing is reviewing. The function of reviewing is to improve the quality of the written text. It consists of two subprocesses: evaluating and revising. Reviewing is a conscious process in which the writer further translates the material or systematically evaluates and/or revises the text. These periods of reviewing often lead to new cycles of planning and translating. The reviewing process can also occur as an unplanned action triggered either by an evaluation of the text or by one's own plan. If there is a discrepancy between the text and the writer's goals, the writer will revise either the text or the goals.

As writers compose, they also monitor their process and progress. The monitor determines when a writer moves from one process to the next and allows the writer to move back and forth between processes. The choice to move from one process to the next is determined by both the writer's goals and individual style. For example, some writers may plan a little then write a

little, then go back to planning. Other writers may choose to plan what they will write in great detail before writing one word.

To test their model, Hayes and Flower (1980) analyzed writing protocols of experienced writers. They asked these writers to speak their thoughts aloud as they were engaged in composing, a technique first used by Emig (1971). Hayes and Flower (1980) then coded their statements and found that they could be grouped into three sections or phases. The first phase is the generation of ideas, occasionally interrupted with editing. For example, the writer may say, " I'll...simply jot down random thoughts." In the second phase, writers' thoughts centered around organizing, occasionally interrupted by generating and editing. For example, writers might say, "Now I think it's time to go back and read over the material and elaborate on its organization." In the third phase, writers focused on translating, which was occasionally interrupted by generating and editing. These statements reveal that the writers were searching for what to write next, for example, "Let's build on this plan and see what happens."

The results of the protocol analysis provide support for this model. As was observed, editing occurs throughout the writing process, not just at the end. Writers do not go through phases in a linear fashion, but move back and forth fluidly between the phases of writing. Thus, the results lend support for the hypothesis that writers have a monitor which regulates composing.

Flower and Hayes (1977,1981) have described writing as a highly goal oriented, demanding task, which requires complex cognitive skills, strategic

management of cognitive resources, and planning. For example, Hayes and Flower (1980) discovered that inexperienced writers spend less time than experienced writers thinking about how to communicate their ideas to potential readers. Without effective strategy use to juggle the many constraints involved, writers can become easily frustrated and overwhelmed (Flower & Hayes, 1980). Although Flower and Hayes have not examined this experimentally, Flower (1978) hypothesized that writing anxiety is the result of inefficient composing methods; the consequence of unworkable strategies. Therefore, in order to alleviate anxiety, one must take a strategic approach to writing. Once writers adopt effective strategies, performance anxiety should decrease.

Although the above model proposed by Flower and Hayes was first introduced seventeen years ago, it remains one of the most widely researched cognitive models of writing, as well as, one of the most applied models by instructors to help students become better writers (Pressley, McGoldrick, Cariglia-Bull, and Symons, 1995).

Summary

The focus of early researchers on writing was almost exclusively aimed at testing pedagogical methods and curricula to improve the product of writing. Researchers had little interest in the process of writing until the introduction of Flower and Hayes' (1981) model. These investigators put forth a model of writing that consists of three interacting components: the task

environment, the writer's long term memory, and the writing process. The task environment includes the "rhetorical problem" and the text that has been produced. The writer's long-term memory includes knowledge of the topic, audience, and writing plans. The writing process consists of planning, translating, and reviewing. An additional element within the writing process is the monitor. This allows the writer to fluidly move back and forth between processes. Support for this model comes from the analysis of writing protocols of experienced writers (Hayes and Flower, 1980).

The Flower and Hayes model has some similarities with Bandura's (1977, 1986) triadic model of self-regulated learning. According to this view, three components interact reciprocally: person, behavior, and environment. The model of writing proposed by Flower and Hayes (1981) "incorporates elements of the person (e.g., long term memory and planning), behavior (translating and revising), and environment (task environment)" (Risenberg, 1993 p.18). This writing process also contains strategies which are consistent with self-regulatory learning strategies. For example, writers plan goals, review, and monitor progress toward these goals. These are a few of the strategies used by self-regulated learners according to Zimmerman and Martinez-Pons (1986). Finally, Flower and Hayes (1977,1981) consider writing anxiety to be a consequence of ineffective strategy use, which is similar to the social cognitive model of self regulation.

A Social Cognitive Model of Self-Regulation Learning

This section will begin with a description of the processes involved in self-regulated learning and the development of self-regulatory behavior from a social cognitive perspective. Next, a review of the literature on self-regulatory strategy use and the link between self-efficacy and self-regulation will be presented.

Self-Regulated Learning

A social cognitive view of self-regulated learning stems from Bandura's triadic model (1977, 1986) which consists of three components that interact reciprocally: person, behavior, and environment. Self-regulated learning, according to Zimmerman (1998), is a multidimensional process that involves personal (cognitive and emotional), behavioral, and contextual components. Self-regulated learners are "metacognitively, motivationally, and behaviorally" active in their own learning (Zimmerman, 1990). The metacognitive process includes goal setting, organizing, self-monitoring, and self-evaluation during learning. Motivationally, self-regulated learners are intrinsically motivated. They initiate activities and display effort and persistence in tasks they undertake. Behaviorally, these students will seek out information, restructure their environment to maximize learning, and self-reinforce throughout performance.

Another feature of self-regulated learning is a feedback loop (Carver & Scheier, 1981). This allows students to compare their actual performance

to their goals on academic tasks. These learners take in data and evaluate progress toward their goals. If a discrepancy exists between standards and goals, self-regulated learners may alter strategies, increase effort, re-evaluate or change their goals, or perform a number of other procedures to keep performance and goals congruent.

A third feature of self-regulation focuses on why and how students choose certain behaviors and/or strategies (Zimmerman, 1990). Students choose strategies they believe will work and ones they believe they are capable of using. The choice of strategies are largely determined by past experience (Bandura, 1986). Specific studies on self-regulatory strategies revealed that goal setting (Schunk, 1985), self-instruction (Schunk, 1986), and environmental structuring (Marcus, 1988) are helpful for learning.

Learners progressively become self-regulated in four levels (Zimmerman & Kitsantas, 1997). At each level, the learner increases the metacognitive, motivational, and behavioral regulation of a domain-specific skill, such as writing (Zimmerman & Kitsantas, 1999). Self-regulation is first acquired through observation. Students may witness or hear about a model who is proficient in a given domain. For example, a teacher may organize his or her ideas using an outline as students observe. Through vicarious experience, learners are provided with an image of how to execute a skill, and through vicarious reinforcement of the model, learners gain motivation to perform the skill. Once students can distinguish the key elements of the skill, they have attained competence at this level. The next level of self-regulation

is referred to as emulation. The student now has adopted the model's abstract pattern or style of the skill motorically. This gives students a motoric sense of how performing a specific skill feels. Additionally, sensorimotor feedback enables the student to form internal standards of correct performance.

The next level of regulation is self-control. It is acquired when a student can perform a skill or strategy as planned and self-monitor their progress. This requires self practice without the aid of a model. However, even without the model, the student remains dependent upon the personal representations of the modeled performance. The final level is self-regulation. At this level, students can adapt behaviorally to changing tasks, audiences, and interpersonal states (Zimmerman & Kitsantas, 1999). A strategy or skill can now be performed without careful monitoring. When an individual can employ a strategy without substantial self-monitoring, this is one less task with which to contend. In a complex endeavor, such as writing, self-regulation can be very beneficial. For example, once a student engaged in writing can organize his or her thoughts without considerable self-monitoring, that student can then focus more attention on writing outcomes (e.g., considering the audience).

Research on Self-Regulated Learning Strategies

An investigation of the specific self-regulatory learning strategies used by students was carried out by Zimmerman and Martinez-Pons (1986). These researchers constructed a Self-Regulated Learning Interview (SRLI). The

SRLI consisted of six hypothetical learning situations involving tasks in the classroom and at home. It also included one situation about writing a paper. Tenth grade students that were either high or low achievers were asked to name all the methods they would use to complete a task requirement. The students' responses were transcribed verbatim and classified according to fourteen self-regulated learning strategies: goal setting and planning; organizing and transforming; rehearsing and memorizing; self-evaluation; self-consequating; record keeping and monitoring; information seeking (from non-social sources such as a book); environmental restructuring; seeking assistance from peers, adults and teachers; and reviewing notes and text.

The results revealed a significant difference in the frequency of strategy use between the two groups. The use of self-regulated learning strategies predicted with 93% accuracy which achievement group a student belonged to. Out of the fourteen self-regulated learning strategies, high-and low-achieving students were best differentiated by the use of three self-regulated learning strategies. First, organizing and transforming, defined as "student-initiated overt and covert rearrangement of instructional materials to improve learning " (Zimmerman & Martinez-Pons, 1986 p.618). Second, keeping records and monitoring, defined as "student-initiated efforts to record events or results;" and third, seeking information, defined as "student-initiated efforts to secure further task information from non-social sources when undertaking an assignment" (Zimmerman & Martinez-Pons, 1986 p.618).

Using teacher reports of student self-regulated learning behaviors, Zimmerman and Martinez-Pons (1988) were able to validate the SRLI.

The SRLI was also administered to gifted and regular fifth, eighth, and eleventh graders (Zimmerman & Martinez-Pons, 1990). The results revealed that gifted students used a greater number of self-regulated learning strategies. The gifted group was best distinguished by the use of: organizing and transforming, self-consequating, seeking peer assistance, and reviewing notes.

Self-Regulation and Self-Efficacy

Self-efficacy is described as confidence in performing a specific task in a given set of circumstances (Zimmerman, 1989). Researchers have established a link between self-efficacy beliefs and the use of self-regulatory learning strategies. For example, Zimmerman and Martinez-Pons (1990) administered verbal and mathematics self-efficacy scales to gifted and regular education students. The scales measured their perceived ability to define ten words and to solve ten mathematical problems. The gifted students had significantly higher self-efficacy beliefs in both areas. The difference between the groups was especially large for the verbal measure. Additionally, verbal self-efficacy was associated with three self-regulatory strategies: organizing and transforming, seeking peer assistance, and reviewing notes. Mathematical self-efficacy was related to reviewing notes.

The construct of self-efficacy has received support from a growing body of evidence as having a predictive and mediational role on academic

achievement. Multon, Brown, and Lent (1991) reported on a meta-analysis of the relations of self-efficacy beliefs to academic performance and persistence. The results revealed that self-efficacy beliefs account for approximately 14% of the variance in students' academic performance and approximately 12% of the variance in their academic persistence. The meta-analysis also revealed significant heterogeneity among effect size estimates. This suggests that the relationship of self-efficacy to performance and persistence may vary across factors such as subjects, measures, and study characteristics.

Bandura (1986) hypothesized that self-efficacy predicts student motivation because it affects persistence, effort, and task choice. For instance, students with high self-efficacy will set more challenging goals, expend more effort in reaching those goals, and persist on tasks longer than will students with low self-efficacy. Flower and Hayes (1980) found that effective writers set goals and persist in their effort to reach those goals. Therefore, high self-efficacy beliefs are necessary to be an effective writer.

Bandura (1977, 1986) distinguished outcome expectations and self-efficacy expectations; this difference is important when attempting to understand the writing process. Bandura suggested that students will perform a task successfully if they know what behaviors will produce desired outcomes and if they believe they are capable of performing the behaviors. For example, a student may know what must be done in order to produce a quality piece of writing. However, if that student lacks the belief that he or

she can achieve the desired outcome, the chances of producing a quality piece of writing are then diminished.

Summary

This section began by presenting a social-cognitive view of self-regulation which stems from Bandura's (1977,1986) triadic model. This model describes self-regulation as a reciprocal process which involves personal, behavioral, and contextual components (Zimmerman, 1998). An investigation by Zimmerman and Martinez-Pons (1986) classified fourteen self-regulatory strategies and found that high achieving students use more of these strategies (e.g., organizing and transforming and seeking peer assistance) than low or average achieving students (Zimmerman & Martinez-Pons, 1986,1990). This section concluded with evidence establishing a connection between self-efficacy beliefs, the use of self-regulatory learning strategies, and academic performance in various academic subjects (Multon et al., 1991; Zimmerman & Martinez-Pons, 1990).

Self-Regulation and Writing

Self-regulation must be examined in the context in which it is utilized (Zimmerman, 1989). Therefore, we will turn our attention towards the field of writing and the self-regulation process, the focus of this study. This section examines writing and self-regulation within a social-cognitive framework. Furthermore, the review will include literature on self-regulatory strategies

and writing performance, specifically, prewriting organizing strategies, such as graphic organizers.

A Social Cognitive Model of Writing and Self-Regulation

Since writing is such a complex, difficult, and demanding task, it requires extensive self-regulation to do so effectively (Kellogg, 1996). Just as Zimmerman and Martinez-Pons (1986, 1990) found high-achieving and gifted students use more self-regulated learning strategies, researchers (Graham & Harris, 1994; Kellogg, 1994; Zimmerman & Risemberg, 1997) have shown that professional writers also use many self-regulation strategies. These strategies include planning, revising, organizing, and environmental structuring. Researchers are also beginning to realize that students and nonprofessional writers can benefit from self-regulation writing strategies (Graham & Harris, 1996; Harris & Graham, 1996; Risemberg, 1996; Zimmerman & Risemberg, 1997).

A social cognitive model of self-regulation that is specific to writing is presented by Zimmerman and Risemberg (1997). This model defines self-regulation for writing as "self-initiated thoughts, feelings, and actions that writers use to attain various literary goals, including improving their writing skills as well as enhancing the quality of the text they create" (Zimmerman & Risemberg, 1997 p. 76). According to this view, writing can be categorized into three processes which correspond to three classes of self- regulation. The first, environmental processes, corresponds to environmental self-regulation.

Environmental processes refers to ways in which the writer regulates the physical surroundings or the social setting. An example of regulating the physical surroundings is going to the library to escape distracting noise at home. The second, behavioral processes, corresponds to behavioral self-regulation and consists of overt motor activities associated with writing. Keeping a daily record of the number of written pages would be an example of behavioral processes. The final process is the personal processes, which refers to the writer's self-regulation of cognitive beliefs and affective states. This corresponds to covert self-regulation. For example, a writer may set aside a specific block of time each day to write.

These three self-regulation processes interact reciprocally during writing via a feedback loop. This loop allows the writer to monitor the effectiveness of the self-regulation strategies. If a strategy is effective, a writer may continue it. If it is not effective, a writer may discontinue or make modifications to it.

The feedback loop in the social-cognitive model, may sound similar to Flower and Hayes' (1981) monitor. However, the feedback loop does more than monitor and make adjustments, it also alters writers' conceptions of self-efficacy beliefs for self-regulation (i.e., judgments of one's capability to use various self-regulated learning strategies) which can predict writing competence (Schunk & Zimmerman, 1997; Zimmerman, Bandura, & Martinez-Pons, 1992). In large part, students develop beliefs about their

academic capabilities by how successful they view their self-regulatory strategies (Bandura, 1977).

The Effect of Strategy Training on Writers' Performance

Schunk and Swartz (1993) investigated the influence of goal setting and progress feedback on self-efficacy and writing achievement. The participants were 33 academically gifted fourth grade students. The students were given a pretest to determine their current level of self-efficacy beliefs (i.e., their belief that they could produce a five paragraph writing task). They were specifically asked about: generating ideas, deciding on the main idea, planning the paragraph, writing a topic sentence, writing supporting sentences. In addition, writing skill, writing strategy use, and goal orientation were measured. The children were randomly assigned to one of three treatment conditions: paragraph goal, strategy goal, and strategy goal plus progress feedback. The children assigned to the paragraph goal condition were instructed to focus on what they were told to accomplish with the paragraph. For example, they were told, "While you are working it helps to keep in mind what your trying to do. You'll be trying to write a descriptive paragraph." The teacher substituted the appropriate paragraph type (e.g., descriptive, narrative, and informative) for each subsequent session. In the strategy goal condition, the teacher gave the same instructions as the paragraph goal condition with the exception of substituting "trying to write a descriptive paragraph" with "trying to learn how to use these steps to write a

descriptive paragraph." The steps were displayed on a poster board: What do I have to do? (1) Choose a topic. (2) Write down ideas about the topic. (3) Pick the main idea. (4) Plan the paragraph. (5) Write down the main idea and other sentences. The strategy plus feedback condition used the same strategy as above plus teacher feedback given privately to each child during practice. The feedback focused on the effective use of the strategy.

The results showed that strategy use plus feedback and strategy goal conditions increased writing achievement. In addition, the strategy plus feedback condition raised self-efficacy beliefs significantly higher than the paragraph goal condition. The feedback helped students to see the usefulness of the strategy. When students believed they were learning a useful strategy, their self-efficacy beliefs increased. The increase in self-efficacy in turn motivated students to use the strategy, which enhanced skill development and writing performance.

Zimmerman and Kitsantas (1999) further examined the effects of goal setting and self-recording during writing revision. Eighty-four ninth, tenth, and eleventh grade girls were randomly assigned to one of six experimental conditions or a practice-only control group. The experimental conditions were based on the type of goal set (process goal, outcome goal, and shifting process-outcome goal) and the presence or absence of self-recording. The outcome goal condition focused on rewriting sentences using the minimal number of words. The self-recording group counted and wrote down the number of words in their sentence. In the process goal condition, the subjects

concentrated on executing a strategy (circle words standing for new words, crossing out repetitive words, and combining the remaining words in a complete sentence). The self-recording group wrote down the number of strategy steps they had done correctly. Those assigned to the shifting condition first practiced executing the strategy. Once they achieved automaticity, they were instructed to use the minimal number of words in each sentence. The self-recording group first wrote down the number of steps they did correctly. Once they shifted from process to outcome goals, they counted the number of words they used in the sentence. The results revealed that students who shifted from process to outcome goals displayed the highest level of writing skill, self-reactions (satisfaction with their proficiency in rewriting skills), self-efficacy and intrinsic interest. The subjects who focused only on process goals exceeded those who only focused on outcome goals on all dependent measures. Self-recording enhanced the effects of goal setting on writing motivation and writing skill development. The subjects who self-recorded also showed higher levels of self-efficacy beliefs, self-reactions, and intrinsic interest.

The effectiveness of strategy use has also been demonstrated with learning disabled children. Graham and Harris (1989) examined the effect of strategy use with a sample of fifth and sixth grade students, all with IQ's between 85 and 115. Students were at least two years below grade average in one or more academic area. The subjects were randomly assigned to one of two treatment conditions. Students in the first group were trained in a self-

instructional strategy. They learned a mnemonic devise for inclusion of story grammar elements (who-what-when-where-how). A teacher modeled the correct use of this strategy. Subjects in the second condition followed the same procedure but were also taught explicit self-regulation strategies of setting goals for the number of story grammar elements with which they would include. Students then monitored their performance by graphing the actual number of story grammars included. A "normally achieving" group was added as a control. The groups wrote a story based on a picture and were evaluated by the number and quality of story grammars elements included (e.g., main character, locale, time, ending). A holistic rating was also used to assess the overall quality of the writing. The results showed both treatment groups achieved scores equivalent to the "normally achieving" group on the dependent measures. In addition, the experimental groups did not differ from each other on the outcome measures. This may have occurred because the self-instructional strategy group did some implicit self-regulatory instruction without recording (e.g., verbally self-evaluating). Later, the results were replicated by Sawyer, Graham, and Harris (1992).

The above studies examined the effectiveness of various self-regulatory strategies. The focus will now be on prewriting strategies with particular attention to organizing strategies that are the subject of this study.

Prewriting Strategies

Writing lends itself well to self-regulation strategy use because it is so complex and demanding. Writing requires rigorous juggling of many factors at the same time. Kellogg (1994) contends that effective strategy use restructures the allocation of resources to reduce cognitive overload. Strategy use leads to greater concentration on fewer processes. In addition, strategy use helps the writer to organize knowledge which should aid in its retrieval during composing.

Flower (1981) divided strategies into weak and strong groups based on attentional overload. Weak strategies, such as perfect first drafts, promote attentional overload. Strong strategies, such as brainstorming, reduce attentional overload because they free the writer to generate ideas without having to focus on organization. Aids such as flow charts, tress, boxes, arrows, and other notes ease the load on attention and working memory, yet allow the writer to keep moving (Kellogg, 1994).

Writers spend various amounts of time thinking about what they might say before they write. Some spend a few minutes, others spend hours, days, or even years (Kellogg, 1994). To a large extent, the amount of time engaged in prewriting strategies is dependent on the type of document being written. For example, writing an e-mail to a friend requires less planning and organizing of thoughts than writing a persuasive essay for school. To write an effective essay, one may need to take time gathering his or her thoughts and organizing the information. However, few students do so. For example, Perl

(1979) found that "unskilled writers" enrolled at a community college spent only about 4 minutes thinking about a topic before they began to write. Pianko (1979) also observed that few high school and college students do any type of planning before writing. This occurred despite exposure to formal writing instruction which encourages students to outline.

It is hypothesized by cognitive models of writing that prewriting strategies improve the fluency of language production and the quality of the writing because they "restructure attention" (Kellogg, 1994, p.123). Because attentional capacity is believed to be limited (Kahneman, 1973), allocating sufficient attention to all the demands of writing is a serious problem. Surveys, interviews, and verbal protocol studies revealed that even experienced writers can get overwhelmed by the attentional demands (Boice, 1985; Kellogg, 1988).

Bloom (1988) examined the prewriting organizational structure of 731 ninth grade students. The students were assigned an essay topic. They were told to prewrite anything they wanted for five minutes on a blank piece of paper before beginning the essay. Analysis of the papers found that 65% of the students engaged in some prewriting activity. Bloom then classified the papers into fifteen categories. The majority of the students (53%) re-wrote the topic along with one or more ideas. Fifteen percent used a list, 9% wrote some kind of formal outline, and 4% used diagrams. The remaining 19% used miscellaneous prewriting activities, for example, freewriting ideas. Bloom then examined the quality of the essays and found that outlining and

list making were significantly related to the high quality essays. Re-writing the topic and jotting down ideas led to the poorest quality essays.

Kellogg (1990) also investigated writing quality by asking 207 college students to write analytical and informative essays. The subjects either were instructed to prepare a hierarchical written outline, instructed to prepare a visual network of ideas and their relations, or began writing without any prewriting time. The outline group was given a blank piece of paper and instructed to use Roman numerals for main ideas (I, II), capitol letters for subpoints (A, B), and Arabic numerals for further subpoints (1, 2). They were given 10 minutes to work on their outline before writing. In the visual network group, the subjects were instructed to take a word, called the nucleus word, write it in the center of the page, then rapidly write down every word or phrase that the nucleus words brings to mind and connect the words to the nucleus word with lines. This technique is called clustering. Clustering is hypothesized to stimulate creativity and is similar to brainstorming. The task demands were also varied. The writing task either demanded generation and organization of ideas (subjects were given only the topic), demanded organization but not generation (subjects were provided with a list of ideas for possible inclusion in the essay), or provided both ideas and a possible organizational scheme (e.g., the scheme divided the essay into sections).

The quality of the essays in terms of content and style, fluency of composing, and characteristics of the prewriting plans were measured. The results showed outlining significantly improved the overall quality of the

essays and the fluency of the drafts. The benefit of outlining was greatest when the task required the writer to generate and organize ideas. The quality benefit was less strong when the subjects were given ideas and eliminated when the subjects were given ideas and the organizational scheme. Although the results found clustering increased the number of ideas generated during prewriting, it had no effect on the quality of the essay. The results indicated that outlining is not always beneficial. One must consider the task demands before making a determination. It appears that when a writer has plenty of organized ideas, for example, composing a routine business letter, outlining would not be needed. However, for most academic assignments, where creating and organizing ideas are necessary, outlining is an effective strategy.

Although outlining appears to help writers generate ideas and organize information, most students do not outline. Emig (1971), found that twelfth grade students, even honor students, rarely used outlining. When students did outline, most used informal ones that were not very comprehensive. In an attempt to find out what pre-writing strategies students prefer, Pope and Prater (1990), asked eleventh graders trained in eight pre-writing strategies which ones they preferred. Outlining was rated near the bottom of the list, surpassed by strategies such as freewriting and brainstorming. This was true regardless of students' ability.

Graphic Organizers

A relatively recent pre-writing tool, known as graphic organizers, have emerged. Graphic organizers, once known as structured overviews, evolved from Ausubel's advance organizers (Barron, 1980). Graphic organizers use a two-dimensional, visual- spatial format to convey concept relations, which sets them apart from outlines (Robinson & Kiewra, 1995). Like outlines, however, graphic organizers are highly organized and have a verbal element (Risemberg, 1993). For example, a graphic organizer for writing an essay would have the organizational structure of the essay laid out. The writer would fill in the structure with written text (see Appendix B).

Graphic organizers were originally intended to aid students in reading comprehension. Their usefulness for this purpose has been demonstrated by a number of studies (e.g., Horton, Lovitt, & Bergerud, 1990; Moore & Readance, 1984; Robinson & Kiewra, 1995), however, the effectiveness of graphic organizers on writing achievement has received much less attention. The available research, however, confirms the effectiveness of graphic organizers to enhance writing performance.

Jones and Hall (1979) trained 22 seventh grade students to use a graphic organizer while writing a compare and contrast essay. A control group of 22 seventh graders were matched on reading achievement scores (the researchers cite the significant relationship between reading and writing as their rationale for matching on reading achievement) and received unrelated imagery training. The subjects were then given a topic which required them

to write a compare and contrast essay. Once trained, the experimental group produced more paragraphs with topic sentences and provided more supporting information related to their topic sentences in their paragraphs. In addition, students who were deemed to have low ability based on their reading scores, from the experimental group, achieved parity or superiority in writing achievement with students of high ability in the control group.

In a similar study that examined average to above average readers, Alvermann (1982) assigned tenth graders to either graphic organizer training or a control condition. The training group read a passage and then used a graphic organizer that was mostly complete, but contained several blank boxes to fill in. The control group read the same passage as the experimental group but did not use a graphic organizer, instead they engaged in prereading activities and postreading activities (e.g., discussion and questioning). After the training was complete, all students read an expository essay and were instructed to write a summary of it a week later. The results revealed the experimental group wrote more main ideas and more details in their essays then the control group.

There have been few studies that examined graphic organizers at the college level and of those that have, most examined the effectiveness of using graphic organizers to enhance studying. One study, conducted by Robinson and Kiewra (1995), examined if studying graphic organizers helps students learn information better and write better essays. Robinson and Kiewra (1995) randomly assigned forty-two undergraduate college students to one of three

study groups. One group studied from the text, the second group studied from the text and an outline, and the third group studied from the text and a graphic organizer. An essay test was used as the dependent measure and scored on the basis of including facts, describing relationships between facts, contrasting premises, and essay organization. The results demonstrated that graphic organizers aid relational learning and enhance essay organization. When displays are graphically organized, students are readily able to discover concept relations and express them in a contrastive, organized manner. Students who use outlines or study from the text only, had difficulty discovering concept relations and organizing their ideas in an essay. These findings support a portion of Flower and Hayes' (1981) writing model. The model postulates that materials in the task environment influence the writer's long-term memory, which influences how the writer organizes information. The results of this study revealed that when information is studied in organized in a graphic form, it is encoded and stored more completely. Graphic organizers also help students gain an organized and contrastive writing style, which is associated with writing maturity (Langer, 1984).

A study by Hitchcock (1987) examined the effectiveness of graphic organizers with remedial college freshmen using a pretest/posttest, control group design (Campbell & Stanley, 1963). The subjects read two persuasive essays, then wrote an argumentative essay based on the reading. The subjects did not differ on writing quality based on originality, detail, organization, and mechanics. Some of the subjects were then taught how to use a graphic

organizer specific to persuasive/argumentative essays, others were placed in a control group. In the treatment condition, the investigator first introduced the graphic organizer, then modeled how to construct a graphic organizer based on specific reading passages. Once the subjects were familiar with how to construct a graphic organizer, they constructed their own based on the same passages that the experimenter modeled. The control group read the same materials and discussed the reading. Once the training was completed, all subjects read two persuasive papers and wrote an argumentative essay. The results showed that the two groups did not differ on writing quality, however, the experimental group showed an improvement over their pretest scores. A significant problem with this study was that not all of the subjects trained to use the graphic organizer actually used it when writing.

Another study examining college students was conducted by Balajthy and Weisberg (1990). These researchers trained thirty college freshmen enrolled in a developmental reading and study skills course to use graphic organizers to write compare and contrast essays. A control group of thirty students enrolled in the same course was used. The subjects all read a compare and contrast essay and wrote summaries on it. The summaries were scored by counting the number of idea units they contained. The results found the summaries of the groups contained the same number of idea units. However, when the investigators removed and examined only those students who scored poorly in reading comprehension on a standardized reading test, there was a significant difference in the writing quality between the

experimental and control groups. These results indicate that poor readers may benefit from the use of graphic organizers more than average or above average readers.

In the second of two studies, Risemberg (1993) tested the relationships between graphic organizers and self-efficacy, organizing/transforming, information seeking, and writing quality. The 71 subjects examined in this study were all undergraduates enrolled in an introductory psychology course. Using a posttest only control group design, subjects were randomly assigned to either an experimental group trained to use graphic organizers, or a control group, not exposed to graphic organizers. The experimental subjects were shown three graphic organizers. The first was a "skeletal graphic organizer" with nothing filled out. The second was completely filled out and presented with two training texts. The third graphic organizer was partially filled out and also was presented with two training texts. The subjects in the experimental group also had access to a fourth graphic organizer on a computer. The control group was presented with the same texts as the experimental group but without graphic organizers. After the training was complete, subjects filled out the Self-Efficacy for Writing Questionnaire and wrote a compare/contrast essay based on texts read on a computer. The both groups were given 25 minutes to engage in prewriting tasks. The experimental group constructed a graphic organizer and the control group took notes. At the end of the 25 minutes, the subjects were asked to begin writing their essays. Thirty-three out of thirty-six experimental subjects

constructed graphic organizers. The results showed the experimental group out performed the control group in writing quality, they had higher ratings of writing self-efficacy, and had higher scores in organizing.

Summary

This section presented studies that confirmed the usefulness of self-regulatory strategies in enhancing writing performance and raising self-efficacy beliefs. (Graham & Harris, 1989; Sawyer, et al., 1992; Schunk & Swartz, 1993; Zimmerman & Kitsantas, 1999). Evidence was also presented (e.g., Bloom, 1988; Kellogg, 1990) that found prewriting strategies, such as outlines, to be effective in improving writing quality. A new pre-writing tool, known as a graphic organizer, was also introduced in this section. Although empirical findings demonstrated that graphic organizers can enhance reading comprehension (e.g., Horton, Lovitt, & Bergerud, 1990; Moore & Readance, 1984; Robinson & Kiewra, 1995), only a few studies have tested their effect on writing performance. Those that have examined graphic organizers found they help students produce more paragraphs with topic sentences, provide more supporting information related to their topic sentences in their paragraphs (Alvermann, 1982; Jones & Hall, 1979), enhance essay organization (Robinson & Kiewra, 1995), and raise self-efficacy beliefs (Risemberg, 1993). Some researchers however, have questioned the usefulness of graphic organizers (Balajthy & Weisberg, 1990; Hitchcock, 1987).

Anxiety and Academic Performance

The present study will investigate the effect of anxiety on academic performance, hence, an overview of the history and theory related to test anxiety will be presented. This will be followed by an examination of the literature on the relationship between achievement anxiety and self-efficacy. Finally, studies examining the effect that anxiety has on writing performance, and the relationship between writing anxiety and self-efficacy will be discussed.

The History and Theory of Test Anxiety

The research of Mandler and Sarason at Yale University in 1952 is considered to be the work that lead the way for modern day researchers to gain an understanding of test anxiety. Mandler and Sarason (1952) investigated the role of drive states in learning and performance between two groups of students, those who reported experiencing high levels of test anxiety and those who reported experiencing low levels of test anxiety. The groups were given several subtest of an intelligence test (i.e., block design and digit symbol). The results showed that individuals with high levels of anxiety performed poorer than those with low levels of anxiety. This suggests high anxiety levels interfere with academic performance.

Using the paradigm of drive theory to speculate on the results of this study, Mandler and Sarason (1952) made the following four assumptions: (1) individuals are driven by a need to complete tasks, thus drive is reduced by

responses that lead to task completion, (2) anxiety responses toward testing are learned responses and anxiety functions as a drive which can either be reduced by completing a task, or by making self-centered responses that are irrelevant to the task, (3) task related and task completion responses facilitate adequate task completion while self-centered responses interfere with task completion, thus negatively affecting performance (4) task-related responses are not readily available to an individual but are learned, while task-irrelevant responses are readily available.

Researchers in the 1960's began to expand and modify Mandler and Sarason's model. For example, Alpert and Haber (1960) developed a self-report instrument that could be used to examine the effects of test anxiety. The instrument, the Anxiety Achievement Test, measured a person's task relevant and task irrelevant responses, now re-labeled, facilitating and debilitating anxiety. These researchers concluded that a person may experience both types of anxieties, one and not the other, or none of these anxieties.

As the 1960's progressed, researchers began to develop a new model to explain the effects of test anxiety, the interference model. Liebert and Morris (1967) introduced a two component conceptionalization of test anxiety into the literature. According to their view, debilitating test anxiety can be broken down into at least two components, worry and emotionality. Worry is a cognitive component and emotionality a physiological one. Worry consists of thoughts, such as negative expectations, concerns about one's performance,

potential consequences of failure, and concerns relating to how one's performance measures up against others. Item difficulty and/or threat of failure arouse worry but have no effect on emotionality (Morris & Liebert, 1969). Additionally, performance expectations held by students as they enter a testing situation are highly related to worry, but not to emotionality (Morris, Davies, & Hutchings, 1981). When students are facing a very important examination, worry is elevated as much as five days before the test with no corresponding elevation in emotionality (Spiegler, Morris, & Liebert, 1968). Thus it appears that worry can be attributed to situational factors that affect one's cognitive evaluations.

Emotionality refers to one's perception of the physiological-affective aspects of anxiety (i.e., autonomic arousal and unpleasant feelings such as nervousness and tension), is much shorter in duration than worry and consists of primarily of nonevaluative cues (e.g., the classroom setting, the passing out of the test, conversations among students about the test (Morris, Davis, & Hutchings, 1981). As the test progresses, emotionality scores typically decrease quickly but worry scores do not (Morris & Fullman, 1976). Additional findings by Morris and Liebert (1969) revealed that the worry component of test anxiety, interferes more with academic performance than the emotionality component

In the early 1970's, Wine (1971) added an additional concept to the interference model, attention. According to Wine, the performance deterioration of individuals experiencing high levels of test anxiety is the

result of attention selection. According to this interpretation, highly anxious individuals under stress respond with personalized, self-oriented responses which direct attention away from the task at hand. Because less time is actually spent on the task, performance deteriorates. Wine's conclusion is similar to that of Morris and Liebert's (1969), that is, worry is debilitating, not emotionality, unless physiological arousal is high enough to demand the attention of the individual.

There are two hypotheses that can be inferred from Wine's conclusion. First, if attentional theory is valid, one should experience a decrease in performance as evaluative stress increases. Second, attentional training should reduce anxiety and increase performance. The first hypothesis was tested using relationship studies of anxiety and performance. The results have consistently demonstrated that high test anxious students performed poorer than low anxious students on classroom tests (Deffenbacher, 1978). The lower performance of highly test anxious individuals however, is not simply a matter of being less capable. Experimental studies have shown that highly anxious students perform as well as, or better than, less anxious students when evaluation stress is low (Deffenbacher, 1978; Sarason, 1984; Zeidner, 1991).

One study examining evaluation stress was conducted by Deffenbacher (1978). Selecting college students as his sample, Deffenbacher administered difficult anagrams under two evaluative conditions: high stress (students were told that their answers were going to be evaluated) and low stress (students were told their answers would not be evaluated). The findings

confirmed that under high stress, highly anxious students experienced more anxiety, solved fewest anagrams, and reported more worrisome thoughts than did either the high-anxiety low stress, or low anxiety-high stress group.

The second hypothesis from Wine's model postulates that attentional training would reduce anxiety and increase performance. This hypothesis was tested by Wise and Haynes (1983). Attentional training was one method given to a group of anxious college students. The training focused on aiding students to reduce attention toward task-irrelevant cognitions (i.e., thinking to oneself, "Almost everyone is finished with the test, I must be stupid."). The procedures were administered for one hour per week for five weeks. Anxiety reduction was assessed by standardized self-report measures, and performance was measured by scores on the Digit Span and Digit Symbol subtests of the Wechsler Adult Intelligence Scale. The results confirmed that attentional training is effective in both reducing anxiety and increasing performance.

Additional support for the interference model comes from studies that examined the cognitive demands of tasks. Researchers have found that high test anxious students performed poorer than low anxious students on an essay test but not on multiple choice tests (Naveh-Benjamin, McKeachie, Lin, & Holinger, 1981). According to the interference model, essay tests produce more anxiety then multiple choice tests because the attentional demand is much greater. The implication of this finding is that the greater the cognitive demand, the more deleterious the effect of anxiety.

Also during the 1970's, Spielberger differentiated anxiety into two types, A-State, a "transitory emotional state" of tension, and A-Trait, a relatively stable emotional state of anxiety proneness (Spielberger, 1972). Test anxiety, according to state trait theory, is an A-State reaction to testing situations in an individual with trait anxiety (Spielberger, Anton, & Bedell, 1976). Individuals that experience high anxiety tend to perceive the testing situation as personally threatening and respond with feelings of tension, nervousness, fear, and increased autonomic arousal. The person experiences worry cognitions which distract the individual from the task, interfering with concentration which in turn leads to poor performance.

Some researchers during the 1970's and 1980's had doubts about the validity of the interference model. If the interference model is correct, treatments that reduced test anxiety should lead to better test performance. But this is not always what researchers found. Studies of treatment outcomes indicate that many different types of treatments are effective in reducing test anxiety, yet in many cases, an increase in test performance does not follow (Kirkland & Hollandsworth, 1979; Tryon, 1980; Bruch, Juster, & Kaflowitz, 1983; Shelton & Mallinckrodt, 1991). This problem lead to the development of an alternative model of test anxiety, a skills-deficit model. This model postulates that there are two types of deficits, a skills deficit, and/or a test taking deficit that lead to poor performance in individuals with high test anxiety (Tobias, 1985).

The skills deficit model therefore is suggesting that the problems highly anxious students are experiencing during academic evaluations are not the result of retrieval problems, as put forth by the interference model. The skills deficit model is proposing that increases in anxiety during evaluations are the result of students' knowledge that they are unprepared to perform (Tobias, 1986). Therefore, this model is implying that test anxiety can be ameliorated through the use of effective learning strategies. That once students learn these strategies, they will feel more prepared to encounter tests and their anxiety level would diminish.

A Social-Cognitive View of Test Anxiety

Although there appears to be sufficient evidence that test anxiety has a detrimental effect on academic achievement, its influence may be moderated by other student characteristics such as self-regulation; the processes which maintain the cognition, affect, and behavior necessary to achieve intended goals (Schunk & Zimmerman, 1997). Recall that self-regulation involves the ability to manage the environment and put forth the effort to regulate the learning process to secure academic success. A self-regulated learner may exert more control over his or her study environment (e.g., disconnect a phone) or increase effort to control thoughts or affect when they interfere with learning (Benberutty, McKeachie, Karabenich, & Lin, 1998).

There is evidence that test anxiety is negatively related to the use of self-regulatory cognitive strategies. Using a sample of 179 Israeli tenth-graders, Birenbaum and Pinku (1997) administered questionnaires to

determine levels of test anxiety and strategy use. The results indicated that highly anxious students reported having more difficulty using self-regulated strategies such as summarizing notes and organizing material. In addition, the researchers asked the students to complete a cognitive restructuring task. This task required the students to organize biology concepts by relatedness in a vertical order. The findings showed that students who reported high levels of anxiety performed poorer than students who reported low levels of anxiety.

Proponents of social cognitive theory (e.g., Bandura, 1986, 1997) argue that affective factors, such as anxiety, do influence academic achievement, however, this is due in large part to the sense of confidence with which an individual approaches the task, or self-efficacy beliefs. Students with low self-efficacy beliefs to manage academic demands are especially vulnerable to test anxiety (Bandura, 1997). These students find it difficult to concentrate on the information given or the skills being taught. Instead, they magnify the demands of the tasks and their own inadequacies to handle the task. They may think about past failures and/or worry about the consequences of failing. Through their thoughts, these students may become emotionally distressed, which in turn, adversely effects their performance.

Self-efficacy beliefs regulate the nature and the intensity of emotional reactions through the individual's belief that he or she has control over thoughts, actions, and affect. Control over thoughts takes two forms. First, efficacy beliefs determine whether events are construed in a way that is emotionally neutral or perplexing. Second, efficacy beliefs determine if the

person can control the intruding thoughts. Control over actions refers to regulating emotions through effective courses of action. These actions change the environment in ways that alter emotional reactivity. Finally, control over affect refers to ameliorating negative emotional states once they occur.

Writing Apprehension/Anxiety

The term writing apprehension was first used by Daly and Miller (1975) to describe a person who generally avoids writing and situations that may require some amount of writing. In addition, the person believes that there is the potential for evaluation of the writing. Most investigators define writing anxiety in a similar way (Bandura, 1997; Salovey & Haar, 1990). Therefore throughout this review the terms will be synonymous.

There are few studies that specifically examine writing anxiety or writing apprehension, as it is now more often called, and how it impacts on performance. The role that affective factors play in writing, especially anxiety, needs further examination because writing is such an intense and complex task and because many persons engaged in writing report feeling apprehensive about writing. Freedman (1983) surveyed college students and found that 45% found writing to be aversive, 61% found it to be difficult, and 41% expressed that they had little confidence in their ability to write. Using questionnaires to survey 3,602 undergraduate students, Daly (1975) found that individuals with greater writing apprehension tend to be less effective writers, while those with less apprehension are better writers. Even among college

faculty, writing apprehension is prevalent. In a survey of college professors, Boice and Johnson (1984) found that 34% of them expressed moderate to high levels of anxiety. In addition, there was a significant negative correlation between scholarly writing production and writing anxiety.

To examine the relationship between writing apprehension and beliefs about writing, Daly and Miller (1975) had 246 undergraduate students fill out questionnaires concerning writing apprehension, Verbal SAT scores, perceived likelihood of success in writing (i.e., students were asked how successful they felt they were in previous writing courses), and willingness to take additional writing courses (students were asked if they would voluntarily take more writing courses). The subjects were enrolled in either a basic composition course (n=160) or a remedial writing course (n=86). Daly and Miller (1975) also had thirty-four students enrolled in an advanced writing course complete only the writing apprehension measure and report Verbal SAT scores. The investigators stated that if writing apprehension and Verbal SAT scores are highly correlated, then a measure of writing apprehension would be redundant. The findings reveal a significant, although low (r=.19), correlation between writing apprehension and Verbal SAT scores. The next step was to determine which variable, writing apprehension or Verbal SAT scores, is the stronger predictor of perceived success in writing and likelihood of taking additional writing courses. Daly and Miller found that writing apprehension was a better predictor for both. Students with low levels of writing apprehension believed they were successful in writing courses and

stated they would take additional writing courses. To check on these findings, Day and Miller (1975) examined the group of students enrolled in the voluntary advanced writing course and found that they reported significantly lower levels of apprehension than other groups.

In a follow up study, Daly and Shamo (1976) decided to examine if writing apprehension would affect students' choices of college majors. One hundred and eighty one undergraduate students were assessed on writing apprehension using a version of a 26 item self-report measure designed by Daly and Miller (1975). Measures were also taken of perceived writing demands (i.e., subjects were asked to rate the amount of writing required in 28 academic majors), desirability of majors (i.e., subjects responded to the same list of academic majors as either "desirable" or "undesirable"), and actual major choice. As hypothesized, students with high levels of writing apprehension found majors that they perceived as demanding a lot of writing (e.g., English, Philosophy, and History) less desirable than majors they believed had lower writing demands (e.g., Physical Education, Computer Science, and Mathematics). In addition, high apprehensives tended to avoid taking majors that they believed required extensive writing.

Writing Apprehension and Self-Efficacy

There are many studies that have examined self-efficacy beliefs and test anxiety in many areas, especially in mathematics. One area of self-

efficacy research that has not been examined sufficiently is writing (Pajares et al, 1999).

In a study that examined both the writing and reading achievement of 153 college undergraduate students, Shell, Murphy, and Bruning (1989), found both skills were mediated by self-efficacy beliefs. Self-efficacy beliefs for reading, along with outcome expectancy beliefs (beliefs that successful performance on a task will lead to a particular outcome), accounted for a significant portion of the variance in reading achievement. Self-efficacy beliefs for writing, but not outcome expectancy, accounted for a significant portion of the variance in expository essay writing.

McCarthy, Meier, and Rinderer (1985) assessed the writing of 137 college freshmen enrolled in a beginning writing course. They asked the students to write in-class expository essays and to fill out various questionnaires (e.g., Self-Assessment of Writing). The questionnaires asked students to evaluate whether or not they think they can demonstrate certain writing skills and to indicate their degree of certainty about each.. For example, "Can you write sentences in which the subjects and verbs are in agreement?" In addition, they used questionnaires to measure anxiety, perceptions of locus of control (general beliefs about whether rewards and punishments in their lives are controlled by them or outside forces such as luck or fate), and cognitive style (if they process information at a deep level, looking for meaning in information as opposed to shallow processing, simply memorizing information). The results confirm the strength of self-efficacy

beliefs to predict writing quality. Out of the four variables tested, only self-efficacy beliefs was significantly related to performance in writing. Students with a strong sense of self-efficacy were better writers. There was also a relationship between self-efficacy and anxiety. Students with high self-efficacy had less anxiety about writing than students with low self-efficacy.

In a more recent study, Pajares et al. (1999) obtained a holistic score of the essay quality of 363 elementary school students to investigate the predictive and mediational role of writing self-efficacy. The essays were measured by two raters to ensure reliability. Once the scores were obtained, the investigators measured the writing self-efficacy of all participants using the Writing Skills Self-Efficacy Scale, as well as writing self-concept (i.e., students beliefs about how successful they were with previous writing assignments), writing apprehension, perceived usefulness of writing (i.e., judgments of the importance of writing in school and the future), self-efficacy for using self-regulated learning strategies, and writing aptitude. The findings revealed that self-efficacy beliefs significantly predicted writing performance and partially mediated the effects of self-regulation and writing aptitude on both writing apprehension and on writing performance.

Summary

This section began with an examination of the literature on test anxiety, beginning with drive theory (Mandler & Sarason, 1952), followed by interference theory (Liebert & Morris, 1967) and ending with the skills deficit

theory (Tobias, 1985). Although there appears to be sufficient evidence that anxiety has a detrimental effect on academic achievement, its influence may be moderated by other student characteristics such as self-regulation (Schunk & Zimmerman, 1997). A self-regulated learner may exert more control over his or her study environment or increase effort to control thoughts or affect when they interfere with learning. Evidence suggests that test anxiety is negatively related to the use of self-regulatory cognitive strategies (Birenbaum & Pinku, 1997; Bembenutty, et al., 1998). In addition, proponents of social cognitive theory (e.g., Bandura, 1997) argue that anxiety does influence academic achievement, but this effect is mediated through self-efficacy beliefs. Self-efficacy beliefs are said to regulate the nature and the intensity of emotional reactions through the individual's belief that he or she has control over thoughts, actions, and affect.

Cognitive-Behavioral Treatments To Alleviate Anxiety

Cognitive-behavioral treatments of test anxiety have been empirically evaluated for more than a decade now. These approaches focus on exclusively reducing anxiety which in turn is hypothesized to lead to increased performance on academic tasks. Specifically, these approaches are designed to alleviate thoughts that interfere with performance, which is consistent with the interference model of achievement anxiety.

Cognitive behavioral treatments have been shown to be effective in alleviating some performance anxieties such as test anxiety, speech anxiety,

mathematics anxiety, and social anxiety (Salovey & Haar, 1990). Surprisingly, there have been few attempts to apply well-researched treatment techniques to writing anxiety, even though both writing and cognitive-behavioral researchers state the need (Salovey & Haar, 1990). Because of their success in reducing many types of anxieties, it is hypothesized that similar results will be obtained with writing anxiety. This section will examine: systematic desensitization, progressive relaxation, and thought replacement. It will conclude with a review of a combination treatment (i.e., cognitive behavior therapy and strategy use).

Systematic Desensitization

Systematic desensitization is a behavioral intervention that has been used for the past 40 years to reduce anxiety (Spiegler & Guevremont, 1993). Systematic desensitization first teaches the individual a response that competes with anxiety, often the response is deep muscle relaxation. Since some people have difficulty learning deep muscle relaxation, a therapist may use pleasant thoughts as a substitute response (Spiegler & Guevremont, 1993). Next, the individual constructs an anxiety hierarchy which is a ranked order of anxiety provoking events. Finally, the individual repeatedly visualizes the anxiety-evoking event while performing a competing response, i.e., pleasant thought or relaxation (Spiegler & Guevremont, 1993).

Sprecher and Worthington (1982) tested the effects of systematic desensitization (SD) on volunteers in an undergraduate general psychology

class. Immediately prior to an examination, students were given the State-Trait Anxiety Inventory (STAI). Those who obtained a high score were randomly assigned to one of three groups: a SD group, a control group which viewed different psychology related films once a week for seven weeks, or a no-contact group which met once at the end of the semester. The treatment group received twenty-five minutes of relaxation training for three weeks and standard SD (i.e., constructing an anxiety hierarchy and using deep muscle relaxation to compete with anxiety provoking thoughts) for the remaining four weeks. Pre- and post treatment scores were obtained on the STAI and examination scores. The results indicated a significant difference between groups on measures of trait anxiety with the SD group experiencing the largest reduction relative to the other groups. However, no difference was found between the groups on measures of state anxiety and examination scores.

Knapp and Mierzwa (1984) also investigated the effectiveness of SD using a sample of college students. The subjects were recruited through letters and announcements asking for students who believed their academic performance was being impaired by test anxiety. Students were included in the study if they scored above the 70th percentile on the Suinn Test Anxiety Behavior Scale (STABS), scored above the 30th percentile on the Survey of Study Habits and Attitudes (SSHA), and had a GPA below 3.5. The selected thirty-five students were randomly assigned to one of three groups: SD, self-control desensitization (SCD), or a delayed treatment control group. The

primary difference between the SCD group and the SD was that the SCD group did not exclusively focus on reducing test anxiety as did the SD group, they practiced reducing various anxieties, not just test anxiety. The SD and the SCD met for seven 75 minute sessions during a four week period. Both treatments resulted in reducing self-reported test anxiety, however, only the SCD group showed a significant improvement in GPA.

In a similar study, Crouse, Deffenbacher, and Frost (1985) used volunteer college students coming into a counseling office seeking relief from test anxiety. The researchers interviewed all potential participants and excluded any that had "significant personal problems or academic skill deficits, specifically study and test-taking deficits" (Crouse et al., 1985). The remaining students were divided into small groups that met one hour a week for five weeks. In these groups, the participants listened to desensitization tapes and received relaxation homework assignments. The results found SD to be effective in reducing feelings of anxiety and thought interference across various test formats (i.e., multiple choice, essay, and pop quiz examinations). The only test format for which SD was not effective reducing test anxiety was mathematics examinations.

Relaxation Training Procedures

Progressive muscle relaxation procedures may reduce anxiety in two ways: (1) by reducing physiological arousal, or emotionality through muscle relaxation; (2) by focusing on relaxation, negative thoughts or worry may be

reduced. In progressive muscle relaxation, the individual learns to relax skeletal muscle groups. Once this is achieved, the individual learns to use environmental cues or physiological cues to prompt relaxation.

Hurwitz, Kahane, and Mathieson (1986) randomly assigned undergraduate students to either a progressive relaxation group, a biofeedback group, or a control group. All groups received five 20 minute sessions. Pre-test and post- test measures included an in-class examination in psychology and a self-report measure of anxiety. Both the progressive muscle relaxation group and the biofeedback group significantly reduced performance anxiety, but no accompanying increase in academic performance was noticed. The authors speculate that the subjects may have been concentrating only on the strategy to decrease anxiety, and this may have distracted them from the academic task.

Broota and Sanghvi (1994) studied the efficacy of two relaxation treatments, Broota relaxation and progressive muscle relaxation. Broota relaxation is based on a set of four yoga exercises (e.g., abdominal breathing). In this study, thirty subjects with high academic performance anxiety were randomly assigned to one of three conditions: progressive relaxation, Broota relaxation, or a control condition. The control group had a talking session with the experimenter. Using a Pretest/Posttest design, subjects answered the Spielberger Test Anxiety Scale, Anxiety Checklist, and a self-rating on anxiety. The findings showed both treatments to be effective in reducing

academic performance anxiety when compared to the control group. The Broota technique was found to be more effective than progressive relaxation.

In the final study in the section, Sud and Prabha (1996), tested the effectiveness of Attention Skills Training (AST) and Relaxation Therapy (RT). Subjects were classified based on worry and emotionality. Eighty high school girls formed four groups of twenty subjects each: high worry, low worry, high emotionality, and low emotionality. Ten subjects from each group were randomly assigned to AST, as well as, a no treatment group. Ten subjects were assigned to RT, as well as, a no treatment group. Those in the AST group were taught to identify irrational ruminations, inefficient test taking strategies, and negative self-evaluation and punishment. The subjects were taught to develop sets of self-instructions that corrected these cognitive patterns. These sets of self-instruction included: plans to approach the task, coping self-statements for frustration and possible failure, counters for irrational ruminations, and self-rewarding statements for task oriented behavior. The RT group received treatment based on progressive muscle relaxation. The efficacy of AST was observed in the pre to posttreatment of the worry trait but not in the emotionality trait during an anagram testing situation. RT was found to be ineffective in reducing anxiety (both worry and emotionality) and ineffective in increasing performance on the anagram task.

Eliminating and Replacing Maladaptive Thoughts

One simple technique that can be taught in a very short period of time is thought stopping. Thought stopping is a treatment for self-depreciating, negative, and/or irrational ruminations in which the subject interrupts the disturbing thought by saying "Stop". This technique is reported by subjects to immediately eliminate intrusive thoughts (Spiegler & Guevremont, 1993).

In a study that tested the efficacy of thought stopping, Burk, Randolph, and Probst (1985) randomly assigned subjects who scored high on the worry scale of the Test Anxiety Inventory to one of six groups. Two groups were provided a rationale for treatment with the addition of a verb command ("Stop!") in one group, and a noun command ("Table!") in the other group. Two other groups had either the noun or verb command but no rationale for treatment. Two groups were control groups, an attention placebo and a no treatment group. Treatment conditions consisted of one ninety-minute session. Pre- and post- treatment measures used a self-report inventory to measure worry and an anagram task to measure performance. Results indicate a significant reduction in worry and an increase in performance for the "rationale/verb" group. In this study, the subjects were able to complete the performance (i.e., anagram) task in a short period of time. Providers of treatment speculate that for longer tasks, such as writing, the intrusive thoughts are likely to reappear quite soon if the subject only stops the thoughts and does not replace them (Spiegler & Guevremont, 1993).

Cognitive-behavioral treatments have been shown to be moderately effective in reducing test anxiety in general. However, the research on specifically reducing writing anxiety is very limited. One study was found that treated writing anxious college faculty using a form of thought replacement therapy. In this study, Boice (1985) had anxious and non-anxious college professors record their thoughts on note cards during writing sessions. Over 5,000 examples of self-talk were collected and sorted. Boice identified seven categories of thoughts: work apprehension, procrastination, dysphoria, impatience, perfectionism, evaluation anxiety, and rules.

Work apprehension (thoughts about the difficult, demanding nature of writing) and rules (thoughts about maladaptive formulas for writing, such as "Good writing must be spontaneous and clever") occurred about equally among anxious and non-anxious writers. Procrastination (thoughts that justified avoiding or delaying writing) was much more common among anxious writers (90%) than non-anxious writers (55%). Dysphoria (obsessive worry and panic), impatience (thoughts of producing larger amounts of written material in short periods of time or setting unrealistic deadlines), perfectionism (having an internal critic who does not allow errors), and evaluation anxiety (thoughts related to fear of rejection) were significantly more common in anxious writers than non-anxious writers. After these counterproductive thoughts were identified, Boice (1985) helped the anxious writers replace these thoughts with coping thoughts. For example, replacing the thought, "Writing is very difficult for me" with, "Let me relax and start

getting my thoughts together." This treatment was moderately successful in reducing anxiety and increasing writing production.

Cognitive Behavioral Therapy and Strategy Use

Many researchers and teachers of writing recommend writing process instruction to overcome writing anxiety. As was mentioned earlier, Flower and Hayes (1977, 1981), hypothesized that the cause of writing anxiety stems from inefficient strategy use. This view is consistent with the deficit model's explanation of anxiety. However, very little has been done experimentally to test the efficacy of strategy use in reducing writing anxiety. Several researchers (Cardinale & Fish, 1994; Palumbo & Prater, 1992; Rosenbluth & Reed, 1992) have hypothesized that writing on computers using word processing programs would improve the quality of essays, increase fluency, and reduce writing anxiety. Using elementary school students (Cardinale & Fish, 1994) and high school students (Palumbo & Prater, 1992; Rosenbluth & Reed, 1992), researchers have compared students who were taught to write essays using the word processing programs on computers to students writing essays by hand. The results failed to confirm the efficacy of word processing programs to enhance essay quality and fluency, or to reduce writing anxiety.

One study (Salovey & Haar, 1990) was discovered, however, that examined the efficacy of cognitive-behavior therapy (i.e., stress inoculation training) and writing process training. In this study, fifty-one adult subjects, all with scores confirming high levels of writing anxiety on several self-report

measures, were assigned to one of three conditions: writing process training, a combination of writing process training and cognitive-behavior therapy, or a control group. The dependent measures were the same self-report measures of writing anxiety that were administered as a pretest, along with two essay questions from the 1977 and 1979 California State University and College Freshman English Equivalency Examination. These essays were scored for: completeness, relevance to topic, coherence and organization, and congruency to task (refraining from off-task comments and writing with appropriate persona and tone).

The cognitive-behavioral treatment consisted of stress-inoculation training. This treatment was presented in three phases. In the educational phase, subjects were provided with a rationale that interpreted their writing anxiety as a function of maladaptive self-statements. In the rehearsal phase, subjects were encouraged to identify, elaborate on, and articulate their maladaptive self-statements. They also observed a therapist modeling coping self-statements that directed behavior back on to task. In the application phase, subjects worked on a writing task while identifying maladaptive self-statements and replacing them with coping self-statements. This was done within the treatment group and at home.

The writing process training was based on the work of Flower and Hayes (1977, 1981). Subjects were encouraged to break the writing task down into smaller subtasks, to spend time brainstorming ideas before evaluating the quality of their ideas, and to avoid criticizing their own work

early in the writing process. The results showed that both the combination and the writing process only treatments helped in reducing writing anxiety. However, only the combination treatment produced significant improvement in writing quality. In addition, significantly more subjects in the combination treatment group were able to pass the Freshman English Equivalency Examination after treatment than in either of the writing process training only group and the control group.

Summary

Although cognitive-behavioral treatments have been shown to be effective in alleviating test, speech, mathematics and social anxieties, very little research has been conducted to determine if these treatments are effective in reducing writing anxiety (Salovey & Haar, 1990). Results of studies examining the effectiveness of systematic desensitization (Crouse, Deffenbacher et al., 1985; Knapp & Mierzwa, 1984; Sprecher & Worthington, 1982), relaxation techniques (Broota & Sanghvi, 1994; Hurwitz et al., 1986; Sud & Prabha 1996), and thought stopping (Burk et al., 1985), all seem to indicate that these methods are effective in reducing anxiety. However, it remains uncertain if these methods improve performance. Few studies are available that have examined the efficacy of cognitive behavioral treatments to specifically reduce writing anxiety. One study however, found thought replacement therapy to be moderately effective in reducing the writing anxiety of college faculty (Boice, 1985). Another study found a

combination of cognitive-behavioral therapy and skills training to be an effective treatment for reducing writing anxiety and increasing writing quality (Salovey & Haar, 1990).

The Rationale and Purpose of This Study

The writing process has been shown to be very complex and demanding. It is a solitary task that takes a great deal of attention and cognitive effort to do it well. Reports indicate that many students feel anxious about writing in situations where their writing will be evaluated. How to best help students cope with or alleviate writing anxiety remains a question. Some researchers believe that writing anxiety is the result of skill deficits. That is, if students are taught to regulate their writing performance through learning strategies, anxiety will be alleviated and writing will improve. Others believe that anxiety interferes with the thought process, thus making concentration difficult. If anxious students are taught to regulate their emotions through cognitive-behavioral methods, anxiety will be reduced and writing performance will improve. It is the primary purpose of this study to test these two views.

Research thus far has determined that self-regulatory strategies, such as organizing, can improve writing performance. Most of the research on organizing infers organizing strategies from the verbal reports of writers. Recently however, researchers have begun testing the effects of organizing

strategies directly. One new organizing tool that has emerged is the graphic organizer. The purpose of this study is to test the utility of graphic organizers as a means to improve writing quality and alleviate writing anxiety.

Cognitive-behavioral treatments have been shown to be effective in reducing test anxiety in many areas, except writing. This study will address this issue. Students will be taught to regulate writing anxiety through relaxation/thought replacement therapy for the purpose of adding to the existing writing process and cognitive-behavioral therapy literature.

Finally, social-cognitive theory postulates that self-efficacy beliefs predict and mediate the effects of strategic learning on academic performance. The literature, however, that is specific to writing tasks is limited. Therefore, this study will add to the pool of findings by examining the predictive and mediational role of self-efficacy beliefs on writing performance.

To summarize, the purpose of this study is to:

1. Test the interference model, skills deficit model, and a social cognitive model.
2. Test the utility of graphic organizers as a tool to enhance writing quality and alleviate writing anxiety.
3. Examine the predictive and mediational role of self-efficacy in writing performance.
4. Add to the existing writing process and cognitive behavioral literature.

Operational Definitions

Relaxation/thought replacement training (RTR). RTR is defined as instruction in the use of deep abdominal breathing, thought stopping training, and thought replacement training.

Strategic Training (ST). Strategic training is defined as instruction in the use of the Introduction, Body, and Conclusion (IBC) model of a graphic organizer designed for writing a persuasive essay.

Hypotheses

H1: Relaxation/thought replacement training will improve both writing performance and self-efficacy beliefs for writing, and decrease writing anxiety as compared to the control group.

H2: Strategic training will improve both writing performance and self-efficacy beliefs for writing, and decrease writing anxiety as compared to the control group.

H3: A combination of strategic training and relaxation/thought replacement therapy will have the greatest effect on improving both writing performance and self-efficacy beliefs for writing, and decreasing writing anxiety as compared to either treatment separately or the control group.

H4: Self-efficacy beliefs for writing will predict and mediate the effect of ST on writing quality.

Chapter III

Methods

Subjects

Subjects were 74 non-matriculated undergraduate students enrolled in the Writing Skills Workshop at Queens College, a four year urban college that is part of the City University of New York. All subjects had failed the Writing Assessment Test, a college entrance examination measuring students' ability to write a persuasive essay, administered by the City University of New York. The workshop met for seven, four and one half hour sessions, during winter recess and ended with the administration of the Writing Assessment Test. The total number of students that signed up for this workshop was 202. One hundred and twenty-four students signed up for the morning session and 78 for the evening session. This study selected subjects from only the morning session.

Demographic information is as follows. Subjects who participated in this study included 40 females and 34 males. There were 66 subjects for whom English was not their native language. The average number of college credits taken was 33.9 and the average age of the subjects was 22.9 years old. Forty of the subjects failed the WAT at least three times and 19 failed the WAT between 5 and 9 times. Thirty-five subjects had taken the Writing Skills Workshop at least once. Thirty-three subjects said they were previously taught how to write a persuasive essay. Thirty subjects stated that they are

majoring or planning to major in business, and 29 subjects stated their major is or will be computer science.

Design

A 2 x 2 factorial pretest/posttest design was utilized for this study (see Figure 2). The four groups were pretested on the dependent variables: essay-writing quality, writing self-efficacy beliefs, and writing anxiety (see below for explanation). Once the pretesting was completed, the subjects were randomly assigned to one of four groups: relaxation/thought replacement training, strategic training, a combination of both relaxation/thought replacement training, and traditional writing workshop training.

Instruments

Demographic Questionnaire. The Demographic Questionnaire (see Appendix A) consists of eight questions regarding subjects' backgrounds. The questions asked subjects about gender, age, native language, college credits, college major, number of times taking the CUNY Writing Assessment Test, writing workshop attendance, and experience with writing persuasive essays.

Self-Efficacy for Writing. The Self-Efficacy for Writing Questionnaire (see Appendix A) was developed by Zimmerman and was adapted for this study. The scale consist of 20 statements using the words, "I can....." to gauge students' confidence about being able to write a persuasive essay. The

Strategic Training (ST)	Relaxation/Thought Replacement Training (RTR) Yes	No
Yes	RTR and ST	ST
No	RTR	Control

Figure 2. The 2 x 2 (Relaxation/Thought Replacement x Strategy Training) factorial design utilized in this study.

students were asked to rate how accurately each statement describes him or herself by choosing a number from a 7-point Likert scale. A choice of 1 means "Not well at all" and 7 means "Very well". The scores were summed up for an overall self-efficacy score. Alpha Cronbach reliability for the original version of this scale is 0.91.

Writing Anxiety. To measure writing anxiety, subjects completed a modified version of the Test Anxiety Inventory (Spielberger, 1980) (see Appendix A). This version is a 16 question self-report scale, 8 questions measuring Worry and 8 questions measuring Emotionality. A Worry Score, an Emotionality Score, and a Total Anxiety Score were obtained. Respondents were asked how frequently they experience specific symptoms of writing anxiety before, during, and after essay examinations by choosing one of four responses: (1) almost never, (2) sometimes, (3) often, and (4) almost always.

Internal consistency measures on the original scale were computed by Kuder-Richardson Formula 20, and found to be uniformly high for both males and females (.92 or higher). The median alphas for the Worry and Emotionality scales are reported to be .88 and .90. The validity of the TAI was demonstrated through correlations with other anxiety measures, the Test Anxiety Scale (TAS) and the Worry Emotionality Questionnaire (WEQ). The correlation coefficients between the TAI Total scale and the TAS are reported as .82 for males and .83 for females. Moderate correlation coefficients are reported between Worry and Emotionality, and the WEQ, .73 for males and

.69 for females on the Worry measure, and .77 for males and .85 for females on the Emotionality measure.

Essay-writing performance. Subjects were asked to write a persuasive essay similar to the essays on the CUNY Writing Assessment Test. The essays were measured using a modified version of the Writing Quality Primary Trait Scoring Scale (see Appendix A) taken from Risemberg (1993). Scoring is based on a total score measuring text structure and paragraph structure. The reliability of the original scale was measured using Pearson's product moment correlation ($r = .86$)

Procedures

Students enrolled in the Writing Skills Workshop were randomly placed in classes by the director of the workshop. On the first day of the workshop, 4 out of 7 groups were selected to participate in this study and randomly assigned a treatment. All 4 groups met together for the first day in a large lecture hall. All students were told that a treatment study examining writing anxiety was being conducted and the investigator needed volunteers to participate. Consent forms approved by the Institutional Review Board of Queens College, was given to all students who indicated that they would like to participate in this study. Out of 77 students that were present, 74 agreed to participate, 3 declined. Once the consent forms were signed, the experimenter collected pretest data by first instructing the subjects to fill out three forms in the following order: the Demographic Questionnaire, the Writing Anxiety Questionnaire, and the Self-Efficacy for Writing

Questionnaire. Subjects were instructed to write a persuasive essay by the investigator. All subjects were given the same essay topic as determined by the Director of the Writing Skills Workshop (see Appendix B). The treatment began the following day.

Relaxation/ Thought Replacement Training

One treatment group received relaxation and thought replacement training (RTR) (n=19). This treatment was given in a 2 hour session by a graduate student trained by the investigator. During the first phase of the training, the investigator reviewed the script and materials with the trainer, then demonstrated the treatment. Next, the trainer took the materials home to review on her own for a week. Finally, the trainer demonstrated the treatment to the investigator. This treatment is described by Spiegler and Guevremont (1993) as quick and easy to learn and apply.

Subjects were first given a rationale for the treatment, based on the interference model of test anxiety, followed by three phases of anxiety reduction training: relaxation, thought stopping, and thought replacement (see Appendix B). Once this was completed, the subjects received a model of a persuasive essay and the trainer reviewed the sections of the essay along with the structure of the paragraphs. The sample essays were collected once the review was completed. Subjects were then asked to first fill out the Writing Anxiety Questionnaire, then the Self-Efficacy for Writing Questionnaire. Once the questionnaires were collected, the subjects were assigned an essay

topic (see Appendix B) and asked to write a persuasive essay following the model. In addition, the subjects were told that these essays would be evaluated and returned to them. This is consistent with Daly and Miller's (1975) definition of writing apprehension that describes it as an avoidance of writing when there is the potential for evaluation of that writing. The subjects were given 50 minutes to complete the writing assignment. Subjects were also instructed to use deep abdominal breathing to relax before they begin and reminded to use the thought stopping/replacement techniques should they feel anxious. The essays were collected at the end of the 50 minutes.

Strategic Training

The second treatment group (n=19) received strategic training (ST), using a graphic organizer to write a persuasive essay (see Appendix B). This treatment was given in a 2 hour session by a graduate student trained by the investigator. During the first phase of the training, the investigator reviewed the script and materials with the trainer, then demonstrated the treatment. Next, the trainer took the materials home to review on her own for a week. Finally, the trainer demonstrated the treatment to the investigator. The rationale for the length of training is based on a previous study that trained undergraduate college students in one hour and fifteen minutes to utilize graphic organizers to write compare and contrast essays (Risemberg, 1993).

Subjects were first given a rationale for the treatment based on the deficit model of test anxiety. This was followed by an overview of graphic organizers and three phases of training: writing an introduction, a body, and a conclusion (see Appendix B). The training concluded with a review of a sample essay (the same as the RTR received). Once this was completed, the sample essays were collected and the subjects asked to first fill out the Writing Anxiety Questionnaire, then the Self-Efficacy for Writing Questionnaire. The subjects were then given the same topic as the RTR group and asked to write a persuasive essay. This group received the same directions as the RTR group with the exception of being told to use a graphic organizer that were given to them before they began writing. The trainer monitored the subjects to ensure that all subjects were using the graphic organizer. The essays were collected at the end of 50 minutes.

Relaxation/Thought Replacement and Strategic Training

The combined treatment group (n=18) received the RTR and ST in a 3 1/2 hour session (see Appendix B). This treatment was carried out by the investigator. Once the treatment was completed, the group was instructed to fill out the Writing Anxiety Questionnaire, followed by the Self-Efficacy for Writing Questionnaire. The subjects were then given the same topic as the other 2 treatment groups and asked to write a persuasive essay. This group was instructed to first relax and then begin using the graphic organizer that was given to them before they received the essay topic. In addition, they were

reminded to use the thought stopping/replacement techniques should they feel anxious. The investigator monitored the subjects to ensure that all were using the graphic organizer. The essays were collected at the end of the 50 minutes.

All three treatment groups were monitored by instructors employed by the writing skills workshop. The investigator met with the instructors for one hour before the treatments began to review the treatments. The instructors were given the scripts and all materials for the treatments along with a checklist to monitor the training sessions (see Appendix C). These checklists were collected after the treatments and revealed that all instructors followed the scripts.

Control Group

The control group (n=18) received instruction based on a predetermined curriculum from staff employed at Queens College. This group was instructed to analyze the organization of the New York Times newspaper, then write summaries of the news articles. The students were encouraged to share their insights into the way the news was reported and to offer their reactions to these events. At the end of the meeting, a graduate student employed by the investigator instructed all the subjects to first fill out the Writing Anxiety Questionnaire, then the Self-Efficacy for Writing Questionnaire. Afterwards, the subjects were assigned the same topic as the treatment groups and asked to write a persuasive essay. The subjects were given 50 minutes to complete the writing assignment.

Chapter IV

Results

Pretest measures for each treatment group are summarized in Table 1. The pretest scores were analyzed using analysis of variance (ANOVA). The results revealed no significant differences between the treatment groups on all three variables (writing quality, $F(3,70) = .86$ ($p > .05$), self-efficacy, $F(3,70) = .77$ ($p > .05$), and writing anxiety, $F(3,70) = .53$ ($p > .05$).

The effects of relaxation/thought replacement training and strategic training were analyzed using three separate analysis of covariance for each of the dependant measures (writing quality, self-efficacy beliefs for writing, and writing anxiety). The predictive and mediational role of self-efficacy beliefs on writing performance was analyzed using a path analysis.

Writing Quality

A measure of writing quality was obtained by having the subjects write a persuasive essay. Two raters blind to the treatment of the writers, scored all of the essays. The essays were photocopied and each scorer received a copy. The essays did not identify the treatment group of the subject. Scoring was done separately by the investigator and a High School English teacher enrolled in a graduate English program. This second rater was trained to use the Writing Quality Primary Trait Scoring Scale by the investigator. The training consisted of scoring sample essays taken from previous Writing Skills

Table 1

Mean, Standard Deviation, and Range of Pretest Scores by Treatment

	Mean	SD	Range
Writing Quality			
RTR (n=19)	4.7	.71	2.5 (4 – 6.5)
ST (n=19)	4.5	1.3	6 (1 – 7)
RTR/ST (n=18)	4.8	1.2	4 (3 – 7)
Control (n=18)	5.1	1.2	5 (2 – 7)
Self-Efficacy			
RTR (n=19)	70.8	18.0	74 (31 – 105)
ST (n=19)	72.0	12.0	37 (50 – 87)
RTR/ST (n=18)	67.0	11.6	49 (44 – 93)
Control (n=18)	66.0	14.3	55 (46 – 101)
Writing Anxiety			
RTR (n=19)	35.7	12.9	44 (16 – 60)
ST (n=19)	38.7	8.4	33 (25 – 58)
RTR/ST (n=18)	38.2	7.4	25 (29 – 54)
Control (n=18)	36.0	5.4	21 (24 – 45)

Workshops. Reliability was measured using Pearson's product moment correlation (r=.85). When there was a disagreement in scores, the mean score was used.

Writing quality results were analyzed using a 2 x 2 (Relaxation/Thought Replacement x Strategy Training) analysis of covariance (ANCOVA) with writing quality pretest scores as the covariant. The results of the ANCOVA revealed a significant main effect for ST (F (1,69) = 56.34, p < .001). Students who received ST (M = 6.90) displayed a significantly higher writing quality than students who did not receive ST (M = 5.25). The main effect for RTR was non-significant (F (1,69) = .45, p > .05), and no treatment interaction effect was found (F (1,69 = .04, p > .05).

Self-Efficacy

Self-efficacy results were analyzed in the same way as writing quality results with self-efficacy pretest scores used as the covariant. The results of the ANCOVA revealed a significant main effect for ST (F (1,69) = 9.77, p < .05). Students who received ST (M = 74.25) displayed significantly higher self-efficacy beliefs than students who did not receive ST (M = 68.25). The main effect for RTR was not significant (F (1,69) = 1.07, p > .05), and no treatment interaction effect was found (F (1,69) = .22, p > .05).

Writing Anxiety

Writing anxiety results were analyzed in the same way as writing quality results with writing anxiety pretest scores used as the covariant. The results of the ANCOVA revealed a significant main effect for ST (F (1,69) = 4.21, $p < .05$). Students who received ST (M = 33.75) displayed significantly lower writing anxiety than students who did not receive ST (M = 35.80). The main effect for RTR was also significant (F (1,69) = 5.93, $p < .05$). Students who received RTR (M = 33.60) displayed significantly lower writing anxiety than students who did not receive RTR (M = 35.95). No treatment interaction effect was found (F (1,69) = 2.78, $p > .05$).

The separate components of writing anxiety, worry and emotionality, were also analyzed using a 2 x 2 (RTR x ST) ANCOVA. The results for the worry component indicate a significant main effect for RTR (F (1,69) = 5.21, $p < .05$). Students who received RTR (M = 17.15) displayed significantly lower worry anxiety than students who did not receive RTR (M = 18.40). The main effect for ST was not significant (F = .35, $p < .05$) and the interaction effect for RTR and ST was not significant (F (1,69) = 2.57, $p > .05$). The emotionality component of anxiety was analyzed in the same fashion. The results revealed a significant main effect for ST (F (1,69) = 5.12, $p < .05$). Students who received ST (M = 16.54) displayed significantly lower emotionality than students who did not receive ST (M = 17.76). The main effect for RTR was not significant (F = 1.8, $p > .05$) and the treatment interaction effect was non-significant (F (1,69) = 1.3, $p > .05$)

The combined results of the three ANCOVA's provided only partial support for the first hypothesis, that is, relaxation/thought replacement training would improve both writing performance and self-efficacy beliefs for writing, and decrease writing anxiety as compared to the control group. The results only confirmed a main effect for RTR on decreasing anxiety. The main effects for improving both self-efficacy and writing performance were not significant.

The combined results of the ANCOVA's did, however, confirm the second hypothesis, that is, strategic training would improve both writing performance and self-efficacy beliefs for writing, and decrease writing anxiety as compared to the control group. The results revealed a significant main effect for ST for improving both writing quality and self-efficacy beliefs, as well as, a significant main effect for decreasing writing anxiety. ST was effective in improving the writing quality of the students who received this training. These students improved in their overall essay organization and structure. They wrote persuasive essays that contained more paragraphs with topic sentences and provided more detail than the group that received RTR or the group that received the traditional workshop training. At the same time, ST increased students' self-efficacy beliefs for writing and reduced writing anxiety.

The third hypothesis was not confirmed. This hypothesis stated that a combination of strategic training and relaxation/thought replacement therapy would have the greatest effect on improving both writing performance and

self-efficacy beliefs for writing, and decreasing writing anxiety as compared to either treatment separately or the control group. None of the ANCOVA's produced a significant interaction effect for RTR and ST, therefore, combining the treatments was no better than ST alone.

Correlational Analysis

The relationships between self-efficacy beliefs, writing anxiety, and writing quality were explored, as well as, the relationship between these variables and the treatment groups using Pearson Product Moment Correlations (see Table 2). All scores were first converted to residual gain scores. The results indicate a significant correlation between writing anxiety and essay writing quality ($r = -.25$, $p < .05$), and a significant correlation between RTR and writing anxiety ($r = -.24$, $p < .05$). Strategic training was significantly related to writing anxiety ($r = -.25$, $p < .05$), self-efficacy ($r = .32$, $p < .01$), and essay writing quality ($r = .63$, $p < .01$). The correlation between self-efficacy and writing quality was non-significant ($r = .17$, $p > .05$).

Path Analysis

In order to elucidate sequential relations between the two forms of training, intervening variables, and writing quality, a path analysis was utilized (see Figure 3). In this analysis, the path of the treatments, ST and RTR, and the intervening variables, self-efficacy and writing anxiety, were

Table 2

Correlation Matrix for Treatments (RTR and ST), Writing Anxiety , Self-Efficacy Beliefs for Writing, and Writing Quality

	1.	2.	3.	4.	5.
		(n=74)			
1. Anxiety	---				
2. Self-efficacy	-.12	---			
3. Writing Quality	-.25*	.17	---		
4. RTR	-.24*	.10	-.04	---	
5. ST	-.25*	.32**	.63**	.27	---
Mean	-.27	.04	.06		
SD	.48	.48	.52		

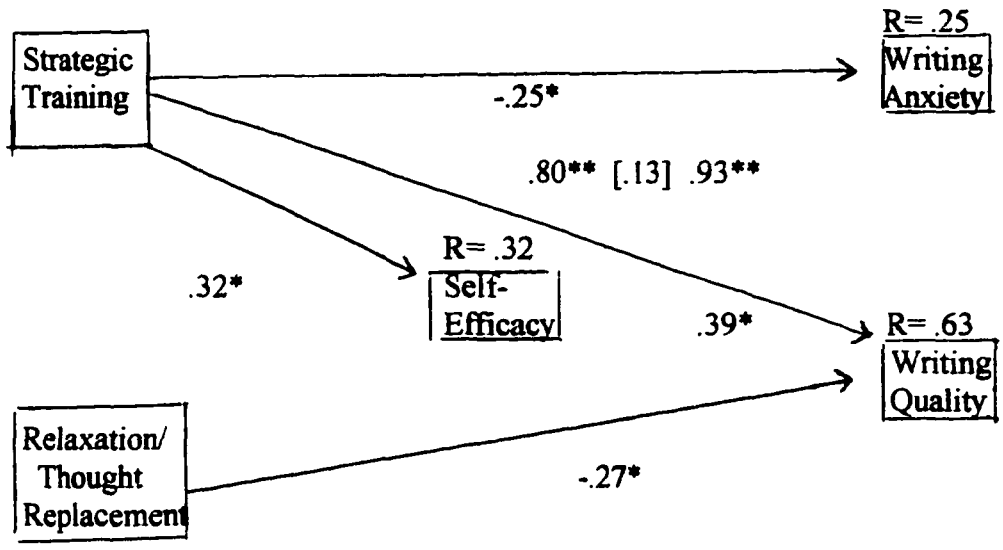
* Correlation is significant at the .05 level

** Correlation is significant at the .01 level

Note: Residual gain scores reported for each outcome measure

traced to the dependent variable, writing quality. The path model achieved a Composite Fit Index of .91 and a $\underline{R}$ of .79. These results indicate that 79% of the variance in writing quality is accounted for by ST, RTR, self-efficacy beliefs, and writing anxiety. Results revealed a significant path coefficient from strategic training to self-efficacy ($\underline{P}$ = .32, $\underline{p}$ < .05) and from self-efficacy to writing quality ($\underline{P}$ = .39, $\underline{p}$ < .05). The direct path from ST to writing quality was also significant ($\underline{P}$ = .80, $\underline{p}$ < .01). The total effect of strategy training on writing quality produced a path coefficient of .93. The path analysis also found a significant direct effect of RTR on writing quality ($\underline{P}$ = -.27, $\underline{p}$ < .05). Although the path from ST to writing anxiety was significant ($\underline{P}$ = .25, $\underline{p}$ < .05), the path from writing anxiety to writing quality was not.

The results of the correlation analysis revealed that self-efficacy alone does not predict writing quality. However, when self-efficacy was examined in the path model with writing anxiety and ST, it did predict and mediate the effect of ST on writing quality. This result confirmed the fourth hypothesis, that is, self-efficacy beliefs for writing, predict and mediate the effect of ST on writing quality. The path coefficient from ST through self-efficacy was significant as was the path coefficient form self-efficacy to writing quality. It should also be noted however, that a path from ST to writing quality was also significant. This reveals that ST also has a direct effect on writing quality.



* Path coefficient significant at the .05 level
**Path coefficient significant at the .01 level

CFI = .91

Figure 3. Path analysis examining the predictive and mediational roles of writing self- efficacy beliefs and writing anxiety.

Chapter V

Discussion

The first hypothesis tested the effectiveness of RTR on writing performance, self-efficacy beliefs for writing, and writing anxiety. It was postulated that RTR would improve writing quality, enhance self-efficacy beliefs for writing, and decrease writing anxiety. The results only partially supported this hypothesis. RTR did not improve writing quality nor did it enhance self-efficacy beliefs for writing. It did however, reduce the writing anxiety experienced by the students. An additional analysis examined the components of writing anxiety, that is worry and emotionality. The results confirmed the effectiveness of RTR for reducing worry, (i.e., intrusive thoughts). However, RTR was ineffective in reducing emotionality (i.e., physiological-affective symptoms of anxiety).

This hypothesis was in essence testing the interference model of anxiety and its clinical implications. According to this model, anxiety has a negative effect on academic performance because it interferes with one's thinking. In particular, intrusive thoughts (i.e., worry) interfere with one's ability to concentrate. The physiological symptoms (emotionality) are said to exacerbate the intrusive thoughts. The implication of this model is that if anxiety is reduced, especially worry anxiety, performance will improve. The findings of the ANCOVA support the efficacy of cognitive behavioral therapy (i.e., RTR) as a method of reducing anxiety, in particular alleviating worry anxiety. However, the reduction of anxiety did not improve academic

performance, in this case, writing quality. Therefore, the interference model does not appear to accurately explain the effects of anxiety on performance.

The second hypothesis proposed that ST, using graphic organizers, would improve writing quality, boost self-efficacy beliefs for writing, and lower writing anxiety. This hypothesis was confirmed on all three variables. ST was effective in improving essay organization and structure. Students who received this training wrote essays of a higher quality (i.e, more paragraphs with topic sentences and more detail) than students who received RTR or traditional workshop training. In addition, ST increased students' self-efficacy beliefs for writing and reduced writing anxiety. The results indicate that graphic organizers are powerful tools that not only have a significant impact on cognition, but also on affective variables (i.e., self-efficacy and writing anxiety). An additional analysis of the worry and emotionality components of anxiety revealed that ST had a significant impact on reducing emotionality but not worry.

The second hypothesis was based on the skills deficit model of anxiety and its clinical implications. According to this model, anxiety is the result of a skills deficit, either because of ineffectual strategy application or ineffectual test taking skills. The clinical implication of this model is that learning effective writing strategies will reduce anxiety. The subsequent reduction of anxiety will result in an improvement in academic performance. This study found, that when students learned a strategy (i.e., using a graphic organizer), their anxiety level decreased and their writing quality improved. However,

writing anxiety was not linked to writing quality, and this was not predicted according to the skills deficit formulation.

The third hypothesis stated that a combination of RTR and ST, that is, combining both the interference and the skills deficit models, would have the greatest effect on improving writing quality, enhancing self-efficacy beliefs for writing, and decreasing writing anxiety. The effects of RTR and ST were additive for only writing anxiety, not for self-efficacy or writing quality. Furthermore, the ANCOVA failed to find a significant interaction on all three variables, thus the combination treatment did not non-additively improve the writing quality, self-efficacy beliefs, or reduce anxiety for the students any better than ST alone. Therefore, adding relaxation/thought replacement to the strategic training (graphic organizers) did not significantly improve the effectiveness of the graphic organizers.

The fourth hypothesis stated that self-efficacy beliefs for writing would predict and mediate the effect of ST on writing quality. This hypothesis was based on a social-cognitive model which views change in self-efficacy as a key mediating variable related to improved writing performance. This hypothesis was confirmed by the path analysis. Self-efficacy was tested in an attempt to explain the contradictions in the literature on the effects of anxiety. Some researchers (e.g., Salovey & Haar, 1990) have found that anxiety reduction increases performance. Others (e.g., Pajares, et al.,1999) have found that it does not. Most researchers exploring the effects of anxiety however, have not included self-efficacy in their studies.

According to the results of the path model employed in this study, ST has both a direct and indirect effect on writing quality. Graphic organizers were found to be a powerful tool that directly improved the quality of students' writing. At the same time, graphic organizers have an indirect effect on writing quality by passing through self-efficacy beliefs, but not writing anxiety. Therefore, it is not writing anxiety that mediates writing performance, it is self-efficacy beliefs for writing.

Although the path model found that graphic organizers significantly influence writing anxiety, writing anxiety did not predict writing quality when self-efficacy was included in the model. Writing anxiety only predicted writing quality when these two variables were examined separately through correlational analysis. This seems to explain why previous researchers have reported conflicting findings on the relationship between anxiety and performance.

Most researchers who have studied the relationship between anxiety and performance have not included self-efficacy. However, when the types of training and self-efficacy are added into the model, anxiety no long retains its predictive capability. The other variables, particularly ST and self-efficacy, out-weigh the influence of anxiety.

The path model finds that RTR does have an influence on writing quality. But, it produces a negative path coefficient. However, the correlation between RTR and writing quality is not significant, and RTR appears to have a suppressor effect on writing quality. That is, RTR helps to predict writing

quality by suppressing some of the error variance in writing quality. Thus, RTR is clinically valuable in reducing writing anxiety and statistically valuable in predicting improvement in writing quality in conjunction with self-efficacy and ST.

The path model tested three theoretical positions, the interference model, the skills deficit model, and a social-cognitive model. For the interference model to hold true, RTR would have to improve writing quality through anxiety reduction. RTR failed to accomplish this, according to the path model and the ANCOVA. For the skills deficit model to hold true, ST would have to improve writing quality by way of reducing anxiety. The ANCOVA revealed ST diminishes writing anxiety and improves writing quality. The path model however, revealed the absence of a causal path between writing anxiety and writing quality. The evidence from the path analysis did provide support for a social-cognitive model. ST increases self-efficacy beliefs, self-efficacy in turn predicted improved writing quality. However, the path model showed that ST had a large direct effect on writing quality. This evidence undermines claims of the skills deficit model about the effect of anxiety and performance. On the other hand, the results of the path model remain consistent with a social-cognitive model.

According to social cognitive theory, effective strategy use is a key to enhancing academic performance. The results of both the ANCOVA and the path model confirmed the effectiveness of strategic training. In addition, social-cognitive theory postulates that academic performance is mediated

through self-efficacy beliefs for writing, not writing anxiety. Again, this was confirmed; self-efficacy beliefs mediated writing quality.

Overall, the findings validate the utility of graphic organizers as a powerful and effective tool for helping students write better organized essays. The findings also revealed that graphic organizers influence affective factors while writing. They increase one's confidence in the task, and decrease one's anxiety about the task.

The findings regarding RTR show that it is an ineffectual treatment for improving writing performance, in spite of its effectiveness for reducing total anxiety and worry. In addition, the evidence revealed that self-efficacy beliefs play an important predictive and mediational role on writing quality. In conclusion, the results support social cognitive theory's position on the importance of strategy use, and the role of self-efficacy beliefs and academic performance.

Contributions to the Existing Literature

This study adds to the existing literature on academic anxiety, cognitive behavioral therapy, self-efficacy, and strategic training and writing quality. There has been much research conducted over the years that explored the relationship between anxiety and academic performance in almost all domains except writing. This study is one of the few that examined the cause and effect relationship between anxiety and writing performance. The discovery that a reduction in writing anxiety does not improve writing quality

adds important information to the existing literature on anxiety and writing performance.

This study also adds to the existing cognitive behavioral literature. The literature revealed that cognitive behavior therapy is effective in reducing many types of anxiety. Very little has been published however, that examined the effectiveness of cognitive behavioral therapy for reducing writing anxiety. Although it was confirmed that cognitive behavior therapy (i.e., RTR) does reduce writing anxiety, this study took an important additional step, that is, examining the impact of anxiety reduction on writing performance. The finding that anxiety reduction does not improve performance has important both theoretical and clinical implications.

Although the literature on self-efficacy is substantial, there are very few studies that have examined self-efficacy, writing, and anxiety. The studies that have examined writing self-efficacy, writing anxiety, and writing performance have all been correlational in nature. This study however, employed an experimental design, taking the previous research to the next step. The information gained from this study confirms that self-efficacy can be improved through the use of effective learning strategies, and that self-efficacy beliefs mediate and predict the effect of the ST to improve writing quality. This has important theoretical and educational implications.

Finally, this study adds to the literature on strategy usage and writing, especially the use of graphic organizers to enhance writing quality. Almost all of the research on graphic organizers has looked at its effect on studying or

reading. The introduction of graphic organizers into the writing performance literature is relatively new and almost non-existent. This study is one of the few that has examined the utility of graphic organizers as a tool to improve writing quality. It also appears that this is the only study that has examined the effect of graphic organizers on reducing anxiety. The information obtained from this research adds to the existing literature by confirming the powerful cognitive and affective influence of graphic organizers on writing tasks.

Educational Implications

The first educational implication of these findings is that college remedial writing instruction or writing workshops should include graphic organizers as part of their curriculum. This simple strategy has been shown to be a powerful tool for improving writing quality, enhancing self-efficacy beliefs, and decreasing anxiety. Instructors can be taught this strategy in a short period of time and students can learn it quickly and easily. It takes about an hour and a half for students to learn.

Despite the simplicity and power of graphic organizers, this researcher encountered some resistance from persons in authority while seeking approval for this study. There seems to be a belief by some, that graphic organizers may hinder the spontaneity of writing by making it too structured. Therefore, writing quality would suffer. However, the evidence is quite clear, graphic organizers have a positive impact on cognitive and affective factors. It

appears some work needs to be done to educate teachers and other professionals on the effectiveness of graphic organizers.

Second, college counseling centers that are treating students for poor academic performance believed to be related to anxiety should concentrate on teaching strategies instead of focusing on reducing anxiety through cognitive behavioral techniques. The focus for the counselors should not be on the anxiety itself, but on the skills deficits. Once the deficits are alleviated, self-efficacy will improve, and academic achievement will be bolstered.

Third, since self-efficacy is shown to predict and mediate the effect of strategy use on writing performance, writing instructors should use self-efficacy measures in combination with samples of essay writings to determine the effectiveness of writing strategies and assess the readiness of students to take college writing tests. Self-efficacy beliefs can be measured by using a simple questionnaire that is quick and easy to complete. The information on the questionnaire can give writing instructors insight into specific problem areas and help them to choose the right strategy to help performance.

Limitations and Future Research

There are several limitations to this study. First, this study had a relatively low number of subjects (n=74) for four groups, therefore, limiting the power of the study. Second, the findings only generalize to college students with severe writing difficulties and who have long histories of writing failures. Third, the majority of the participants in this study were

non-native English speakers, therefore, the results may not generalize to native English speaking students. Fourth, although this study examined the effects of anxiety on writing, most subjects did not have severe levels of anxiety. Most students had moderate to low levels of writing anxiety. Therefore, the results may not be generalizable to individuals with severe writing anxiety.

Future research in this area should be extended to a population of students who are suffering from severe writing anxiety. Researchers should examine the effectiveness of RTR and ST on this population. Future researchers should also continue to test the utility of graphic organizers on writing performance within various populations. For example, in this study, most subjects had a relatively long history of writing failures. Future researchers should test the effectiveness of graphic organizers on students with moderate writing difficulties. In addition, future research should examine the effect of graphic organizers on younger students; high school, middle school, and possibly upper elementary school students.

In this study, one type of graphic organizer was examined that aided students in writing a persuasive essay. Since there are different types of graphic organizers, future research should be extended to testing the utility of these tools on various types of essays. For example, there are graphic organizers designed for writing compare and contrast essays. Researchers should examine the efficacy of these tools.

Future research should include additional information on the effectiveness of graphic organizers, such as the students' pass rates on the Writing Assessment Test.

The mediating effect of self-efficacy beliefs for writing in this study, while significant, accounted for just 32% of the variance of writing quality. This measure of self-efficacy focused on students' acquisition of writing skills rather than their performance on the writing posttest. If a more outcome oriented measure is used in future research (i.e., Self-Efficacy for Writing Achievement Scale), the mediational effect of self-efficacy beliefs could be substantially increased (Zimmerman & Bandura, 1994).

Finally, future researchers should examine the social validity of graphic organizers among students. Teachers of writing would be interested in students' personal appraisal of graphic organizers as well as evidence that these organizers are effective. Evidence that students perceive graphic organizers as easy to use, flexible to apply, and powerful in their impact could be sufficiently compelling for teachers to adopt these into the curriculum.

Appendix A
Demographic Questionnaire

Name: _____

Sex: Male _____ Female _____

Age: _____

What is your native language? _____

How many college credits do you currently have? _____

What is your major? _____
If you have not chosen a major, what do you think your major will be?
_____

How many times have you taken the CUNY Writing Assessment Test?
_____

Have you ever attended a writing skills workshop at college? Yes ___No___
If yes, how many? _____

Have you ever been taught to write persuasive essays? Yes _____ No _____

Modified Version of the Test Anxiety Inventory

Name: _____

A number of statements which students have used to describe themselves are written below. Read the statements and tell us how well each describes you by placing the appropriate number to the left. Please respond to every statement and be as honest as possible. There are no right or wrong answers. Use the following scale for your responses.

Almost Never	Sometimes	Often	Almost Always
1	2	3	4

_____ 1. While writing essays I have an uneasy, upset feeling.

_____ 2. Thinking about my grade on an essay interferes with my writing.

_____ 3. I freeze up when asked to write an essay.

_____ 4. During writing tests I find myself thinking about whether I'll ever get through school.

_____ 5. The harder I work at writing an essay, the more confused I get.

_____ 6. Thoughts of doing poorly interfere with my concentration when writing.

_____ 7. I feel jittery when taking essay tests.

_____ 8. Even when I practice writing, I feel very nervous about writing essays.

_____ 9. I start feeling very uneasy just before getting an essay back.

_____ 10. During important essay tests I am so tense that my stomach gets upset.

_____ 11. I feel very panicky when I take an important essay test.

_____ 12. I worry a great deal before taking an important essay test.

_____ 13. During essay tests I find myself thinking about the consequences of failing.

_____ 14. I feel my heart beating very fast during important essay tests.

_____ 15. After taking an essay exam I try to stop worrying about it, but I can't.

_____ 16. During essay tests I get so nervous that I have trouble thinking what I want to say.

Scoring for the Modified Version of the Test Anxiety Inventory

Worry Items: 2, 4, 5, 6,12, 13, 15, 16

Emotionality Items: 1, 3, 7, 8, 9, 10, 11, 14

Worry Score: _____

Emotionality Score: _____

Total Anxiety Score: _____

Self-Efficacy for Writing Questionnaire

Name: _____

You are going to asked to write a persuasive essay on a specific topic (similar to the Writing Assessment Test). Tell us how well you can do the things listed below by entering a number on the line to the left of each statement. Please be honest, there are no right or wrong answers. Use the following scale for your responses:

Not well at all		Not too well		Pretty well		Very well
1	2	3	4	5	6	7

___ 1. After receiving a topic, I can write a persuasive essay.

___ 2. I can figure out what ideas are the most important to include in my essay .

___ 3. Before writing the essay, I can create a good outline.

___ 4. I can start writing with no difficulty.

___ 5. I can write a good introduction for my essay.

___ 6. I can use my first attempts at writing to refine my ideas on a topic.

___ 7. I can find ways to concentrate on my writing even when there are many distractions around me.

___ 8. I can meet the writing standards of a grader who is very demanding.

___ 9. I can come up with good examples quickly to illustrate an important point.

___10. I can organize my thoughts before I write an essay.

___11. I can write sentences that smoothly shift from one idea to another.

___12. I can refocus my concentration on writing when I am worried or find myself thinking about other things.

___13. When I get stuck writing, I can find ways to solve the problem.

___14. I can find ways to motivate myself to write an essay even when the topic holds little interest for me.

___15. I can write a good conclusion that ties all the parts together in my essay.

___16. I can revise a first draft of an essay so that it is shorter and better organized.

___17. I can finish my essay on time.

___18. I can create good topic sentences for each paragraph.

___19. I can explain my point of view clearly in an essay.

___20. I can write a well organized persuasive essay.

Writing Quality Primary Trait Scoring Scale

Text Structure:

0: The essay has no resemblance to a persuasive essay. A point of view is not stated clearly and little or no attempt is made to persuade the reader.

1: The essay has a least one feature of a persuasive essay, but it is in the form of one, shapeless paragraph with the barest introduction or conclusion, if any.

2: The essay has two separate sections: either an introduction and a body, or a body and a conclusion.

3: The essay has all sections, all separate from one another: an introduction, a body, and a conclusion.

4: The essay has all sections, all separate from one another: an introduction with at least one bridge, a body, and a conclusion.

Topic sentences and supporting details:

0: Essay content has almost relation to topic.

1: The essay has virtually no persuasive topic sentences and simply lists ideas and/or opinions.

2: The essay uses persuasive topic sentences with supporting details less than half the time; mostly the essay simply lists ideas and/or opinions.

3: The essay uses persuasive topic sentences with supporting details more than half the time; the rest of the essay simply lists ideas and/or opinions.

4: The essay uses persuasive topic sentences with supporting details virtually throughout the essay.

* The body needs at least two paragraphs.

Appendix B

Instructions for Relaxation/Thought Replacement Training

People who have high levels of anxiety seem to do poorer on tests than people with low to moderate levels of anxiety. There is evidence to suggest that the reason they do poorly is because anxiety interferes with their thinking. When you feel your heart pounding, your palms sweating, and you start worrying about failing, you can't concentrate on writing. When you are asked to write an essay that is very important to your academic future, anxiety can rise even higher. Today, we are going to teach you some techniques that can help you go into the writing test feeling more relaxed and techniques that you can use while your taking the test that can reduce your anxiety and help you to focus on writing.

First, let's talk about preparing yourself for the test. The first thing you want to do is learn to relax. A simple technique that has been used in various types of yoga, and used by athletes, is deep abdominal breathing. Here's how to do it.

1. Breathe only through your nostrils, since breathing through the mouth is not relaxing.
2. Inhale very slowly. As you do, push the abdomen out as it were a balloon expanding. As a result, your diaphragm will move downward, allowing full extension of your lower lungs.
3. When the abdomen reaches full extension, smoothly draw your shoulders back, raising your head, and continue to fill the upper part of your lungs.
4. After you've entirely filled your lungs, hold your breath for 5 seconds.
5. Release, exhaling slowly through the nostrils. Draw in the abdomen. When the process is complete, hold for 2 seconds before resuming your next deep breath.

(Each step will be modeled then the subjects will be asked to immediately repeat the steps. Once all are capable, the experimenter will move on to the next 2 steps, again modeling each.)

6. Repeat this exercise for 5 breaths, and as you do, count down 5-4-3-2-1, saying one number on exhalation.
7. To end this exercise, count slowly 1-2-3-4-5. At 5, say, "I am relaxed, alert, and ready."

(The experimenter will take the group through this exercise three times and ask by a show of hands how many feel confident they can use this technique. Once everyone feels confident, the next phase of the treatment, thought stopping/replacement, will begin.)

Now that everyone knows how to relax using deep abdominal breathing, I'm going to show you a simple technique that you can use when you have thoughts that interfere with your writing. Say for example, that while you are writing, you begin to think, "I'm going to fail this test." This thought would interfere with your thinking and your confidence, creating anxiety. The first thing you want to say to yourself is, "Stop!" You want to say it as though you mean it. In your own head, you're saying it in a loud, commanding voice. You want to stop the thought immediately, before it makes you feel too anxious and takes away valuable time that you should be using to write your essay. The next thing you are going to do is replace that negative thought with a positive or productive thought. One that will reduce your anxiety, give you confidence, and get you to focus on your writing, such as "I know I can do this. I just need to concentrate". Try to keep your thinking on the writing topic and try to use statements to yourself that will make you feel more confident and relaxed.

(The experimenter will ask the group for more negative thoughts that may interfere with writing, and as a group they will come up with more adaptive thoughts. This will be practiced until all feel they are capable of using this technique by a show of hands. At this point the experimenter will summarize the entire treatment starting with the steps of deep abdominal breathing followed by thought stopping, and concluding with thought replacement.)

(The combined treatment group will skip the next section and go right into strategic training.)

We are going to write a persuasive essay. A persuasive essay is an essay that voices an opinion that is backed up by facts. I'll pass out an essay for you to use as a model to write an essay (hand out sample essay). This essay consists of three parts: an introduction, a body, and a conclusion. (Experimenter will give subjects time to examine the model essay and ask questions. Collect essays once reviewed by subjects.)

Before you begin writing however, I would like you to complete these questionnaires (hand out the Writing Anxiety Questionnaire, then the Self-Efficacy for Writing Questionnaire). After you fill these out I'm going to give you a topic to write a persuasive essay. Follow the model when writing your essay and don't forget to use the techniques we discussed. Use the deep abdominal breathing to relax before you begin writing. Once you feel relaxed start writing your essay. If you become anxious while you are writing, use the thought stopping and thought replacement techniques. This essay will be evaluated and handed back to you to review. You have 50 minutes to complete the essay. (Experimenter will monitor the group.)

Strategic Training

People who have high levels of anxiety seem to do poorer on tests than people with low to moderate levels of anxiety. There is evidence to suggest that the reason they feel anxious is because they are not prepared to take the test. Today I'm going to teach you to use a strategy called a graphic organizer to write a persuasive essay. A persuasive essay is an essay that voices an opinion that is backed up by facts. Just like the essays on the Writing Assessment Test.

This is a graphic organizer that we will use to write our essays (show IBC Model and hand out copies to all subjects). As you can see, it has an introduction, a body, and a conclusion. We are going to go through all these parts and break them down, starting with the introduction (show the introduction paragraph).

As you can see the introduction starts off with a thesis statement. This is the your opinion. Your opinion is followed by a bridge that links it to your reasons that support your view. It concludes with a bridge that moves to the next paragraph. Let's use a sample topic from a previous writing test to demonstrate. (Experimenter will hand out the topic written on a paper. The topic will be, "Children learn violent behavior from their parents, not from television or movies. If parents who are angry and frustrated beat their children or each other, the children will grow up thinking that physical violence is the only way of dealing with their own anger and frustration".

The first thing we want to do is decide if we agree or disagree with the statement, that children learn violent behaviors from their parents and not TV or the movies. Since we will be working as a group, we'll say we disagree with this statement and write our essay from the opinion that it is TV and movies that teach children violent behaviors, not the parents. So our thesis statement would be, "I disagree that children learn violent behaviors from their parents and not television and movies." The next thing we want to do is bridge our statement to our reasons, an example of a bridge would be, "There are several reasons for this." The next step would be to state our reasons. Reason #1, "Teenage violence and movie violence are both increasing". Reason #2, "Teenagers are imitating people they see on TV and in movies". Reason #3, " Many of the teenagers that commit violent crimes come from good families." The next thing we want to do is create a bridge from the introduction to the body. Our bridge might be, "I will elaborate these reasons further in this essay."

The next section is the body (show body paragraph). Here we restate our reasons one by one, make a general statement to support our reason, give examples, and write a concluding sentence. For example, our first reason, "Teenage violence and movie violence are both increasing" can be rephrased as, "More and more TV and movie shows are showing violence, while the number of teenagers arrested for violent acts increases". Next we want to

give an example to support this statement. We might say, "Just pick up a newspaper or watch the local news and you're likely to see a teenager being arrested for a violent crime. At the same time look what is playing in your local movie theaters or check the TV guide. You will see most movies are action movies with a lot of violence." The final part to this paragraph is a concluding statement. For example, "It seems teenage violence and movie violence are connected".

The second paragraph follows the same format. We restate our reason, "Teenagers are imitating people they see on TV and in movies". (Solicit from the group how we might restate this. Go through the graphic organizer step by step for the remainder of this paragraph and the next paragraph prompting the group to come up with ideas.)

The final part of our essay is the conclusion (show conclusion paragraph). Here we want to tie every thing together by first restating our thesis statement. Try to rephrase it. (Solicit ideas from the group). Next, we can propose a solution. For example, we might say, "Stricter government control over what is shown on TV and enforcement of age restrictions for movies is needed. If this occurs, society should see a reduction of teenage violence". We also have the option of concluding our essay by simply restating our reasons and making a final comment. For example, "There is evidence to show that teenagers are imitating people they see in movies. At the same time, teenage violence, even among teens who come from good families, is increasing. This is occurring as more and more violent TV shows and movies are shown. Therefore, it seems that TV and movies are teaching teenagers violent acts"

I'll pass out a copy of what this essay might look like in its final form for you to examine. (Hand out sample of completed essay and answer any questions. Collect sample essays once reviewed by subjects.)

Now I would like you to complete these questionnaires (hand out the Writing Anxiety Questionnaire, then the Self-Efficacy for Writing Questionnaire). After you fill these out I'm going to give you a topic to write a persuasive essay on using the graphic organizer. (Pass out graphic organizers to each subject along with the topic, the same topic as the RTR group.) This essay will be graded and handed back to you to review. First, use the graphic organizer then write your essay. You have 50 minutes to complete the essay. (Experimenter will monitor the group.)

Sample Essay

I disagree that children learn violent behaviors from their parents and not television and movies. There are several reasons for this. First, teenage violence and movie violence are both increasing. Second, teenagers imitate people they see on TV and in movies. Last, many of the teenagers that commit violent crimes come from good families. I will elaborate these reasons further in this essay.

First, as the number of violent movies has increased, so has teenage violence. More and more TV and movie shows are showing violence, while the number of teenagers arrested for violent acts increases. Just pick up a newspaper or watch the local news and you're likely to see a teenager being arrested for a violent crime. At the same time, look what is playing in your local movie theaters or check the TV guide. You will see most movies are action movies with a lot of violence. It seems teenage violence and movie violence are connected.

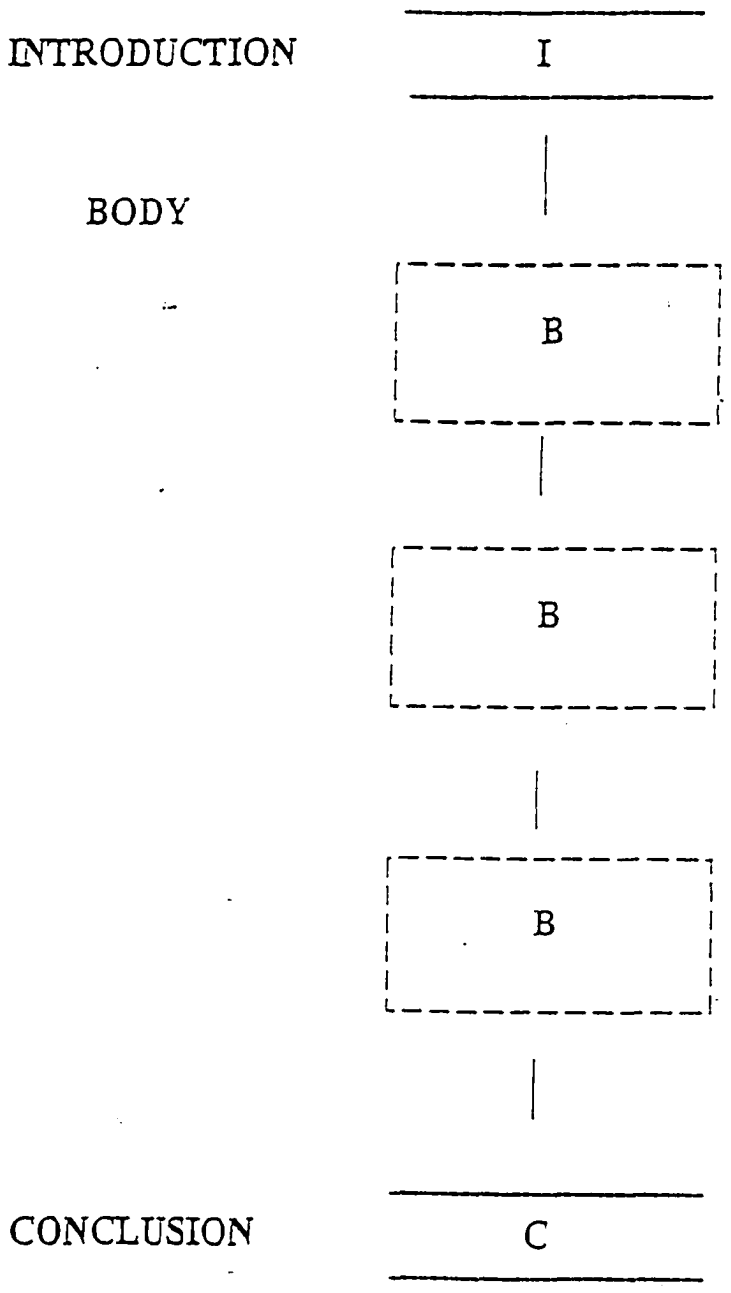
Second, teenagers imitate many of the famous people they see on TV and in movies. They wear the same clothes and hair styles that famous people wear and unfortunately, they imitate the violence they see in movies. Many of the shootings by teenagers at schools seem to be copying scenes from movies. For example, the teens who killed and shot so many students in Colorado were known to like watching violent movies on videos.

Last, many of the teenagers who commit violent acts have decent parents. Many of the violent acts have occurred in areas where people attend church, have money and good jobs. When we see the parents of these teenagers on TV, it seems they are nice people who never have abused their children. The violence that these teens displayed must have come from somewhere other than their parents. It is more likely they learned violence from TV and movies.

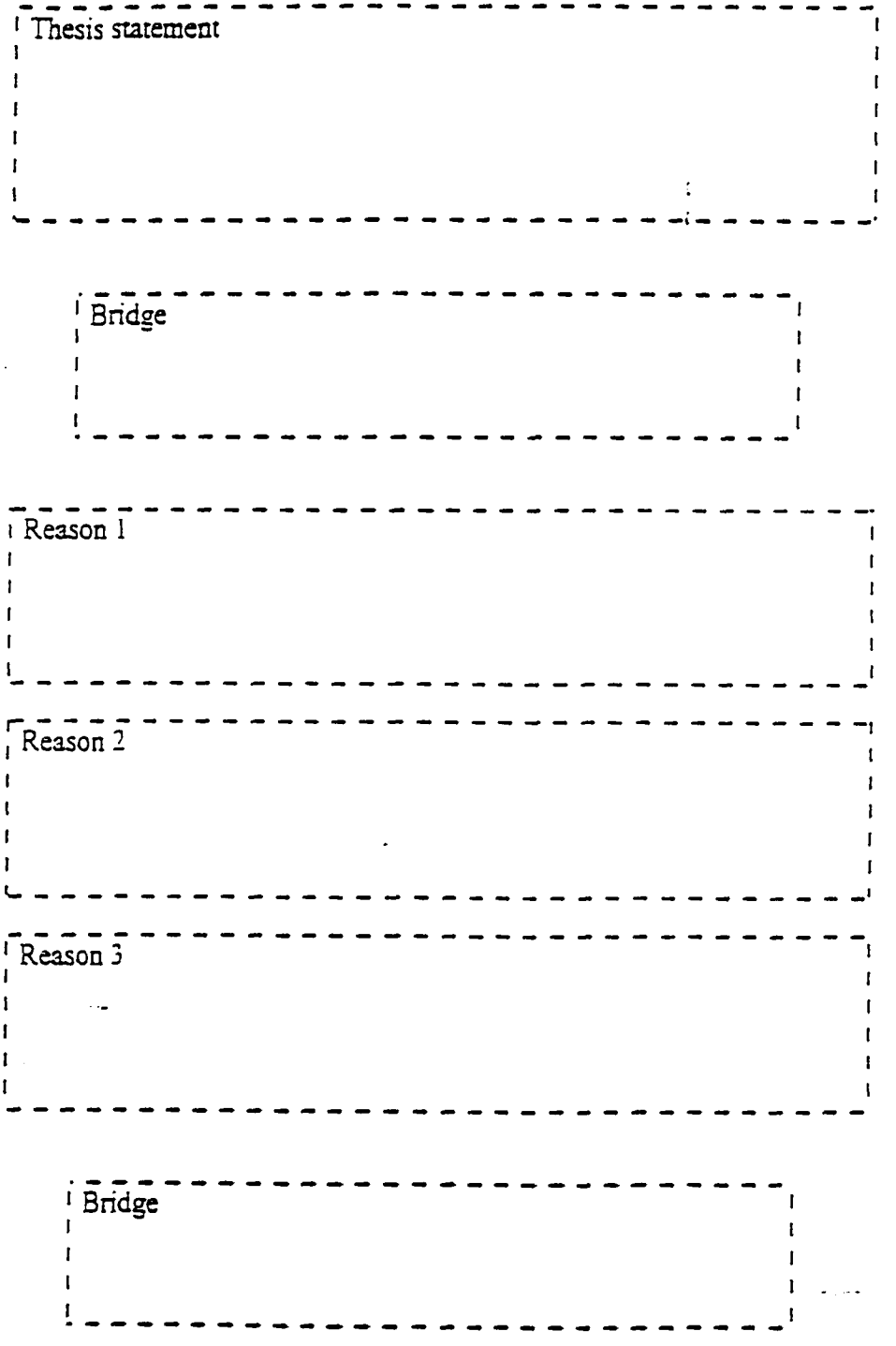
There is evidence to show more teenagers are resorting to violence while violence on TV and movies increases. Teenagers seem to be imitating people they see on TV and in movies, whether by dressing the same, wearing their hair the same, or copying violent behaviors. Although, people could say that the violence they are learning comes from their parents, we can not explain why so many of these teens come from good families. Therefore, it seems that TV and movies are teaching teenagers violent acts.

Persuasive essay

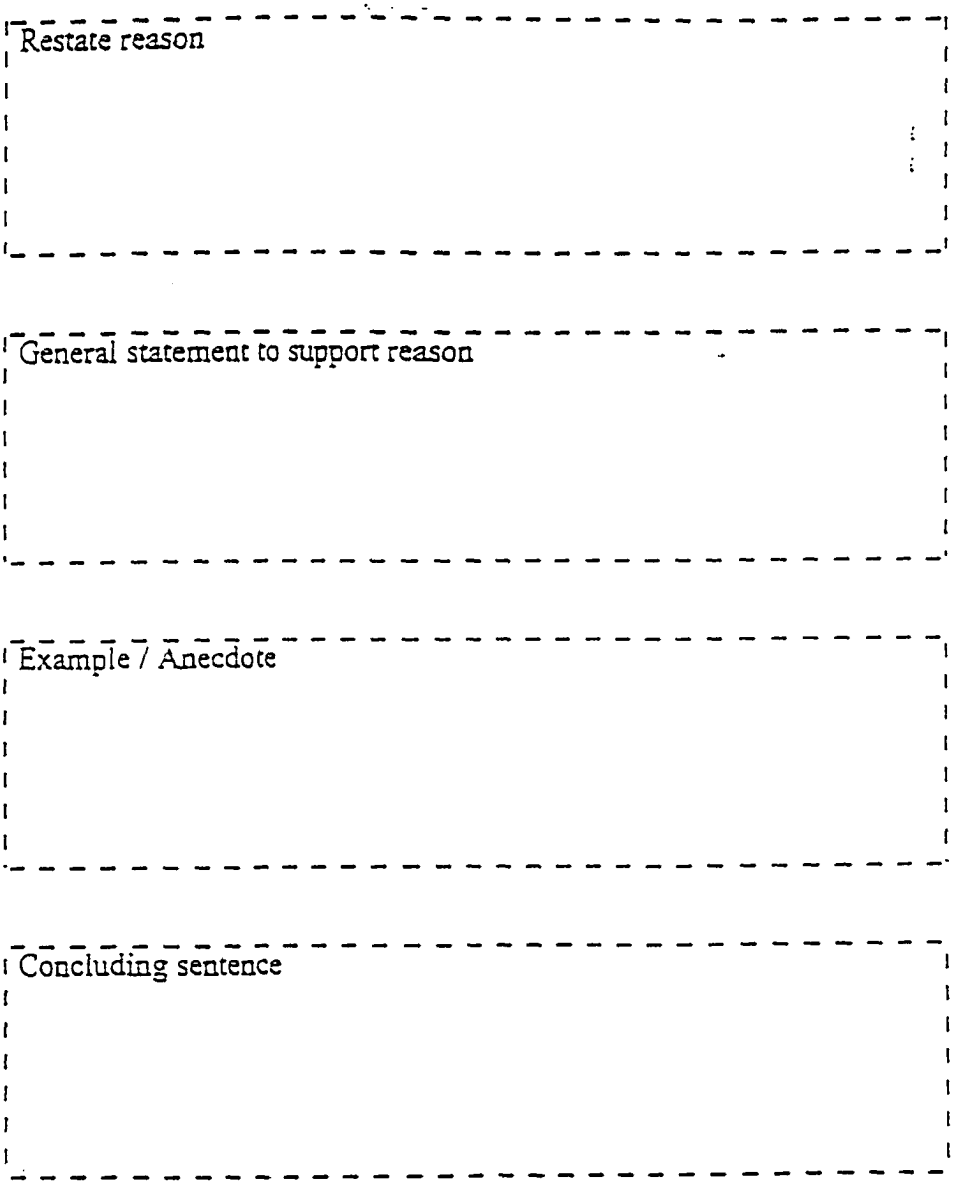
IBC Model



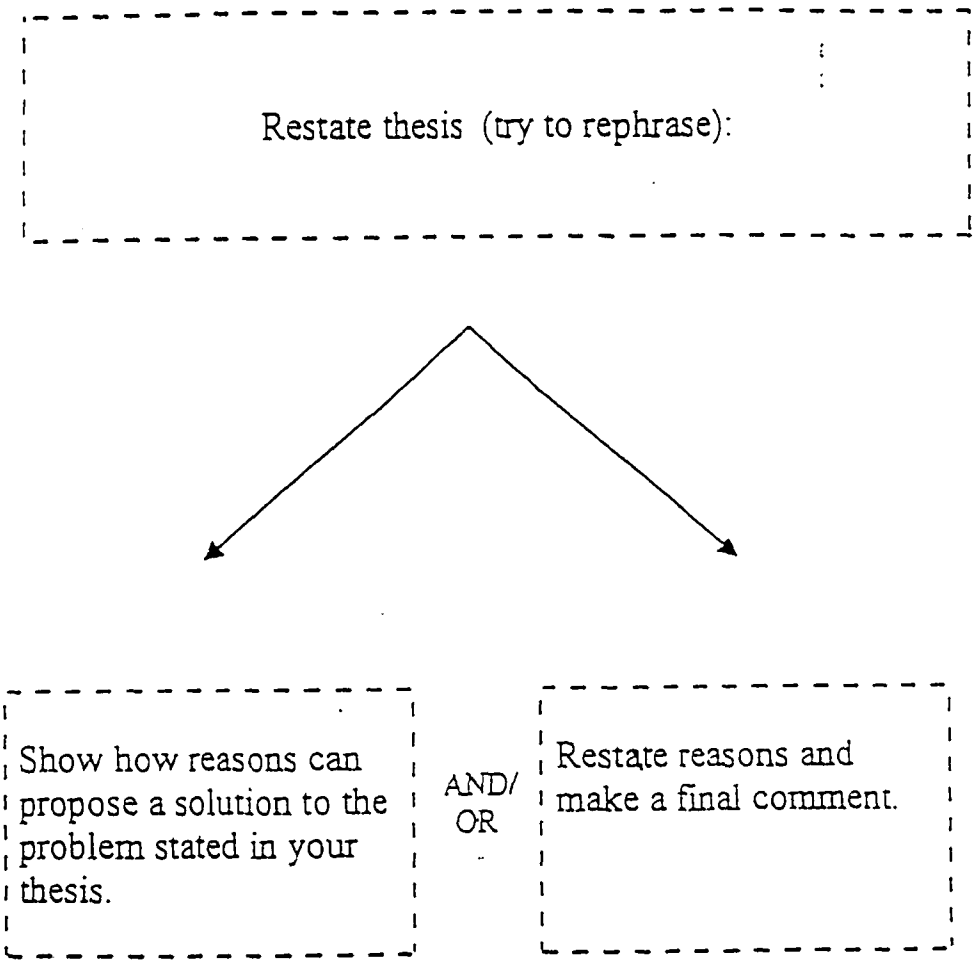
I B C Model
Introductory paragraph



I B C Model
Body paragraph



I B C Model
Conclusion paragraph



Pretest Essay

Directions

You will have 50 minutes to plan and write the essay assigned below. Please use the paper provided.

You must write your essay on the topic given below. Read it carefully and then write a response to it.

Many Americans want a Constitutional amendment that makes English the official language of the United States. They feel that such an amendment is necessary because a common language will preserve the basic internal unity that is required for a stable and growing nation.

Do you agree or disagree? Explain and illustrate your answer from your own experience, your observation of others, or your reading.

Posttest Essay

Directions

You will have 50 minutes to plan and write the essay assigned below. Please use the paper provided.

You must write your essay on the topic given below. Read it carefully and then write a response to it.

New York State law prohibits assisted suicide. However, some people assert that terminally ill, mentally competent adults nearing death should have the option of dying with dignity, in full control of their bodies and final moments.

Do you agree or disagree? Explain and illustrate your answer from your own experience, your observation of others, or your reading.

Appendix C

CHECKLIST FOR RELAXATION/THOUGHT REPLACEMENT TRAINING

Did instructor give rationale for the treatment? Yes No

Did instructor explain the 7 steps of abdominal breathing? Yes No

Did instructor take the group through the steps three times? Yes No

Did instructor wait until everyone was confident (show of hands) using abdominal breathing before moving on? Yes No

Did instructor explain and demonstrate thought stopping? Yes No

Did instructor explain and demonstrate thought replacement? Yes No

Did instructor ask the group for more negative thoughts to practice? Yes No

Did instructor practice until all were confident (show of hands) using thought stopping and thought replacement? Yes No

Did instructor summarize entire treatment? Yes No

Did instructor hand out the sample essay and point out the three parts? Yes No

Did instructor collect the sample essay before asking subjects to write? Yes No

Did instructor have subjects complete the Writing Anxiety Questionnaire, then the Self-efficacy Questionnaire before asking subjects to write? Yes No

Did instructor remind subjects to use the three techniques? Yes No

Were subjects given 50 minutes to write the essay? Yes No

Did the instructor add or delete any portion of the treatment script? Yes No
If yes, elaborate.

CHECKLIST FOR STRATEGY TRAINING

Did instructor give rationale for the treatment? Yes No

Did instructor explain what a graphic organizer is and hand out the model? Yes No

Did instructor give an overview of the graphic organizer? Yes No

Did instructor explain what a thesis statement is? Yes No

Did instructor explain what a bridge is? Yes No

Did instructor follow script in explaining and providing examples of an introduction paragraph? Yes No

Did instructor follow script in explaining and providing examples of a body paragraph? Yes No

Did instructor ask the group for ideas for the second and third body paragraphs? Yes No

Did instructor practice until all were confident (show of hands) using thought stopping and thought replacement? Yes No

Did instructor follow the script explaining and providing examples of the concluding paragraph? Yes No

Did instructor hand out the sample essay? Yes No

Did instructor collect the sample essay before asking subjects to write?Yes No

Did instructor have subjects complete the Writing Anxiety Questionnaire, then the Self-efficacy Questionnaire before asking subjects to write? Yes No

Did instructor remind subjects to use the graphic organizers? Yes No

Were subjects given 50 minutes to write the essay? Yes No

Did the instructor add or delete any portion of the treatment script? Yes No
If yes, elaborate.

CHECKLIST FOR RELAXATION/THOUGHT REPLACEMENT AND STRATEGY TRAINING

Did instructor give rationale for relaxation/thought replacement? Yes No

Did instructor explain the 7 steps of abdominal breathing? Yes No

Did instructor take the group through the steps three times? Yes No

Did instructor wait until everyone was confident (show of hands) using abdominal breathing before moving on? Yes No

Did instructor explain and demonstrate thought stopping? Yes No

Did instructor explain and demonstrate thought replacement? Yes No

Did instructor ask the group for more negative thought to practice? Yes No

Did instructor practice until all were confident (show of hands) using thought stopping and thought replacement? Yes No

Did instructor summarize RTR? Yes No

Did instructor give rationale for strategy training? Yes No

Did instructor explain what a graphic organizer is and hand out the model? Yes No

Did instructor give an overview of the graphic organizer? Yes No

Did instructor explain what a thesis statement is? Yes No

Did instructor explain what a bridge is? Yes No

Did instructor follow script in explaining and providing examples of an introduction paragraph? Yes No

Did instructor follow script in explaining and providing examples of a body paragraph? Yes No

Did instructor ask the group for ideas for the second and third body paragraphs? Yes No

Did instructor follow the script explaining and providing examples of the concluding paragraph? Yes No

Did instructor hand out the sample essay? Yes No

Did instructor collect the sample essay before asking subjects to write?
Yes No

Did instructor have subjects complete the Writing Anxiety Questionnaire, then the Self-efficacy Questionnaire before asking subjects to write? Yes No

Did instructor remind subjects to use RTR and the graphic organizers?
Yes No

Were subjects given 50 minutes to write the essay? Yes No

Did the instructor add or delete any portion of the treatment script? Yes No
If yes, elaborate.

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