THE EFFECTS OF SHORT-TERM RELAXATION TRAINING
ON HIGH-ACHIEVING EIGHTH GRADE STUDENTS’
TEST ANXIETY AND SELF-ESTEEM

A Dissertation
Submitted to the Graduate School
of
Tennessee State University
in
Partial Fulfillment of the Requirements
for the Degree of
Doctor of Education

Graduate Research Series No. ________

John P. Kacprowicz, Jr.

December 2008
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To the Graduate School:

We are submitting a dissertation by John P. Kacprowicz, Jr. entitled “The Effects of Short-Term Relaxation Training on High-Achieving Eighth Grade Students’ Test Anxiety and Self-Esteem.” We recommend that it be accepted in partial fulfillment of the requirements for the degree, Doctor of Education in Curriculum and Instruction.

________________________
Carole Stice
Chairperson

________________________
Charles Dickens
Committee Member

________________________
Mary Dunn
Committee Member

________________________
Karen Stevens
Committee Member

Accepted for the Graduate School:

________________________
Alex Sekwat
Dean of the Graduate School
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John P. Kacprowicz, Jr. (AKA Jonathan Kasper)
ABSTRACT

JOHN P. KACPROWICZ, JR. The Effects of Short-Term Relaxation Training on High-Achieving Eighth Grade Students’ Test Anxiety and Self-Esteem (under the direction of DR. CAROLE STICE.)

This research examined the effects of a relaxation training regimen on test anxiety and self-esteem among high-achieving eighth grade students. Using a quasi-experimental pretest-posttest control group design, 24 students in the treatment group were exposed to 15 relaxation training sessions on 15 consecutive school days, while the control group received no intervention. Each relaxation training session lasted 6-7 minutes and included progressive muscle relaxation, cue-controlled relaxation, and positive suggestion phrases encapsulated in a succinct, research-based narrative. Two self-reporting instruments, the Friedben Test Anxiety Scale (FTA) and the Rosenberg Self-Esteem Scale (SES), measured the outcome variables of test anxiety and self-esteem. Inferential statistics found that the relaxation training regimen led to a significant decrease in test anxiety among the treatment group participants, though it had no effect on self-esteem. Correlational statistics determined that test anxiety was a significant predictor of standardized test scores, though self-esteem was not. Finally, there was no interaction effect found between test anxiety and self-esteem and test scores, indicating that the relaxation training regimen had no significant effect on test performance. These results indicate that relaxation training may reduce test anxiety in high-achieving eighth grade students, and that lower test anxiety is associated with higher test scores.
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CHAPTER I

INTRODUCTION

Educational and social stress among young adolescents is considered by many experts to be at a crisis point (Benson et al., 2000; Rimer, 2007; Rosenberg, 2003; Ross & Driscoll, 2006). In upper middle schools across the United States, educators are struggling to maintain order and discipline and to mitigate negative behaviors among their students. At the critical juncture of young adolescence, life often takes a radical turn as students exhibit high levels of stress and anxiety due to the onset of puberty, peer influences, parental pressures to achieve, family issues such as divorce and remarriage, and the increased frequency of high-stakes, standardized testing (Bass et al., 2002; Benson et al., 2000; Credit & Garcia, 1999; Rosenberg, 2003).

Relaxation training could prove to be of benefit to students who are taking big steps from childhood toward adulthood and from the lower school environment to the more challenging and academically pressurized realms of upper middle school. However, most relaxation training research has been done with adults and college students or with referred individuals diagnosed with specific anxiety disorders. Very few studies have attempted to implement evidence-based anxiety reduction programs with children in elementary, middle or high school, or among high-achieving students (Bass, 2002; Benson et al., 1994; Ergene, 2003; Gregor, 2005).
A small number of schools, teachers and administrators across the United States are at the vanguard of a nascent movement to address adolescent stress. They have introduced innovative and time-honored relaxation techniques such as yoga, meditation, guided imagery, systematic desensitization, and progressive muscle relaxation as part of school-wide stress reduction programs (Cullen-Powell, 2005; Lopata, 2003; Zipkin, 1985). Denise Pope, a Stanford University School of Education lecturer and author, formed a group known as Stressed Out Students (S.O.S.) in 2003 to help administrators introduce relaxation techniques into their schools. Thus far, 44 middle and high schools from numerous states have joined S.O.S. in their efforts to change the high-octane culture of over-achieving and stressed-out adolescents (Rimer, 2007).

One of those S.O.S. schools, Needham High School in an affluent Boston suburb, has documented high rates of alcohol and drug abuse and depression among its students. In recent years, four students committed suicide: one in college, two in high school, and one in middle school. Although Needham High School Principal Paul Richards claims that the suicides were not due to school-related stress, these incidents brought about a genuine examination of students’ emotional needs and academic limitations. Richards insists, “A lot of these kids are being held hostage to the culture,” and thus are paying a heavy price for too much achieving and performing. “One of our big goals is to try to help students become more resilient… so that they don’t fall apart if they get a B-minus.” (Rimer, 2007, p. A16)

The S.O.S. agenda includes: making it a requirement for students to participate in some form of relaxation training during school hours; bringing in experts to train students
in relaxation techniques; forming teacher-student Stress Reduction Committees to assess students’ stress levels and implement suitable relaxation intervention programs; requiring teachers to give students homework breaks on designated weekends and holidays; asking parents, teachers and students to re-examine their beliefs on work, achievement, and academic competitiveness; and launching initiatives starting in elementary school to help students develop better emotional and social skills (Rimer, 2007).

Students need effective and creative tools to reach their highest potential and to be agents of positive change in a world replete with violence, cynicism and negativity. Relaxation training holds much promise as a means to improve behavioral and academic outcomes, and to make available to students a new model for self-understanding.

Anxiety and Academic Achievement

Perls describes anxiety as “…the gap between the now and later. Whenever you leave the sure basis of the now and become preoccupied with the future, you experience anxiety” (as cited in Serok, 1991, p. 2).

Anxiety levels have been tied to changes in IQ scores. Sarason and Hill (as cited in Proeger & Myrick, 1980) studied the relationship between anxiety and IQ among 670 elementary students over five years, and found that increases in anxiety were associated with lower IQ scores. They suggest that high-anxious children lack the skills “that make for the productive acquisition and utilization of knowledge.” (p. 12)

Test anxiety researchers conclude that 15 to 35% of students are identified as test anxious and that they often have poor study habits and test-taking skills. These students
are believed to score about 12 percentile points below their low-anxious peers. With the increased focus on high-stakes, standardized testing in recent years, many educators are seeing a higher number of test-anxious students (Miller et al., 2006).

For some high-anxious students, study skills training alone may not be an effective way to alleviate test anxiety or improve academic performance. In their research, Dendato and Diener (1986) used study skills training plus systematic desensitization and found success in reducing test anxiety. They claim that a lack of preparedness coupled with an emotional history of past failures can trigger students’ test-taking debilitation. This habituated psychological dynamic needs to be treated with a multi-modal therapeutic approach, including some form of relaxation training. (Benson et al., 2000; Kennedy & Doepka, 1999; Kiselica & Baker, 1992; Kraag et al., 2006; Rasid & Parrish, 1998).

Other high-anxious children are academically prepared, but their test performance is hindered by stress that results from evaluative pressure. Under such circumstances, the human brain can not efficiently recall information or problem-solve. Fear becomes a compromiser of ability (Jensen, 1998; Sprenger, 1999).

Compared to their low-anxious peers, high-anxious students score lower on national norms, tend to be behind in reading and mathematics performance, are twice as likely not to be promoted and receive much lower grades. As these students grow older, problems with test-taking often become more intense and consistent (Hill & Wigfield, 1984).
In a study evaluating 36 test-anxious fifth grade students, a relaxation training intervention which included stretch/tense, deep breathing and positive suggestion phrases was administered five separate times for 31 minutes each over the course of half the school year. The test scores calculated from the 2005 Tennessee Comprehensive Assessment Program (TCAP) Achievement Test showed that those who received the relaxation training scored significantly higher (seven percentile points) than a control group who did not receive the intervention (Miller et al., 2006).

Ross and Driscoll (2006) developed a multimodal framework for treating test anxiety, which utilizes study skills, memorization and test-taking strategies; behavioral interventions such as systematic desensitization; cognitive interventions which reduce negative and/or irrational thoughts; and lifestyle problem-solving skills related to general stress reduction, diet and exercise.

To alleviate anxiety and improve self-concept, traditional cognitive and behavioral interventions have been utilized for decades with mixed results (Cullen-Powell, 2005). In response to these uneven research outcomes, experts have begun to take a cue from practitioners of Eastern mantra meditation, yogic exercises and other relaxation modalities. In turn, researchers are investigating new ways of self-healing and self-understanding that seem to transcend the parameters of conventional methods. These ancient yet vital and physiologically enhancing relaxation techniques, in combination with traditional methods or alone, hold great promise in helping students from every walk of life improve their social, emotional, and academic outcomes.
Why Examine Test Anxiety and Self-Esteem Relative to Academic Performance?

The dependent variable of test anxiety was chosen for this study because the two inherent dimensions of test anxiety, worry and emotionality, can obstruct a student’s ability to process information, effecting academic progress (Deffenbacher & Hazaleus, 1985). The dependent variable of self-esteem was chosen because many adolescents are grappling with issues of social status and self-efficacy. The results of a student’s score on a test can affect the way parents, teachers and peers view that student, thus impacting self-esteem (Rimer, 2007).

Many in the research community consider school-related stress or achievement stress as the “invisible disability” (Rubenzer, 1988). According to some, if left untreated, it can lead to academic failure, health-related problems and substance abuse (Bass et al. 2002; Benson et al. 2000). Many children suffering from serious school stress and test anxiety are noticeably high-anxious, at risk for school failure or are special needs students. Others, who exhibit few visible symptoms, may also benefit from a comprehensive, school-based plan to alleviate feelings of fear associated with evaluative situations.

The Problem: Stress and the Young Adolescent

Regardless of socio-economic status, race, gender or ethnicity, adolescent stress is a major factor in determining how well a child is able to function within academic, social and family settings. Stress is a response that can alter one’s physical and mental health (Benson et al., 2000; Deffenbacher & Hazaleus, 1985; Hill & Wigfield, 1984; Kiselica et
al., 1994; Serok, 1991). Stress can be defined as a physiological response to environmental occurrences which causes measurable changes in physical and emotional states and is especially evident during significant life events (Credit & Garcia, 1999).

Herbert Benson, M.D., a cardiologist and pioneer in the field of mind/body science, is currently the Director Emeritus of the Benson-Henry Institute for Mind Body Medicine in Boston. In his seminal book, *The Relaxation Response* (1975), he exposed hypertension, which is a physical manifestation of stress, as a major health threat in 15 to 33% of the general population, as well as in an increasing number of youth. Johnson (as cited in Kilesica, 1979) states that between 10 and 30% of children and adolescents have experienced school-related stress problematic enough to affect their school performance.

Research has shown that anxiety is strongly related to muscle tension, something that relaxation training comprehensively addresses. Furthermore, researchers have demonstrated that deep muscle relaxation and anxiety are contrary responses (Beaty, 1996; Lopata, 2003). Kratter and Hogan (1982) believe that it is impossible to exhibit the symptoms of hyperactivity while in a relaxed state or a state of attention.

In studying the mind of the young adolescent, one needs to understand the sudden physical, emotional and psycho-sexual changes that inevitably occur at the onset of puberty. According to Horton (1990, p.6), “Puberty is possibly the most influential stressor of the adolescent… puberty causes changes, and change is always stressful.”

Young adolescents’ attitudes toward family and friends change significantly. New and strange peer relationships, combined with a nascent separation from parents, create a new-found, yet untested and fragile independence (Credit & Garcia, 1999).
“totally wired” world, many teenagers are communicating less with family members, as they stay continually connected to their cell phones, iPods, and laptops. Multitasking between several types of electronic and computer technologies, teens can be just as influenced by this media as by face-to-face contact with friends, families and teachers (Goodstein, 2007, pp.20-24).

Adolescents are confronted with ridicule and peer influence, especially as it relates to the use of drugs and alcohol. This is happening at a time when burgeoning intellects, tempting desires, and confusing societal influences congeal to make the task of decision making seem impossible. For the first time in their lives, what others think of them becomes very important to their self-concept. Being accepted within a desired social circle and feeling part of the pack are integral to the development of their personal world view. Fundamental and well-understood rules and strictures, especially as they pertain to socially acceptable sexual mores, now appear antithetical to how adolescents feel and act.

Significance of the Study: A Paradigmatic Shift in Thinking

The study of stress reduction and test anxiety in early adolescence is a vital topic of research. Teenagers are overwhelmed with increased amounts of environmental and social stressors. Teen suicides and homicides no longer are viewed as sensational oddities; and it is not uncommon for adolescents deemed as troubled to react to an unrelentingly violent and alienating world with violence. Students with less severe anxiety, many of whom would be categorized as normal, are nevertheless failing to reach their full potential (Bass et al., 2002).
Government-financed schools are under constant criticism for lack of rigorous academic standards, falling test scores, school disorder and violence. In recent years, educational public policy has been focused on academic measurement related to standardized test scores. With such unremitting forces at play, students are feeling greater pressure to academically perform at their peak, and sometimes beyond what is possible, to satisfy the demands of a seemingly heartless and judgmental public. Teachers are continually scrambling for ways to improve behavioral and academic outcomes; and administrators are increasingly being “shown the door” if academic results do not measure up (Gootman, 2007).

Some have advocated for a paradigm shift in the methods used by schools to train and control students (Benson et al., 2000; Coleman, 1996). The Western approach, based on the rational, thinking mind, needs to acknowledge the Eastern approach of the instinctual, self-healing mind. Cognitive therapies such as Rational/Emotive, Cognitive Behavioral Therapy and Behavioral Modification place a heavy emphasis on the rational, thinking mind within the context of operant conditioning and social skills training and less emphasis on the instinctual mind.

Buddhist tenets state that humans respond to the world in a fundamentally instinctual way. Depending on how we perceive ourselves in relation to reality, we can either be greatly limited in our ability to cope or be propelled to higher levels or realms of consciousness. Furthermore, Buddhists believe that life is suffering, and this suffering is caused by the compulsive and restricted nature of our instincts. Without attempting to
achieve higher realms of consciousness, an individual becomes mired in the lower realms of instinctual habits (Manninen, 2000).

William James (1842-1910), the preeminent American psychologist and philosopher, claimed that angry children, for example, view the world through the instinctual lens of anger. He claimed that their behaviors could be improved by utilizing more conceptually individualized interventions as opposed to the traditional methods of the day. Otherwise, students repress feelings and only act appropriately when a given reward or punishment is involved (Manninen, 2000). James said that “the greatest thing … in all of education is to make the nervous system our ally instead of our enemy” (as cited in Walton, 1980, p.12).

Western educators are being compelled by the current world-wide Zeitgeist to ask their students to behave and live in a manner that exemplifies what is known as full, embodied knowing (King, 2005). Full, embodied knowing is the integration of logic and rational knowledge with intuition and spiritual knowledge.

In the United States, inner searching and personal reflection is rarely thought to be an efficient or useful means of learning. The contemplative American Trappist monk and author, Thomas Merton (1915-1968), felt that silence and attention are ways of experiencing the world that deeply enhance learning. He believed that without silence, there is no attention, and thus, no way to truly experience the world in ways that allow for a deeper understanding of the self (Merton, 2003).
A Scarcity of Relaxation Training Programs in Schools

School counselors and teachers have a great need to find effective and accessible techniques to reduce behavioral problems and increase academic performance. Programs that incorporate relaxation training in schools are rare (Benson et al., 2000; Laselle & Russell, 1993; Rimer, 2007). More resources are needed to help students cope with stress before it becomes a debilitating factor (Gregor, 2005).

Credit and Garcia (1999) emphasize the critical importance of a well-organized school support system as a major factor in reducing stress among adolescents. In their model, teachers would be trained to help students understand the importance of eating well, exercising, getting enough sleep and utilizing relaxation techniques.

A study that surveyed 80 secondary school counselors from the Pacific Northwest found that group meditation and other relaxation training techniques were not widely used (Laselle & Russell, 1993). In spite of the fact that relaxation training is a scientifically well-documented means of reducing teenage anxiety, only 40% of the counselors felt these techniques were effective forms of treating adolescent behavior problems. About 50% were not interested in learning meditation or relaxation training techniques. (Benson et al., 2000; Collins, 1999; Deffenbacher et al., 1996; Kiselica et al., 1994).

Purpose of the Study

The purpose of this study was to examine the effects of cue-controlled relaxation, progressive muscle relaxation and positive suggestion phrases on test anxiety and self-esteem among eighth grade students in one highly competitive private preparatory school
in a city in the Mid-South. A quasi-experimental pretest-posttest control group design was utilized to determine if a reduction in test anxiety and an increase in self-esteem could be detected, and the extent to which test anxiety and self-esteem could predict standardized test scores.

Research involving relaxation training and young adolescents is limited. More research is needed to understand how best to confront adolescent stress and anxiety. Relaxation training done with college students and adults suggests that this modality of stress management may be effective in reducing anxiety and increasing self-esteem among young adolescents (Ergene, 2003; Gregor, 2005).

With the aid of relaxation training programs, educators, counselors and school administrators can help young adolescents cope more effectively with the physical and emotional changes associated with the onset of puberty as it relates to behavioral and achievement outcomes in school.

For decades, schools have attempted to confront the problem of upper middle school students’ stress with traditional behavioral and cognitive interventions such as Rational/Emotive, Cognitive Behavioral Therapy and Behavioral Modification. Since the 1960’s, research in the fields of psychology, medicine and education has demonstrated that relaxation training alone and in combination with other cognitive interventions can be more effective than traditional behavioral treatments to reduce state and trait anxiety and to improve self-concept in the general student population (Benson, 1975; Benson et al., 2000; Greenspan, 1994; Murray, 1982).
It has been demonstrated that relaxation training programs in middle schools are the rare exception, not the norm. Many in the research community deem relaxation training a worthwhile and practical means of helping students improve their academic, social and behavioral outcomes. This study adds to a growing body of knowledge that helps beleaguered educators improve the lives of young adolescents.

Limitations: External Validity

This quasi-experimental study was limited to a non-randomized, volunteer group of private school eighth grade students. Therefore, the results may not be generalizable to other student populations. All participants were from middle- and high-income families.

All students in the experimental group experienced the relaxation training sessions in a laboratory-like setting (specifically allocated classroom) outside the timeframe of regularly scheduled classes. Thus, the external validity of this experiment may have been decreased.

High- and low-achieving adolescents are at risk for developing psychological and emotional ailments related to school anxiety and low self-esteem. Therefore, any research limitations may be justified by the necessity of teaching young adolescents self-care through the classroom application of research-worthy relaxation modalities. The interpretation of the results of this study, though limited, may contribute to a further understanding of how to best approach the difficult issues that affect adolescents.

Limitations: Internal Validity

Since all participants were volunteers, as is the case in much educational research, there was the likelihood of a loss of participants through attrition. Those students who
decided to drop out of the study may have differed in substantive ways from the rest of the research pool, thus exaggerating the effectiveness of the experimental treatment.

The issues of differential selection and experimental-group/control-group interaction may have acted as extraneous variables in this study. The students were chosen on a volunteer basis at one school site, and therefore, social interaction between control and experimental group participants within the timeframe of this study was possible.

Since the experimental and control groups were administered a posttest approximately four weeks after the pretest, this may have enabled some of the participants to become test-wise, impacting the scores on the testing instruments.

Due to the lack of availability of a subset of high-anxious students within the chosen testing site, students from low- and moderate-anxious categories were examined as well.

Results from self-report instruments given to high-achieving students tend to be skewed higher; even the low scores are often near or above the mean. In spite of this fact, researchers have consistently shown that test anxiety and low self-esteem are present at all levels of academic performance. High achievers often contend with a unique set of variables, such as self-imposed and parental pressures, that can adversely affect school outcomes.

According to Morris Rosenberg (1910-1992), a world authority on self-esteem and the creator of the self-esteem scale used in this study, there are no set cut-offs for high and low self-esteem scorers. As a consequence, population norms may vary based
on the particular population sample being studied (Rosenberg, 2007). According to Isaac Freidman (b. 1939), the creator of the test anxiety scale used in this study, test anxiety is a pervasive problem that needs to be addressed among diverse school populations (Friedman & Bendas-Jacob, 1997).

Research Questions

1. Do the relaxation training techniques of cue-controlled relaxation, progressive muscle relaxation and positive suggestion phrases reduce test anxiety in eighth grade students as measured by the Friedben Test Anxiety Scale for Adolescents (FTA)?

2. Do the relaxation training techniques of cue-controlled relaxation, progressive muscle relaxation and positive suggestion phrases increase self-esteem in eighth grade students as measured by the Rosenberg Self-Esteem Scale (SES)?

3. Are students’ levels of self-esteem and test anxiety statistically significant predictors of performance on standardized tests?

4. Is relaxation training a practical and effective intervention that helps students reduce school-related stress?

Definition of Terms

*Achievement stress.* A learned emotional reaction, prompted by specific school activities, which results in the impairment of school performance. Because it very often goes undetected, some researchers deem achievement stress the “invisible disability” (Rubenzer, 1988).
Anxiety. An emotional and physical condition whereby an individual leaves the present moment, the “now,” and worries about the future. It is characterized by breathing difficulty and a sense of catastrophe about events which could happen (Serok, 1991).

Applied relaxation. Shortened relaxation techniques that enable an individual to alleviate stressful situations as they occur. These methods, such as tense-release techniques and cue-controlled relaxation, equip an individual to master stress and anxiety in everyday situations (Payne, 2005).

Assertiveness training. A set of learned behaviors where people are acting in their best interest without exerting undue anxiety and without denying the rights of others. Aspects include exercising personal rights, setting priorities, countering manipulative behaviors in others and expressing views. (Payne, 2005).

Autogenic training. A self-hypnosis relaxation modality developed in the 1930’s by German psychiatrist Johannes Schultz. It entails the self-regulation of one’s mental well-being with the use of phrases or verbal commands that help shift the participant away from a stressed state. Schultz devised six standard exercises which incorporate verbal cues and progressive muscle relaxation techniques that instruct the body to relax and reduce stress (Payne, 2005).

Biofeedback. A process of providing an organism with data about its biological functions, such as muscle tension, blood pressure and heart rate. This information is made available with the help of an instrument that converts the inner workings of the body into visual or auditory signals, thus allowing an individual the ability to modify their organic functioning (Payne, 2005).
Cognitive behavioral theory. The promotion of behavioral change through the reordering of conscious thoughts, in particular the use of self-talk to create a positive internal dialogue (Payne, 2005).

Cognitive restructuring. The altering of self-deprecating thoughts and beliefs by reordering an individual’s perceptions, values and attitudes. This is done by systematically questioning thinking patterns and confronting irrational thoughts (Payne, 2005).

Cue-controlled relaxation. A variant of applied relaxation that focuses on gentle breathing and the silent recitation of a cue word such as “relax” on each exhalation in order to induce a deep state of calmness. This form of relaxation asks the individual to become an active agent rather than a passive participant in the process of self-control (Dendato & Diener, 1986).

Guided imagery. A method of communication that takes participants on a mental journey in order to open up the imagination and relax the senses. It is believed to be a means of connecting the body and mind on an intuitive, emotional plane (Cabot, 1997; Payne, 2005).

Mantra meditation. A form of meditation where attention is focused on a specific word or phrase on every exhalation. Mantra meditation is similar to Maharishi Mahesh Yogi’s Transcendental Meditation (TM) and other forms of meditation which incorporate repetitive chants. Benson determined that using a simple word or phrase in the practitioner’s spoken language is as effective as using Sanskrit or other foreign language mantras (Benson, 1975; Laselle & Russell, 1993).
Positive suggestion phrases/coping statements. An aspect of autogenic training that enables participants to self-command a desired emotional and/or physical state of being. Common examples include, “I feel at peace,” or “My heartbeat is calm and regular,” or “Worry is a thing of the past.” (Stanley et al. 2004).

Progressive muscle relaxation. A systematized, step-by-step procedure whereby an individual is asked to tense and then relax major muscle groups, usually starting with the head and jaw muscles and gradually working down to the leg and feet muscles (Kiselica & Baker, 1992).

Qigong. A Chinese practice, taught for health maintenance and therapeutic purposes, that utilizes various breathing patterns with physical postures and motions of the body (e.g. tai chi). Practitioners of qigong believe that the body has an energy field known as qi (pronounced “chee”) that fundamentally regulates and maintains the natural respiration of the body in relation to the energies of the universe (Isaacs, 2007).

Relaxation response. A mental and physiological response, brought on by the elicitation of specific relaxation variables, that is diametrically different from the fight-or-flight or stress response. It is characterized by bodily changes such as decreased heart rate and lower metabolism, whereby one experiences a state of body-mind balance (Benson, 1975; Benson et al., 2000).

Relaxation training. Any number of structured, step-by-step processes by which an individual is brought into a restful state of calmness and peace, that elicit certain physiological changes in blood pressure, metabolic rate and oxygen consumption. Relaxation Training is most often identified with such relaxation techniques as
progressive muscle relaxation, mantra meditation, cue-controlled relaxation, guided imagery, systematic desensitization, autogenic training, verbal suggestion phrases and deep breathing (Benson, 1975).

*School anxiety.* A strong reaction to various circumstances in school that seriously affects a student’s ability to achieve academic success (Ross, 1990).

*Self-esteem.* A positive or negative orientation toward oneself; a general assessment of one’s worth or value (Rosenberg, 2007).

*Social skills training.* Social skills training (SST) is a form of behavior therapy used by educators and counselors to help people improve their social interactions by enhancing their abilities to perceive and interpret social situations, generate appropriate social responses and interact with others (Smith, 1998).

*State anxiety.* A temporary reaction to an event perceived as threatening (Payne, 2005).

*Stress.* A physiological and emotional state of being that is characterized by a perception of potential harm or danger. It is often associated with specific physical reactions such as high blood pressure, shallow breathing and an increase in heart rate. Heightened and prolonged episodes of stress can have serious affects on an individual’s health and well-being, and in some cases cause strokes, heart attacks and other debilitating diseases (Benson, 1975; Credit & Garcia, 1999; Rubenzer, 1988).

*Systematic desensitization.* A behavioral therapy technique that uses relaxation exercises in conjunction with a graduated series of tasks over time to desensitize an individual to a specific phobia or anxiety (Payne, 2005).
Test anxiety. A feeling of stress and tension that interferes with one’s ability to perform well during a test situation. It is usually caused by such negative factors as peer pressure, parental expectations, hyper-competitive, high-stakes academic environments, negative or uncaring attitudes from teachers and a lack of preparedness on the part of the student. It can result in elevated physiological arousal, distractibility, emotionality, worry and task-generated interference (Deffenbacher & Hazaleus, 1985; Serok, 1991).

Trait anxiety. A tendency to view all neutral events as potentially stressful (Payne, 2005).
CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

“Let there be a place somewhere in which you can breathe naturally, quietly, and not have to take your breath in continuous short gasps. A place where your mind can be idle, and forget its concerns, descend into silence…” (Merton, 1961, pp. 84-85).

What the Buddhists call “mindfulness,” and what those in the West might refer to as clarity of thought or self-awareness, is something that intrigues many people. How do educators and school leaders help young people so that they can more deeply comprehend who they are in relationship to the world?

Teachers have been likened to wilderness guides. They lead their cohorts through unknown terrain with the intention of exploring first hand the excitement, danger and beauty of real or imagined worlds. Most students, if given the proper tools and preparation, are willing to make the necessary sacrifices to strengthen their minds and attenuate their emotions in order to be the best they can be. But they can not do it alone.

In Chapter II, numerous relaxation techniques are explored that can enable students to reach their highest potential. These transformational duties are often the unwritten responsibility of teachers. On paper, teachers’ jobs appear to be perfunctory: teach, monitor, assess, judge, grade and control. In reality, their tasks go far beyond the
mundane. Caring teachers clearly delineate what is required of them by their employers and what is expected of them by parents and students. They understand why they are standing in front of a classroom: not simply to teach subject matter, but to guide, inspire, lead and offer intellectual and emotional sustenance beyond the bindings of books and the rules and regulations of schools. They are quite simply our society’s miracle-workers, saints, heroes and heroines.

The following literature review looks at some heretofore untapped ways that teachers can assist students in improving their minds, tempering their emotions and reshaping their attitudes towards school, their friends, families and themselves. Research in the field of relaxation training is often innovative and ground-breaking. Though not a very recent phenomenon, relaxation training is still a little-used resource waiting for educators to discover. It enables teachers and students to step out of their traditional relationship of dos and don’ts and begin discovering a new level of self-awareness and inner peace.

Yongey Mingyur Rinpoche, the world-renowned Buddhist teacher who has participated in far-reaching brain studies with neuroscientists at the University of Wisconsin, Madison, states that,

Fortunately, the more familiar we become with examining our minds, the closer we come to finding a solution to whatever problem we might be facing, and the more easily we recognize that whatever we experience – attachment, aversion, stress, anxiety, fear, or longing – is simply a fabrication of our own minds. (Rinpoche, 2007, p. 124)
In reference to people who have invested a “sincere effort in exploring their inner wealth,” he writes,

Their success in the world has nothing to do with personal ambition or a craving for attention…. It stems, rather, from a spacious and relaxed state of well-being, which allows them to … maintain a basic sense of happiness regardless of their personal circumstances. …If you truly want to discover a lasting sense of peace and contentment, you need to learn to rest your mind. Only by resting the mind can its innate qualities be revealed. (Rinpoche, 2007, pp. 124-125)

Cognitive neuroscientists, Mark Jung-Beeman of Northwestern University and John Kounios of Drexel University, have worked together to solve the mystery of human insight, or what is commonly known as the “Aha!” moment. With the aid of an fMRI machine and electroencephalography (EEG) they were able to isolate brain activity that characterizes the insight process (Lehrer, 2008). Their research subjects were given specialized word puzzles to initiate the flash of brain activity associated with insight. At the very moment an individual communicated an “Aha!” answer to the puzzle, the EEG recorded a steady rhythm of alpha waves. Alpha waves are linked to a state of relaxation, which Jung-Beeman and Kounios believe makes the brain more receptive to new and unusual ideas. These neuroscientists claim that for insight to happen, one must be able to concentrate on relaxing the mind and letting it wander. A clenched, hyper-focused state of mind hinders the sort of creative thinking that is necessary for sudden, profound breakthroughs (Lehrer, 2008).
Kounios states, “If you want to encourage insights, then you’ve got to also encourage people to relax.” Concerning an expert Zen meditator who took part in one of their insight studies, and who had the paradoxical skill to focus on not being focused, Kounios explains, “He was used to being very focused, but you can’t solve these problems if you’re too focused. He had the cognitive control to let go. He became an insight machine.” (Lehrer, 2008).

Test Anxiety

Over the past several decades, researchers have begun to understand the educational problem known as test anxiety (Austin et al., 1995; Bass et al., 2002; Benson et al., 2000; Driscoll, 2006; Sharp et al., 2000; Silverman & Hanna, 1987; Stanton, 1992).

Dusek (as cited in Hill & Wigfield, 1984) defines test anxiety as, “…an unpleasant feeling or emotional state that has physiological and behavioral concomitants, and that is experienced in formal testing or other evaluative situations.” (p. 106)

Ross (1990) defines school anxiety as,

. . . a strong physical and psychological reaction to specific situations in school that seriously impairs the ability of the student to perform. . . . it is the student who gets so nervous that he or she can’t do well on a test, speech, class discussion, or other performance-related activity. (p. 2)

Test anxiety affects millions of intelligent and hard-working students. The research community considers test anxiety to be a specific and unique fear construct that can result in elevated physiological arousal, distractibility, emotionality, worry and task-generated interference (Deffenbacher & Hazaleus, 1985; Kennedy & Doepka, 1999).
Some students, who perform well under pressure in various circumstances, may still demonstrate serious difficulties while taking tests (Bass, 2002; Rubenzer, 1988; Serok, 1991).

Test anxiety is especially prevalent among middle and high school students, when the emphasis is on academic competitiveness and standardized tests. Some researchers have measured an increase of anxiety in children as they progress through the elementary years and on to middle school (Bass, 2002; Credit & Garcia, 1999; Dacey et al., 1996; Deffenbacher et al., 1996).

Certain stress factors that are associated with young adolescence, such as school competition, peer influence, parental pressure, aggression and self-deprecating thoughts, tend to increase students’ anxiety levels. These negative factors can set off a debilitating anxiety dynamic that leads to low self-esteem, stress-related physical ailments and school failure (Austin, 1995; Bass et al., 2002; Hill & Wigfield, 1984; Matthews, 1989).

Silverman & Hanna (1987) suggest that individuals develop test anxiety through repeated failures, negative messages from teachers, peers or parents and low self-worth. They further explain that if specific steps are not taken to halt this failure cycle, a student can expect continued educational and career disappointment.

Collins (1999) defines the sources of test anxiety as the following:

1. A learned behavior resulting from the expectations of parents, teachers, and/or peers;

2. The idea that grades and test scores reflect personal worth;

3. The fear of disappointing parents, family or friends;
4. The feeling of a lack of control and/or an inability to change one’s present circumstances.

Edmund Jacobson, in his influential book, *Progressive Relaxation* (1938), first described the relaxation training technique that he called progressive muscle training, but that is known today as progressive muscle relaxation (PMR). Since that time, researchers have utilized PMR and other relaxation training modalities, such as mantra meditation, guided imagery, autogenic training, biofeedback, deep breathing, cue-controlled relaxation and systematic desensitization, for a variety of behaviors and a wide range of student populations (Benson et al., 1994; Dunphy et al., 2000; Gothelf et al., 2003; Lopata, 2003). These relaxation training techniques have proven to be useful in the lessening of anxiety among students from various racial, ethnic and socio-economic backgrounds.

Self-Esteem

According to Way and Hughes (2007), professors of psychology at New York University, middle schools in America are failing. In rich and poor school districts alike, test scores begin to fall from fifth to sixth grade and continue their downward trajectory through the eighth grade. As students’ academic progress slows, their confidence and self-esteem decrease (Bass et al., 2002).

Though school-related stress among college students has been well documented, stress among young adolescents is just beginning to be understood and dealt with. In an attempt to address plummeting academic performance, poor self-esteem and decreased
student involvement in school, New York State Commissioner of Education Richard P. Mills made it one of his top priorities to focus on eighth graders. (Rosenberg, 2003).

Many upper middle school students tend towards apathy and are distracted and unfocussed. As Lauren Allan, principal of Irvington Middle School in Westchester County, New York states (Rosenberg, 2003),

For many of these kids, school is the last thing on their mind. It’s all about being accepted by their peers, and wanting to be independent. In elementary school, they’re still attached to their parents and want to please them. In high school, it’s about getting into college. There are very low stakes in middle school. (p. 1)

Low self-esteem may also be a predictor for higher sexual activity among young adolescent girls. Researchers from the Indiana School of Medicine surveyed 188 seventh graders to determine whether young teenagers were sexually active. They discovered that though boys with high self-esteem tended to claim they were sexually active, girls with high self-esteem were three times more likely to report being virgins as girls with low self-esteem (Nagourney, 2002).

Reuters (as cited in Goodstein, 2007, p. 19) reported on a government study that revealed: “Nearly one in 10 American teenagers, or 2.2 million, experienced major depression [in 2004].” Some researchers have found that a combination of interventions, including relaxation training as well as cognitive-behavioral and self-talk therapies, can significantly reduce levels of depression and increase self-esteem in students. However, many educators and school counselors have yet to be exposed to or utilize relaxation
modalities in order to address these serious problems among the upper middle school population (Beaty, 1996; Benson, et al., 2000; Benson, et al., 1994).

The Contemporary Upper Middle School Environment

Many educational experts assert that violence among youth has become more prevalent and intense in recent times and that it has a particularly dramatic affect within the emotionally charged middle school environment (Cullen-Powell et al., 2005; Dacey et al., 1996; Deffenbacher et al., 1996; Edelman, 1994; Lopata, 2003). At this educational juncture, the young adolescent is grappling with powerful and reactive emotions that sometimes elicit the primitive fight-or-flight response. Furthermore, with the diminishing authority of families, churches and youth organizations, it is often left to school teachers and administrators to act as influential agents of socialization.

Edelman (1994) lists five reasons why today’s youth are more prone to resort to violence:

1. Dysfunctional families without the knowledge or skills to properly rear children;

2. The glorification of brutality and violence in the media, and the playing of violent video games for several hours per day by some children;

3. Substance abuse among adolescents which often leads to erratic, unpredictable, and sometimes violent behaviors;

4. A lack of well-trained teacher specialists who are able to successfully function within the high intensity middle school environment; and
5. The demoralizing economic conditions of many middle schools and their surrounding communities due to budgetary cutbacks and governmental intransigence.

In recent years, upper middle schools are faced with an increasing array of social and academic dysfunction. As recently reported in a series of four substantive articles in *The New York Times*, United States upper middle school teachers and administrators are in a crisis mode as they contend with well-documented decreases in learning, dramatic spikes in violence and a remarkably high teacher turnover rate. Just as pertinent is the degree to which these teachers lack expertise in the required academic subjects and in coping with the volatility of young adolescents. One teacher who was interviewed for *The New York Times* series remarked, “There was [sic] a lot more anger and outbursts. . . . Twice as much time was spent on putting out fires . . . getting the class quiet . . . defusing anger in the kids.” (Gootman, 2007, p. A14)

Across the United States, middle school teachers are being trained as elementary generalists or high school subject specialists with little understanding of the young adolescent mind. Nationwide assessments of test scores between 1999 and 2004 showed that, unlike elementary school students, middle school students’ scores in math and reading had stagnated (Gootman, 2007).

Kraag et al. (2006) examined the effects of 19 school stress management and coping skills programs for children and adolescents on the outcome variables of stress, behavior, coping and self-efficacy. Their meta-analysis determined that children are most affected by stressful experiences, especially those events over which they have no control. One interview study of 342 children and adolescents (Lohaus as cited in Kraag et
al., 2006) reported that 246 children (72%) described stressful situations related to school, and 123 (36%) reported situations related to social problems. Of these interviewees, 25% stated they believed that nothing could alleviate their ability to cope with stressful situations. Another study (Sieffge & Krenke as cited in Kraag et al., 2006) determined that children and adolescents with low proficiency at managing stress were more prone to maladaptive coping and emotional/behavioral problems. It was found that relaxation coping strategies are a key factor for long-term psychological and physiological health.

In a three-year study of 1,753 sixth, seventh and eighth graders in an urban Los Angeles middle school, Benson et al. (2000) examined the connection between a relaxation response curriculum and academic achievement. The four dependent variables observed were (a) grade point average, (b) work habits, (c) cooperation, and (d) attendance. The experimental group exposed to the greatest number of relaxation sessions showed significant improvement in all outcome measures as compared with two other experimental groups and a control group. This same experimental group demonstrated higher academic scores over a two-year period. All three experimental groups showed a significant increase in self-esteem and internal locus of control. Students reported that they were incorporating this study’s self-regulatory skills and strategies for self-care in their everyday lives. Teachers reported that the relaxation curriculum fostered better communication among students and between authority figures and students. This enhanced communicative environment was associated with students’ awareness of caring
on the part of the teachers and administrators, which is linked to greater academic effort among students (Wentzel, 1997).

Cullen-Powell et al. (2005) implemented an exploratory study, the Self-Discovery Program, for school children aged 11-13 with emotional and behavioral difficulties in mainstream settings. The aim was to offer students the opportunity to learn a wide range of cognitive-behavioral and relaxation skills to improve self-efficacy and emotional well-being, promote self-regulatory behavior, and to foster moral and spiritual growth and development. Their program provided the students with successful self-care experiences and the capability to transfer these skills to everyday life. During a post treatment period, teachers observed an individual student using relaxation techniques to calm nerves before an appointment with the headmaster and another student deep breathing to head off a confrontation with a fellow student.

A central tenet of this research was to engender the students with a sense of self-worth and self-empowerment. Cullen-Powell et al. (2005) state,

[S]elf-efficacy is a central, mediating mechanism . . . whereby perceptions of capabilities to carry out the courses of action necessary to meet situational demands influence the choices of actions pursued, level of motivation, thought patterns and emotional reactions experienced. . . . Children who perceive themselves to be lacking in social efficacy tend to be socially withdrawn, feel their peers do not accept them, and have a low sense of self-worth. (p. 192)
Importance of Examining High-Achieving Students

While research has investigated the effects of relaxation training with at-risk, special needs, and high-anxious students, researchers have noted that students of all ages, backgrounds and academic levels can benefit from understanding the physiological mechanisms and cognitive responses which play a role in calming the body and mind for better health and enhanced academic performance (Bass et al. 2002; Benson, 1975; Benson et al. 2000; Walton, 1980). Sarason (as cited in Proeger & Myrick, 1980), a pre-eminent test anxiety researcher, found no interaction between test anxiety and IQ. While studying high and average IQ groups, he determined that test anxiety occurs among high-achieving as well as average-achieving learners.

High-achieving students are more likely to prepare for high-pressure careers that can place them within the glare of the general public. These students often aim to enter such challenging professions as law, medicine, business and finance, the arts and the scientific fields. The demands that society and families place on this special, talented group of students can be high. If not well-equipped to deal with the stress that such professions require, these students may succumb to an addiction-based way of life and/or inappropriate professional and social behaviors. Due to the power and influence of these chosen professions, such dysfunctional behaviors can have a devastating impact on families and society.

Rubenzer (1988) states,

Since the stressed children of today will be the Type A adults of the 21st century, treating stress in the schools now may well relax our dangerously stressed society
in the future…. stress-related mental disorders are 200 to 400% more prevalent than any other emotional problem requiring clinical treatment. (p. 1)

Credit and Garcia (1999) studied 1,245 affluent, suburban middle and high school students and measured high, medium and low levels of stress with a student stress level inventory which consisted of three items on a 6-point Likert format: Feel Stress in General, Feel Stress at School, and Feel Stress at Home. They discovered that 44% scored in the high stress range, 48% in the moderate range, and 8% in the low range.

Muto and Wilk (as cited in Credit & Garcia, 1999) state,

Research shows that stress has become one of the most significant health issues of our culture. Young people are not immune and often voice concern about an increasing build-up of their own daily stresses. Although many of these stresses are typical of adolescents in any generation, many are indicative of rapidly changing lifestyles. (p. 4-5)

For several decades, relaxation training research has shown that adults from various backgrounds and socio-economic statuses, who apply relaxation techniques as part of a regular routine, can reduce anxieties and phobias and improve physical health outcomes (Benson, 1978; Engel & Anderson, 2000; Gothelf et al., 2003; Newsome et al., 2006). People have become more aware of alternative health options and are taking advantage of heretofore underutilized approaches to improve their health and well-being. In turn, many medical doctors, psychologists, social workers and educators have begun to understand the necessity of finding meaningful and effective ways outside the traditional

Adolescent students are especially prone to stress, anxiety and low self-esteem, yet they often do not have the ability to appropriately help themselves. In spite of the evidence-based research demonstrating the need for relaxation training, few schools set aside time for training students how to decrease stress and anxiety and increase self-concept (Kraag et al., 2006; Laselle & Russell, 1993; Ross, 1990). In many cases, schools are the last refuge for a troubled child. If students can not find the help they need at school, they may turn to drugs, alcohol and/or deviant behaviors.

Some parents attribute inappropriate conduct or unstable emotions to the growing pains of young adolescence. However, if students are not properly trained to alleviate the deleterious effects of stress, their academic, social and psychological outcomes can be negatively impacted for years to come. At the very least, some high-achieving students with less severe anxiety and stress may be failing to reach their full potential. For their benefit and the benefit of society, it behooves educators, health care professionals and school counselors to incorporate some form of relaxation training as part of an overall school stress-reduction program.

Alternative Interventions

In the United States, the concepts of healing and wellness have evolved over the past several decades to encompass a new array of interventions heretofore underutilized or unrecognized by mainstream healthcare and human service providers, as well as those in the field of education. More than ever before, Americans are seeking out alternative
forms of medicine and healing. The convergence of personal wellness, alternative healing modalities and spirituality have created a new cultural paradigm that offers people the opportunity to search for health solutions beyond the traditional applications of allopathic medicine and one-on-one talk therapy (King, 2005; Manninen, 2000).

Charles Taylor, the world-renowned Canadian philosopher, was awarded the $1.5 million Templeton Prize in 2007 for the advancement and research of spiritual matters. Taylor contends that spirituality is an integral part of the study of philosophy and the social sciences, and that separating spiritual issues from the humanities and the social sciences can lead to faulty conclusions (Zezima, 2007). He states, “The deafness of many philosophers, social scientists and historians to the spiritual dimension can be remarkable. . . . [It] affects the culture of the media and educated public opinion in general” (p. A16).

It was reported in the New England Journal of Medicine (1993) that Americans made 425 million visits to unconventional providers of therapy, compared to 388 million visits to primary care physicians (Eisenberg as cited in Dunphy et al., 2000). Medical doctors increasingly realize the health benefits of non-invasive, holistic practices that may play a central role in the healing process such as exercise, yoga, proper nutrition, stress-reduction techniques and meditation. In a 1996 survey conducted by the American Academy of Family Physicians, 99% of doctors said they believed a religious viewpoint could heal, and 75% thought prayer could heal (Barilotti as cited in Dunphy et al., 2000).

Underpinning our society’s growing alternative health consciousness is the concept of self-care. People are beginning to recognize the vital importance of ensuring that their behaviors promote good health and well-being. In turn, some educators and
school counselors are becoming more aware of how stress reduction techniques can help students develop sound habits of self-care (Cullen-Powell et al., 2005; Newsome et al., 2006; Payne, 2005; Rimer, 2007; Stanley et al., 2004).

The movement away from invasive, top-down interventions and towards self-initiated and holistic practices has been legitimized by much research that demonstrates the body’s capacity to change and heal (Benson et al., 1994; Benson et al., 2000; Greenspan, 1994; Murray, 1982; Walton, 1980). With the proper understanding of how the nervous system responds to various internal and external stimuli, one can intentionally create the proper psychosomatic self-regulatory state in order to affect a desired change. This human capacity to voluntarily direct physical and mental changes with one’s focus of attention is defined by Walton (1980) as positive volition. Walton states that individuals can make their unconscious bodily responses conscious by employing visualization while in a state of relaxation. These voluntary physiological alterations include heart rate, blood flow and pressure, brain waves, gastro-intestinal functions, muscle tension and body temperature.

A mindfulness-based stress reduction (MBSR) college course, devised by University of Massachusetts Director of Behavioral Medicine Dr. Jon Kabat-Zinn, was offered to students in the counseling program at Montana State University. Participants were taught self-care and mindfulness practices such as yoga, qigong, conscious relaxation exercises and meditation. Using quantitative and qualitative data, Newsome et al. (2006) found that the participating students developed skills that would positively impact their future counseling practices. With these skills, they could better manage
professional and personal stress. The findings determined that the students’ views of counseling changed in three significant ways:

1. An acceptance of the use of silence as a method to facilitate moments of silence or discomfort during therapy sessions, and to more effectively be present without the urge to fix or alter the client’s feelings;

2. An enhanced ability to act as a model for their clients, due to being less anxious and more mindful and centered themselves; and

3. An increased understanding of the psychological as well as the spiritual dimensions of healing, and the possible benefits of investigating this with their clients.

Students also reported that the course had a significant impact on their personal and professional lives, including increases in:

1. Awareness/consciousness and the ability to focus;

2. Immune functioning and resistance to illness, as well as a renewed sensitivity to their bodies;

3. The capacity to let go of negative emotions, thus improving their quality of life;

4. Clarity of thought and capacity for reflection, as well as a concomitant increase in the sense of purpose and direction; and

5. A greater degree of “groundedness” and trust in oneself.

Kabat-Zinn’s guiding principle is “mindfulness,” a Buddhist concept based on promoting personal and spiritual awareness. He observed:

[The purpose of mindfulness is] helping people live each moment of their lives – even the painful ones – as fully as possible. . . . [A]cknowledging
present-moment reality as it actually is, whether it is pleasant or unpleasant, is the first step towards transforming that reality and your relationship to it. (as cited in Newsome, 2006, p. 1882)

Gregor (2005) studied the concept of self-care in conjunction with relaxation techniques and math test anxiety and found that school-based programs using multi-dimensional interventions could improve examination performance. She combined relaxation techniques and cognitive behavioral approaches among 105 secondary students to enable them to better handle stress while in the examination setting. Students were trained in:

1. Motoric relaxation: how to become aware of breathing and the body in order to recognize physical tension and anxiety when it occurs;
2. Visceral relaxation: breathing and stretching exercises in a chair;
3. Cue-controlled relaxation: repeating calming words at critical times;
4. Guided imagery: involving all the senses to attain a state of relaxation; and
5. Calming music and scents: to settle and prepare the mind for the task at hand.

Gregor (2005) states that math anxiety in particular can have a long-term, negative effect on students’ educational achievement, thereby limiting their career choices later in life. She concludes by recommending that educators seriously consider implementing self-care oriented relaxation programs in their schools in larger group settings in order to reduce test anxiety.

Some single-modal relaxation training studies have also shown positive results (Kratter & Hogan, 1982; Lopata, 2003; Mullins & Christian, 2001; Sharp et al., 2000).
Sharp et al. (2000) demonstrated that an undergraduate experimental group, receiving 5-7 minutes of progressive muscle relaxation before every math class for one semester, could significantly lower math anxiety and improve math problem-solving performance. Hopko et al. (1998, as cited in Sharp, 2000) define high-anxious mathematics students as having “a deficient inhibition mechanism whereby working memory resources are consumed by task-irrelevant distracters” (p. 343). They stated that relaxation training influences working memory by helping students evade distractions and attend to the task at hand. Creating a classroom atmosphere that was calm and less threatening had powerful implications for the students.

The Relaxation Response as a Potential Remedy

The relaxation response, as defined by Herbert Benson, M.D. (1975) and others (Dacey et al., 1996; Hoffman et al., 1982; Murray, 1982; Sharp et al., 2000), is the physiological opposite of the arousal or stress response. It is a learned phenomenon which can be elicited by focusing on a word, image or prayer while maintaining a certain degree of passivity during the occurrence of any distracting thoughts. With the voluntary inducement of this response, the slowing of heart rate, blood pressure and brain waves have been observed (Kasamatsu & Kirai as cited in Benson et al., 2000).

Benson was first approached by practitioners of Transcendental Meditation (TM) in 1968 at the Harvard Medical School. They asked him if they could be his subjects in an experiment to measure high blood pressure. These followers of Maharishi Mahesh Yogi, an Indian guru and former physicist, were part of a landmark study that demonstrated that, during meditation, the TM volunteers showed a “marked decrease in
the body’s oxygen consumption,” and a “decrease in the rate of metabolism” (Benson, 1975, p. 65).

Benson, using the TM model of mantra meditation in this study, made the stunning discovery that during the first three minutes of meditation, oxygen consumption decreased between 10 and 20 percent. For comparison, oxygen consumption decreases only about eight percent after four to five hours of sleep. His modified form of mantra meditation is surprisingly simple to do and easy to implement in a variety of educational settings. It requires no arduous preparation, difficult physical effort or involvement of philosophical or religious indoctrination (Benson et al., 2000; Benson et al., 1994).

Goleman & Schwartz (1976) define meditation as,

the systematic and continued focusing of the attention on a single target percept – for example, a mantra or sound – or persistently holding a specific attentional set toward all percepts or mental contents as they . . . arise in the field of awareness. (p. 457)

Benson (1975) believes that the relaxation response, utilizing aspects of the mantra meditation techniques of the Maharishi, is an altered state. This response does not occur spontaneously and is not a common, everyday condition. It must be consciously and purposefully brought forth by the individual. Benson reports that the relaxation response is similar to what one might experience while in a meditative state, the latter of which is a phenomenon which has been experienced in Eastern and Western societies throughout recorded history.
Though meditation brings to mind mystical and/or religious ritual, Benson posits that meditative practices, which elicit the physiological changes of the relaxation response, can be easily adapted for use in the classroom (1975). The four basic elements of the elicitation of Benson’s relaxation response are:

1. *A quiet environment* in order to eliminate as many external distractions as possible;

2. *An object to dwell upon* and to return to when distracting thoughts interfere. This can take the form of an image or symbol, or a word/sound repetition (mantra);

3. *A passive attitude* to prevent the judgment of self or others, and to allow thoughts, feelings and imagery to drift in and out of the mind without worry; and

4. *A comfortable position*, sitting with a tall spine on the floor or in a chair. Lying down is not advisable, since it may bring about sleep.

Once the relaxation response has been learned, the student experiences a heightened awareness of self. This higher level of consciousness creates a so-called internal feedback loop, an internalized physiological response to mental stress, physical tension and anxiety.

Walton (1980) claims that, with every change in the physiological state, there is a concomitant change in the mental/emotional state, which then affects the physiological state and so on. This internal feedback loop is initiated when an individual imagines the desired change while in a state of relaxation. This conscious act of will affects positive mental and physical change, and the relaxation response is what it is intended to be: a consciously self-regulating phenomenon. Once students learn and internalize the
relaxation response, they are better able to respond to stress in a physiologically-integrated and healthy manner.

The antithesis of the relaxation response is the stress or fight-or-flight response, which is characterized by an increase in heart rate, blood pressure and shallow, quick breathing. Dacey et al. (1996) state that the fight-or-flight response no longer functions as a viable and accepted reaction for most situations in modern society. They claim that youth involved in serious interpersonal conflicts share one overriding factor: a high level of emotional arousal.

Central to an individual’s ability to control conflict is the ability to self-regulate behavior (Benson, 1975; Gothelf et al., 2003; Payne, 2005). When young people lack the ability to relax, they may turn to drugs and alcohol as an unhealthy alternative. By teaching the skills necessary to systematically self-regulate the nervous system, educators can impart a vital sense of calmness and ease in students. This enables students to solve problems in ways that reflect the heightened self-awareness of their emotional well-being.

Progressive Muscle Relaxation as a Foundation for Relaxation Training Programs

Progressive Muscle Relaxation (PMR) has been an essential means of alleviating muscular tension in people for over 70 years. First introduced in 1938 by Edmund Jacobson in his book *Progressive Relaxation*, it has remained a critical component of relaxation training programs in schools, clinics and hospitals throughout the world (Payne, 2005).
Jacobson’s system of relaxation entails the process of first tensing and then relaxing specific muscle groups, while noting feelings related to both tensed and relaxed states. PMR aims to lessen physiological tension during anxiety-producing situations and to shorten the time needed to attain a state of deep relaxation. Jacobson’s original training sessions were quite time-consuming. Trainees were taken through the tensing and relaxing of 16 muscle groups. The regimen was reduced to fewer and fewer muscle groups over the course of several sessions, until the process was gradually withdrawn in what researchers called “relaxation through recall”. Researchers have since developed abbreviated formats that have made PMR more efficient and accessible (Payne, 2005).

In combination with other relaxation modalities, PMR has proven to be an effective relaxation technique in helping to reduce aggression, anxiety and stress-related physiological tensions among school-aged children (Austin et al., 1995; Kennedy & Doepka, 1999; Kiselica et al., 1994; Lopata, 2003; Mullins & Christian, 2001).

In a study using 48 rural ninth grade students, Kiselica et al. (1994) merged PMR with cognitive restructuring and assertiveness training. They found that the training group participants demonstrated significant improvements on self-report measures of trait anxiety and stress-related symptoms in contrast to a control group. During the eight-week incremental treatment period, students were first introduced to PMR and given instructions on how to practice muscle relaxation every evening at home. Cue-controlled relaxation and cognitive restructuring were eventually added as complimentary elements in the process of building a comprehensive relaxation training program.
In a single-case study to reduce anxiety and improve academic grades with a test-anxious college student, Kennedy and Doepka (1999) utilized a multimodal relaxation treatment program which included PMR, systematic desensitization and cognitive behavioral interventions. A critical aspect of their relaxation regimen was to teach PMR, so that their client would be able to:

1. Discern between feelings of tension and relaxation in major muscle groups;
2. Gradually reduce the 16 muscle group tense-and-relax regimen to a more natural and immediate all-body relaxation response;
3. Become an autonomous agent in the practice of muscle relaxation; and
4. Relax at will, prior to and during testing situations and in other anxiety-producing events. This is a skill the researchers called “relaxation by recall.”

When being interviewed at the onset of this study, the client reported longstanding learning difficulties, low grades, poor information recall, serious anxiety, and symptoms of physiological arousal such as nausea, shakiness and confusion while taking tests. The client said, “I feel like I can’t put down on paper what I actually know” (Kennedy & Doepka, 1999, p. 2). The treatment period consisted of nine weekly one-hour sessions. Each session included PMR as well as the aforementioned relaxation modalities.

Self-report data showed a decrease in test and trait anxiety. Outcome data including the client’s GPA and test grades indicated substantial improvement in academic performance. Therapist observations confirmed that the client was responding very well to the program’s interventions. The researchers determined that PMR is an effective
intervention, because it enables one to differentiate between tension and relaxation, between anxiety and calmness, and between the discomfort of a physiologically aroused state and a neutral state of relaxation. They further deemed PMR a valuable method of eliciting the relaxation response in their clients and a foundational aspect of a sound multidimensional relaxation program (Kennedy & Doepka, 1999).

Lopata (2003) utilized PMR as a single-component treatment for 24 elementary students with emotional or behavioral disorders in order to manage aggressive conduct. He employed a pretest-posttest control group design over a four-week, five-day-per-week treatment period. His decision to use PMR was based on the general ineffectiveness of traditional methods in ameliorating aggression among young students. These methods employ reactive approaches that focus on consequences after aggressive incidents have occurred. PMR helps students consciously alter their physiological responses to negative stimuli. This treats the cause of the aggressive behavior, specifically physiologically undesirable arousal, before it escalates.

Frequency counts and teacher rating scores were used as the main statistical procedures to measure aggression over time. Lopata found that PMR as a single-component treatment was effective at significantly reducing aggressive incidents among his students. A three-week follow-up determined that aggression levels increased, although they remained below pretest levels, indicating that the effect of PMR was somewhat maintained (Lopata, 2003).

Though only a fraction of school-aged children are ever diagnosed with an emotional or behavioral disorder, some seemingly normal children exhibit aggressive,
hostile or inappropriate behaviors that require serious intervention from teachers and
counselors. PMR is a safe, simple and accessible method to relax an unruly student who
has a tendency to react with aggression.

Meditation and Cue-Controlled Relaxation as
Components of Relaxation Training Programs

Though people have been meditating for millennia, scientists have only been
investigating meditation’s effects for the past several decades (Laselle & Russell, 1993;
Murray, 1982; Zipkin, 1985). Murray (1982) believes meditation is antithetical to the
typical Western probing, intellectually engaged mind which seeks to understand things.
He says:

Meditation is not an altered state of consciousness in the Eastern viewpoint, but a
series of mental exercises intended to effect changes in how we see and relate to
the world about us. Meditation is not linear learning but entails regression,
restructuring, and reintegration as part of the growth pattern. . . . Meditation
extends one’s experience of self to higher levels of consciousness that ultimately
aim to unify self with the universal self. (p. 107)

He further conjectures that while traditional psychotherapy aims to expand the “I”
or ego, meditative practices aim to lead a person to a non-dualistic, oneness-
consciousness that transcends the “I” towards an expansion of intuitive awareness.

In his meta-analysis, Murray (1982) summarizes meditation with the following
points:
1. There are differences in the effect, both cognitively and physiologically, among various methods of meditation such as Zen, Yoga, Benson’s Relaxation Response and Transcendental Meditation. However, there is no noticeable psychotherapeutic advantage of one over the other and no clearly discernable advantage for meditation as a sole therapy over other relaxation modalities such as hypnosis, autogenic relaxation and guided imagery.

2. Measuring brain waves with an electroencephalogram (EEG) during meditation shows consciousness states that seem to be dissimilar from sleep and hypnosis. An increase of alpha brain waves, indicative of a restful state, occurs during meditation. This is opposed to an increase of beta brain waves, which would indicate a state of arousal. Both delta waves, which are recorded during states of deep sleep, and theta waves, which are recorded during states of drowsiness, are rarely measured in relation to meditation.

3. Most researchers believe that attention and awareness are the fundamental mechanisms of meditation and that meditation can improve concentration, attentive ability and behavioral self-control. Some researchers have found that practitioners of meditation have greater sociability, an increase in positive outlook and higher tolerance.

4. Though several test anxiety studies using random samples indicated no significant effect of meditation when compared to other relaxation techniques, the benefits of meditation tend to be more apparent when included in multimodal relaxation training programs.

5. Conclusions concerning the effects of meditation as a sole therapeutic intervention are somewhat difficult to validate due to a lack of control for numerous
variables. Factors which can affect outcome are the following: subjects’ personalities, religion or lack thereof, whether or not subjects are actually attaining a true meditative state, or to what degree meditation is the right approach for a given individual compared to other interventions. It is worth noting that there has been very little research that conclusively demonstrates the efficaciousness of talk therapy over other interventions or even a placebo.

Murray (1982) concludes that the research-proven psychological and physiological benefits of meditation include reduced heart rate, lowered blood pressure, and decreased oxygen consumption. He deems meditation to be a practical and simple way to induce a relaxed state, thereby initiating the participant in the worthwhile process of physiological change.

At a recent conference of the Society of Neuroscience, researchers from the University of Kentucky presented the results of a study that suggested that meditation can help people feel more focused and energetic. They taught 12 college students how to meditate and over several weeks tested their reaction times with a series of visual cues on a screen. The students performed the tests before and after 40 minutes of meditating, and it was found that meditation was a superior method over napping, exercise and caffeine (Nagourney, 2006).

Researchers have determined that Benson’s relaxation response training, which at its essence is a form of meditation, can be ideal for adolescents seeking relevant self-care strategies because it is simple to learn and easy to integrate into a daily routine (Goleman
Benson et al. (1994) evaluated self-esteem and internal locus of control among 50 high school students during a single academic year. They exposed two randomly assigned groups to a relaxation response curriculum three times per week for 15 minutes each session over the period of an academic semester. It included a meditation-based intervention of paced breathing, muscular relaxation, focused attention and a passive attitude toward distraction, as well as education in stress management and self-esteem enhancement. The curriculum was administered to the first group during the fall semester while the second group acted as a control. The same curriculum was administered to the second group during the spring semester while the first group acted as the control.

It was found that the first group (fall intervention) demonstrated a significant increase in self-esteem from the time their curriculum ended in the fall to the end of the spring semester, suggesting a rather substantial follow-through effect. The second group (spring intervention) demonstrated a significant increase in self-esteem as a consequence of the relaxation response curriculum. No statistically significant effect was observed for internal locus of control.

The researchers saw the introduction of numerous stand-alone self-esteem programs in school curricula as helpful though insufficient. By augmenting such programs with relaxation training, educators can offer students the opportunity to comprehensively cultivate important self-care strategies (Benson et al., 1994).
Every known culture of the past and present has employed the ancient art of laying on of hands in harmony with meditation, visualization and/or substance stimulation to heal the sick and care for the dying. Modern medical therapeutic touch is a Western cultural variant that embodies the meeting of science and spirit while attempting to legitimize intuitive human principles and impulses. This new discipline, known as psychoneuroimmunology, posits that every living organism and inorganic object has an energy field that is omnipresent (Greenspan, 1994). By tapping into these sources of energy, scientifically trained healers can help those who need to regain their physical or psychological wellbeing. Some American and European nurses have brought into play the laying on of hands without touching the body, while eliciting a meditative state themselves. In order to release the body’s own energy currents to be accessed in a natural healing process, the nurses position their hands in space along the body’s electro-magnetic fields to remove energy blockages.

Several medical doctors have effectively utilized therapeutic touch, meditation and other spiritual techniques with their patients. The renowned neurosurgeon Bernie Siegel worked successfully with terminally-ill victims of catastrophic diseases. The psychiatrist Gerald Epstein combined traditional medical protocols with healing visualizations to aid mentally ill patients (Greenspan, 1994).

A study conducted by the acclaimed neuroscientists Antoine Lutz and Richard Davidson at the Waisman Laboratory for Brain Imaging and Behavior at the University of Wisconsin, Madison, examined eight long-term Buddhist meditation practitioners (Rinpoche, 2007). The scientists employed state-of-the-art fMRI technology and
advanced EEG equipment with 128 electrodes applied to the surface of the skull. Brain activity was measured, while the subjects practiced what is known as compassion and loving-kindness meditation. The brain area known to be activated in maternal love and empathy was profoundly more active among these Buddhist practitioners than among a group of control subjects. Lab technicians initially believed the off-the-charts brain measurements were the result of a technical malfunction in the EEG machinery. They later realized that they were witnessing electrical brain activity associated with attention and awareness that surpassed anything that they could have predicted. Davidson stated in a 2005 *Time* magazine interview, “It was exciting. . . . We didn’t expect to see anything quite that dramatic” (Lemonick as cited in Rinpoche, 2007, p. 4).

Engel and Anderson (2000) utilized what they called psychosomatic or body-mind training on eight persons with chronic toxic encephalopathy (CTE). The eight-week-long training period combined aspects of Progressive Muscle Relaxation (PMR) and meditative stretching. The meditative stretching was a continuous chain of synchronized movements interposed with positive imagery and positive suggestion phrases. Each new movement began with a deep breath. As the flow of movements became internalized, the participants were asked to think such phrases as “I am balanced” on the inhalation and “Energy is flowing through me” on the exhalation.

The researchers’ findings showed a significant decrease in state anxiety and moodiness, measured as anxiousness and fatigue, and an improved ability for mental and physical relaxation as indicated from higher alpha wave percentages and lower electromyography readings. Their patients developed more body awareness, while the
symptoms of CTE, which often include chronic tiredness and depression, were alleviated. Engel and Anderson (2000) merged aspects of meditation and deep breathing with body movement, guided imagery and positive suggestion phrases to elicit the relaxation response in a dynamically holistic way.

Like meditation, cue-controlled relaxation is a form of relaxation therapy that enables the participant to attain a relaxed state in order to prepare the mind and body for the desired transformative effect. Cue-controlled relaxation is a form of applied relaxation with a cognitive behavioral component, a cue word such as relax or calm. As in mantra meditation, the subject attains a meditative state by focusing on breathing in a slow, deep manner, and mentally reciting the desired cue word on every exhalation. This cue is a conditioning aspect which enables the participant to achieve a relaxed state of mind (Tryon, 1980).

In their work with the deaf-blind, Gothelf et al. (2003) discuss the importance of learning self-cueing behaviors and other related mentally-empowering procedures such as cognitive picture rehearsing and positive self-talk. They claim such techniques are fundamentally vital ways to inhibit stress and habituate the proper cognitive and physiological responses in order to develop the social skills necessary to successfully function in the world. They state, “The ultimate goal of a relaxation or guided imagery program is for the individual to use self-cue relaxation as a self-control procedure” (p. 102).

In a study carried out by Counts et al. (1978) using college undergraduates, it was determined that cue-controlled relaxation played a significant role in reducing test
anxiety, state anxiety and trait anxiety, as well as in significantly increasing the IQs of two cue-controlled relaxation experimental groups by 7-24 points.

The authors noted that an analysis of test anxiety/relaxation training literature verified that academic performance advances were achieved in only 30% of 54 studies examined, and that the cue word was an effective way to reduce anxiety and improve cognitive and mental processes. They attribute the introduction of the cue-control into relaxation training protocol as being central in facilitating the generalization of the relaxation response to stressful conditions beyond the experimental setting itself. With consistent practice over time, the cue word alone brings about a relaxed state and a sense of calmness (Counts et al., 1978).

In a study by Deffenbacher et al. (1996) investigating 126 high-anger adolescents in the sixth through eighth grades, a cognitive-relaxation coping skills (CRCS) treatment was found to be more effective than either a social skills training (SST) intervention or a no-treatment control in lowering depression, shyness, general deviance and anxiety. The cue-control experimental group took part in a series of talk sessions, role-playing, PMR and cue-controlled relaxation in order to develop self-monitoring skills for everyday life. The researchers surmised that since CRCS functioned as a preventive tool in reducing inappropriate behaviors before they occur, and since SST dealt with after-the-fact angering situations, CRCS was a superior strategy for adolescent anger and deviance reduction.
Cognitive Behavioral Treatments as a Component of Relaxation Training Programs

Payne (2005) states that the idea of relaxation training is often thought of only in reference to muscles. However, relaxation training has three treatment applications, which include:

1. Behavioral (observable actions) – addresses one’s ability to socially function in an appropriate and effective manner;

2. Somatic (physiological) – addresses the body’s healing systems to fully and efficiently operate, and helps to relieve specific conditions such as hypertension, tension headaches and asthma; and

3. Cognitive (psychological/mental) – addresses the calming of the mind in order to improve thinking processes and memory and is “characterized by feelings of peace, and release from tension, anxiety, and fear” (Ryman as cited in Payne, 2005).

When approaching relaxation training from a cognitive perspective, researchers, counselors and teachers have discovered that cognitive behavioral therapy can be an effective way to work with adolescents to restructure debilitating thoughts and inhibit negative behaviors. When applied in conjunction with a variety of relaxation training techniques, these self-talk treatments can be a powerful means of teaching students how to approach life optimistically and to help them better analyze and handle challenging problems from a proactive, positive perspective.

Several decades of educational, medical and psychological research have demonstrated that cognitive behavioral therapy is an important component of many
relaxation training programs and a gateway to self-care for school-aged students (Cullen-Powell et al. 2005; Gilbert & Orlick, 1996; Kennedy & Doepka, 1999; Short et al., 2001; Zipkin, 1985). Cognitive behavioral theory views the individual as a self-determining agent and concerns the interrelationship of thoughts, feelings and behaviors. Its primary aim is to restructure conscious thoughts with the use of positive self-talk techniques, altering one’s internal dialogue from negative to positive (Payne, 2005). Cognitive behavioral treatments improve students’ attitudes toward themselves and others, reorienting their mental states for superior academic and social outcomes (Dendato & Diener, 1986; Gilbert & Orlick, 1996; Kennedy & Doepka, 1999).

The literature is replete with relaxation programs that utilize varying multidimensional approaches for teaching students how to relax and think more clearly while experiencing stress and anxiety (Benson et al., 2000; Cabot, 1997; Gregor, 2005; Jones & West, 1987). This research usually includes some form of PMR, meditation or deep breathing and cognitive behavioral treatments such as cognitive restructuring, positive self-talk, affirmations, visualization and cognitive self-instruction.

In order to deal with difficult school and family problems, some adolescents develop habits of negative self-talk and self-destructive behaviors, such as aggression, social isolation, depression and substance abuse. Many are habitual users of maladaptive self-statements that have a deleterious effect on task attention and academic performance (Driscoll, 2006). When harmful self-talk (e.g., “I’m horrible at this.”) is replaced by helpful self-talk (“I can do this.”), students can begin to approach life from a positive perspective. By mentally reciting positive affirmations such as “I can relax and remember
the right answer” while in a calm state, they can enhance the relaxation experience and improve psychological wellness (Baker, 1987; Kiselica et al., 1994). Moreover, if a student mentally recites a positive word or phrase, such as “relax” or “stay calm” on every exhalation while meditating or deep breathing, they can begin to cognitively restructure their mental state (Benson et al., 1994; Dendato & Diener, 1986; Payne, 2005). This reorganization of one’s thinking is paramount to disassembling negative core belief systems and replacing them with self-improving thoughts and behaviors.

In their study of 48 rural ninth grade students, Kiselica et al. (1994) utilized a multimodal relaxation training program called Stress Inoculation Training (SIT). It included a cognitive behavioral component as well as PMR, cue-controlled relaxation and assertiveness training. The dependent variables of anxiety, stress and academic performance were examined. The results determined that the participants in the treatment group improved significantly on self-report measures of trait anxiety and stress-related symptoms. The cognitive behavioral aspects of this study included cue-controlled relaxation sessions during which students were trained to use a cue word or phrase in association with Benson’s relaxation response in order to reduce anxiety in real-life stress-provoking situations. After learning this technique, role-playing was utilized so that the students could identify how and when their cognitive structures were inhibiting positive thoughts and behaviors.

A similar verbal cue was employed by Dendato and Diener (1986) by asking a treatment group of test-anxious students to breathe deeply and upon their exhalation use the phrase “I am calm” as a self-care strategy when encountering stress in everyday life.
The program also included deep muscle relaxation and study skills training. The results of the study demonstrated a reduction in anxiety and an improvement in academic performance among the multimodal treatment participants as compared to two other single-component treatment groups and a control group.

In his work with high-anxious individuals, Driscoll (2006) utilized systematic desensitization, positive-suggestion sequences and positive-adaptive images as a strong counterweight to replace negative cognitions. As he led his subjects through a series of stretching and tensing regimens, Driscoll asked them to imagine feeling successful while verbalizing phrases such as “Letting go now of all worry and concern” or “Letting go now of all stress and tension” (p. 9).

Driscoll concluded his sessions with six to eight minutes of a desensitization hierarchy of gradated stress-inducing images. The clients were then instructed to counter these images by visualizing positive adaptive images of an interesting activity, such as hiking or movie-going, in order to fully integrate the positive images with calm feelings. Driscoll states (2006) that positive images and phrases are critically important counter-conditioning tools that greatly enhance relaxation and desensitization modalities. He says,

The use of strengths and optimism to trump fears and failures is now a central tenet in the popular positive psychology advocated by [Martin] Seligman …, and has broad implications for longer-term adaptation…. Positives are essential to the present protocol. (p. 4-5)

Stanley et al. (2004) performed academic clinical trials on older adults who had been diagnosed with generalized anxiety disorder (GAD). They administered a 13-15-
session comprehensive program and found that cognitive behavior therapy (CBT) accompanied by deep breathing, PMR, motivation exercises and problem-solving-skills training was an effective way to treat anxiety. The results of their studies demonstrated improvements in quality of life and significant reductions in the key aspects of GAD, including worry, anxiety and depression. Furthermore, these effects were maintained 6-12 months after the study terminated.

In addition to the educational awareness and relaxation training portions of this program, a Changing Thoughts section taught clients to recognize types of erroneous thoughts and replace them with alternative thoughts. Examples include:

1. All-or-nothing thinking (everything is black or white, good or bad, wonderful or horrible) replaced by middle ground thinking;

2. Should statements (e.g., “I/they should do this or that”) replaced by realizing how things really are;

3. For sures (“I know for sure something bad will happen”) replaced with understanding the realistic chances of whether an event will occur;

4. My faults (“I am taking on responsibility or blame for events”) replaced with the acceptance that “events may be mostly or wholly out of my control”; and

5. Big deals (making a mountain out of a molehill) replaced with gaining perspective on a situation.

Clients were instructed to use coping statements and reinforcing self-statements as verbal suggestion cues to manage anxiety and confront difficult situations in everyday life. The three types of coping statements presented to clients are (a) those that prepare
for a stressor, such as “I can do what I need to do,” or “It will be okay once I get started”; (b) those that confront and handle stressors, such as “If I take one step at a time I can meet this challenge,” or “Even if I make mistakes, it will be okay”; and (c) those that deal with feeling overwhelmed, such as “I can do what I have to do in spite of my anxiety,” or “When anxiety comes take a step back and think” (p. 98).

Finally, Stanley et al. (2004) asked clients to use reinforcing self-statements afterwards to strengthen any progress they had made in accomplishing a desired task or managing a stressful event. Examples include, “It worked! I was able to do it,” or “It was not as bad as I expected,” or “I can learn to cope with my anxiety.”

The effects of a mental skills training program in Ontario, Canada, taught by a classroom teacher to second grade students, was investigated by Gilbert and Orlick (1996). The positive thinking strategy known as “highlights” was utilized. Highlights are defined as “successful past [or present] experiences that can build a foundation for future happiness and success” (Gilbert & Orlick, 1996, p. 3). The children were asked to record their own highlights in an “Activity Log Book” on a daily basis in order to better recognize and appreciate the positive aspects of life, as well as to participate in classroom discussions and audiotape sessions. Using a pretest-posttest control group design, the researchers calculated heart rate as a determinant for levels of relaxation. The experimental group decreased their heart rates after a one-minute relaxation treatment significantly more than the control group. At the end of the treatment period, the experimental group was better able to relax themselves at will, implement specific stress
strategies in real situations and increase their frequency of highlights than was the control group.

The ultimate goal with children is to teach them relevant mental skills that will enhance their quality of life and endure over their lifetime…All positive human attributes, including self-confidence, happiness, and personal excellence, are determined by the extent to which people act and think positively. (Orlick as cited in Gilbert & Orlick, 1996, pp. 1, 3)

Since most elementary school children have not yet developed appropriate coping strategies, mental and life skills training should become an integral component of the elementary curriculum (Gilbert & Orlick, 1996). Being exposed to this kind of knowledge may help students avoid acting-out behaviors, develop more positive perspectives and gain greater control over their personal destiny.
CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to examine the effects of cue-controlled relaxation, progressive muscle relaxation and positive suggestion phrases on test anxiety and self-esteem among eighth grade students in one private preparatory school in a city in the mid-south. A quasi-experimental pretest-posttest control group design was utilized to determine if one could detect a reduction in test anxiety and an increase in self-esteem, as well as the extent to which test anxiety and self-esteem predicted standardized test scores of the participating students.

The independent variable was a research-based relaxation training regimen. Two self-reporting instruments, the Friedben Test Anxiety Scale (FTA) and the Rosenberg Self-Esteem Scale (SES), which have been developed for use with adolescents, measured the two dependent variables: test anxiety and self-esteem. In addition, students were given a specially designed relaxation journal with five research-relevant questions for documenting their thoughts and feelings concerning their experience with relaxation training.

Correlational statistics were used to examine the degree of the relation between test anxiety and self-esteem scores (predictor measures) as it pertains to the predictability of participating students’ standardized test scores.
Numerous studies over the course of the last several decades in the fields of education, psychology and medicine have shown that adolescence is a critical turning point in the lives of young people. As they enter puberty and as academic expectations increase, students suddenly contend with emotional and societal forces heretofore unknown to them (Benson et al., 2000; Cullen-Powell et al., 2005; Kiselica et al., 1994; Benson et al., 1994; Lopata, 2003; Miller et al., 2006; Sharp et al., 2000; Stueck & Gloeckner, 2005).

High achieving upper middle school students are struggling to shed their childhood shells and enter the adult world. These students tend to come from middle class and affluent socio-economic backgrounds. Some of these students succumb to low self-esteem, depression and other mental disorders, self-deprecating and/or suicidal thinking and drug and alcohol abuse (Austin et al., 1995; Bass et al., 2002; Matthews, 1989). Researchers have noted that high-achieving students can tend to successfully mask their anxieties and phobias, and that specifically, adolescent boys are apt to fake their responses on self-report instruments (Hill & Wigfield, 1984).

Participants

The school. The participating K-12 school was selected for this study because it has had an ongoing interest in taking part in research initiatives with local universities. It is a high-performance, academically advanced institution that attracts many intellectually gifted students, some of whom have attended this school since the kindergarten. Because of the scholarly demands placed on the students, many report experiencing some degree of stress and anxiety.
The eighth grade teachers explained to this researcher that while many of their students are “stressed out” in general, they become even more anxious during the month leading up to standardized testing in the spring semester. The school principal suggested arranging the relaxation training sessions as a run-up to the spring semester standardized testing. It was decided the treatment phase would be three weeks long, with a total delivery of 15 relaxation sessions given on 15 consecutive school days in the early morning hours before regularly scheduled classes.

The students. The participants for this study included a non-randomized, volunteer group of 48 male and female students from a total pool of 73 eighth graders. 24 eighth grade students participated in the treatment group. Another 24 students were randomly chosen by this researcher from the remaining eighth grade pool as control group participants. Parent letters/consent forms (see Appendix A) were sent to parents as well as a follow-up mailing of the consent forms for further recruitment purposes. It was made clear in the consent form that students could drop out of the study at any time for any reason. Though 31 consent forms were signed by parents, four of the 31 potential student participants never showed up to the relaxation sessions. Three of the remaining 27 potential student participants dropped out of the relaxation sessions by the second or third treatment day, leaving 24 students as the final tally for the treatment group.

The students were from middle- or upper-middle-class socio-economic backgrounds. A significant majority were European-Americans, with approximately 15% of the participants being African-American, Asian-American or East Indian-American.
Research rules of anonymity were upheld to protect the identity of the school and the participating students. This researcher was required to follow all pertinent guidelines in accordance with the affiliated university’s Institutional Review Board. Though the participating school’s administrators knew which students were involved, no one was able to single out or identify any of the participants or any of the participants’ questionnaire or test scores once the results of this study were published. No one in the research or education communities will be able to determine the identity of any of the participants.

Research Design

This was a quasi-experimental pretest-posttest control group design using a non-randomized, volunteer group of 48 eighth grade students from a private middle school. This study was carried out over the course of five weeks. It started with a 20-minute lecture/discussion with all treatment group participants, in order to explain the significance, purpose and implementation of the relaxation training program and to answer any questions. Later the same day, all 73 eighth grade students were given the two pretest surveys (FTA and SES). On the following Monday, the treatment phase began.

The treatment phase lasted over a period of three weeks. The 15 relaxation training sessions took place at the onset of 15 consecutive school days at approximately 7:40 a.m. All relaxation sessions were led by this researcher. The control group received no treatment.
The day after the treatment phase was completed, the students started a three-day, comprehensive standardized test published by the Educational Records Bureau (ERB). The next week, posttest surveys were administered to all eighth grade students, followed by a short lecture/discussion with the experimental group participants to answer any questions and process feedback. Due to school scheduling demands, this researcher had very limited access to the students in general and no access at all during the three-day testing period. The lag time between the end of standardized testing and the administration of the posttest surveys was unavoidable.

Each relaxation training session lasted six to seven minutes and included progressive muscle relaxation, cue-controlled relaxation and positive suggestion phrases encapsulated in a succinct, research-based narrative (see Appendix B) that was repeated verbatim during each of the relaxation training sessions. This researcher led the students through the scripted relaxation narrative, while the students sat in an upright and relaxed position in their chairs with their eyes closed. Upon the conclusion of each session, the students were asked to slowly open their eyes and remain as calm and relaxed as possible for the remainder of the day.

At the beginning of the treatment phase, experimental group participants had been given Students’ Relaxation Training Journals prepared with five research-relevant questions printed inside (see Appendix C). These journals were for the students’ use at home or in school to write about their thoughts and feelings on what they experienced during the relaxation training. Journals were collected periodically, on a volunteer basis, throughout the treatment phase to document student entries. The journals were promptly
returned to the students, so that they could continue writing throughout the treatment phase. No students were required to hand in their journal at any time. Only the individual students themselves decided if they wanted to hand in their writings. All journal entries were kept anonymous.

This qualitative dimension of the student journals supplemented the quantitative data by enabling this researcher to more fully explore and understand students’ thoughts and feelings concerning relaxation training. Relaxation training is perceived by individuals in unique and subtle ways. Since this was the first exposure to relaxation training for most if not all of the students, it was important that they had the opportunity to document their experience in a personal manner.

Instrumentation

The Friedben Test Anxiety Scale (FTA) (Friedman & Bendas-Jacob, 1997; see Appendix D). This is a 4-point Likert, 23-item scale developed in 1997 for the adolescent by Isaac Friedman and O. Bendas-Jacob. The author of this scale, Dr. Isaac Friedman, gave this researcher permission via email to use this instrument. It has three theoretically relevant subscales: social derogation (items 1-8), cognitive obstruction (items 9-17) and tenseness (items 18-23). These subscales address the two major dimensions of test anxiety: worry and emotionality. The worry dimension, expressed in both the social derogation and cognitive obstruction subscales of the FTA, refers to unhelpful thoughts and feelings concerning the expectation of failure and its social and academic consequences. The emotionality dimension, expressed in the tenseness subscale of the
FTA, refers to high physiological arousal and a concomitant negative emotional condition typified by nervousness and tension.

Utilizing a sample of over 3,700 adolescents, Friedman and Bendas-Jacob determined the internal consistency of the FTA as measured by Cronbach’s coefficient alpha. The score for the FTA as a whole was .91. The scores for each subscale were as follows: social derogation, .86; cognitive obstruction, .85; and tenseness, .81. This demonstrated a high degree of reliability.

Also, the developers ran an external-correlational analysis of the FTA by comparing it to the popular Spielberger’s Test Anxiety Inventory (TAI). The correlations between the scores of the two scales were as follows: .84 for boys, and .82 for girls. Thus, the FTA and the TAI had nearly a 70% overlapping variance with one another. Finally, a very high degree of external validity was found, when comparisons between large samples of adolescent boys and girls and between junior high students and high school students were examined.

Friedman and Bendas-Jacob recognize that individuals respond to evaluative situations with a complex range of fears and expectations. Items in their scale include such diverse concerns as students’ fears of peer and adult ridicule, school isolation, self-image and self-efficacy. By approaching test anxiety in a systematically broad manner, these researchers succeeded in detecting and better understanding test anxiety from several cognitive and emotional directions.

*The Rosenberg Self-Esteem Scale (SES)* (Rosenberg, 2007; see Appendix E). This is a 4-point Likert, 10-item scale developed in 1965 by Morris Rosenberg specifically for
the adolescent. The Morris Rosenberg Foundation requires researchers to mail a request-for-permission letter, which this researcher did, at which time permission is automatically granted. The SES has both a one-dimensional and two-factor (self-confidence and self-deprecation) structure. Rosenberg posited that there are no set cut-offs to delineate high and low self-esteem and that population norms may be ascertained by examining studies with similar population samples. The original sample for the development of the SES consisted of 5,024 high school juniors and seniors from ten randomly selected schools in New York State. Reliability was determined to be high with test-retest correlations in the range of .82 to .88, and Cronbach’s alpha in the range of .77 (self-confidence) to .88 (self-deprecation).

Rosenberg was a world authority on self-concept and its component parts, namely self-esteem, self-efficacy or mastery, and self-identities. He warned researchers that self-esteem is generally considered a stable characteristic that is not so easily manipulated by experimental designs as much as by life experiences.

Self-esteem is often highly correlated with socio-economic status and various aspects of health and health-related behaviors. The population sample of this study consisted of students, from middle- and high-income families, who may be considered to have had a high degree of self-esteem. However, if it is presumed that relaxation techniques can enhance physiological and psychological health, then relaxation training may have some measurable effect on this population’s self-esteem. Young adolescents, regardless of race, class and other variables, are generally in the beginning stages of developing an awareness of their social standing and academic prowess. If what the
literature says is true, that adolescence is a critical juncture in the lives of most children, relaxation training may act as a positive intervening factor as it pertains to self-esteem.

Though most self-report instruments are susceptible to what researchers call “socially desirable responding,” it is widely believed that such instruments are an effective way to collect vital data. Self-report scores among high-achieving students tend to be skewed higher, the low scorers often being near or above the mean. One must approach the high-achieving student scores with a certain degree of predetermined, research-based expectancy.

**Data Collection Procedures**

Before collecting any data, this researcher successfully completed the Human Participants Protection Education for Research Teams online course sponsored by the National Institutes of Health, and received a Completion Certificate. This project was approved by the Institutional Review Board at Tennessee State University, Nashville, Tennessee.

This study had two data collection paradigms. The first entailed the compiling of quantitative data generated from scores from two self-report instruments, the Friedben Test Anxiety Scale (FTA) and the Rosenberg Self-Esteem Scale (SES) and from standardized test scores. The second paradigm consisted of gathering qualitative information from Students’ Relaxation Training Journals (see Appendix F).

*Scoring self-report instruments.* Both questionnaires were scored based on a 4-point Likert scale: an item with which they strongly agree (SA) equals 3 points; agree (A) equals 2 points; disagree (D) equals 1 point; and strongly disagree (SD) equals 0 points.
Items with an asterisk not visible to the test taker, phrased in the negative, are reverse-scored: SA = 0; A = 1; D = 2; SD = 3. All scores were entered into StatView software (Gagnon & Feldman, 1998). A high score on the FTA represents low test anxiety. A high score on the SES represents high self-esteem (see Appendices D and E).

*Students’ Relaxation Training Journals* (see Appendix C). The journals were collected on a weekly basis a total of three times during the treatment phase of this study. Journals were submitted on a volunteer basis only. Entries were transcribed, and journals were returned to the students during the following relaxation session, to enable students to continue writing. No writing facilitation or group discussion took place regarding the journal entries. While the journals were in the possession of the researcher, entries were catalogued for placement into the appendix of this study. (see Appendix F)

*Research Questions*

Four research questions guided this study. These were:

1. Do the relaxation training techniques of cue-controlled relaxation, progressive muscle relaxation (PMR), and positive suggestion phrases reduce test anxiety in eighth grade students as measured by the Frieden Test Anxiety Scale for Adolescents (FTA)?

2. Do the relaxation training techniques of cue-controlled relaxation, progressive muscle relaxation, and positive suggestion phrases increase self-esteem in eighth grade students as measured by the Rosenberg Self-Esteem Scale (SES)?

3. Are students’ levels of self-esteem and test anxiety statistically significant predictors of performance on standardized tests?
4. Is relaxation training a practical and effective intervention that helps high-achieving students reduce school-related stress?

Null Hypotheses

For purposes of statistical analyses, and to answer the research questions, seven hypotheses were developed. Each of the following hypotheses is stated in null form.

Hypothesis #1. There will be no statistically significant difference in the reduction of test anxiety as measured by the Friedben Test Anxiety Scale (FTA) on pretest mean scores minus posttest mean scores among the control group participants without treatment.

Hypothesis #2. There will be no statistically significant difference in the reduction of test anxiety as measured by the Friedben Test Anxiety Scale (FTA) on pretest mean scores minus posttest mean scores among the experimental group participants with the introduction of a relaxation training regimen.

Hypothesis #3. There will be no statistically significant difference in the increase of self-esteem as measured by the Rosenberg Self-Esteem Scale (SES) on pretest mean scores minus posttest mean scores among the control group participants without treatment.

Hypothesis #4. There will be no statistically significant difference in the increase of self-esteem as measured by the Rosenberg Self-Esteem Scale (SES) on pretest mean scores minus posttest mean scores among the experimental group participants with the introduction of a relaxation training regimen.
Hypothesis #5. There will be no statistically significant interaction effect in the reduction of test anxiety as measured by the Friedben Test Anxiety Scale (FTA) between pretest and posttest mean scores among the control group participants, and between pretest and posttest mean scores for the experimental (treatment phase) group participants.

Hypothesis #6. There will be no statistically significant interaction effect in the increase of self-esteem as measured by the Rosenberg Self-Esteem Scale (SES) between pretest and posttest mean scores among the control group participants, and between pretest and posttest mean scores for the experimental (treatment phase) group participants.

Hypothesis #7. Students’ levels of self-esteem and test anxiety are not statistically significant predictors of performance on standardized tests as determined by this study’s correlational research analysis.

Data Analysis Procedures

This researcher entered all requisite control and experimental group FTA and SES scores, and standardized test scores into StatView software (Gagnon & Feldman, 1998). The accumulated data was examined and described as descriptive mean scores in both numerical and pictographic formats, including a table of means and standard deviations.

A one-way repeated measures analysis of variance (ANOVA) was utilized for each of the two self-report instruments (FTA and SES) to determine a between groups effect. The ANOVA was chosen instead of individual T-tests, because it is a more efficient way of gathering the necessary computations, and it is more sensitive to
differences among groups. The standard educational research alpha used for this study will be \( p = .05 \).

The ANOVAs determined:

1. The main effect (difference between two means) for pretest versus posttest scores for both the FTA and the SES, in order to test whether the overall mean for the pretest scores is significantly different from the overall mean of the posttest scores;

2. The main effect (difference between two means) for experimental (treatment) versus control (no treatment) group scores for both the FTA and the SES, in order to test whether the overall mean for the experimental phase is different from the overall mean of the control phase;

3. The interaction effect of four means simultaneously: pretest control, posttest control, pretest experimental, and posttest experimental.

In addition, bivariate and multivariate correlational statistics were utilized in order to examine the degree of the relationship between relevant variables.

A Pearson Product-Moment Correlation Coefficient (\( r \) statistic) was used to compare two variables of pretest scores and posttest self-report scores to assess their linear relationship. A scattergram was used to display the degree and direction of the relationship between the two variables, and to examine the relative ordering of the students from pretest to posttest.

The \( r \) statistic was further utilized to examine the extent to which test anxiety scores and standardized test scores covary between the control and experimental groups,
and the extent to which self-esteem scores and standardized test scores covary between control and experimental groups.

A multiple regression analysis determined how the combination of test anxiety and self-esteem scores (predictor measures) predict standardized test scores.

**Qualitative Analysis of Students’ Journals**

The essential purpose of the journals was to allow the students to have a deeper and more personal insight into what they experienced during the relaxation treatment phase. Journals were collected, and student responses were recorded. Specific patterns and themes emerged from the combined writings of each of the five journal questions. The entries were catalogued in Appendix F of this study as five subsets of writings in order to parallel the five-section design of the journals.

**Treatment and Data Collection Schedule of Events**

All Relaxation Training treatments and events took place on consecutive school days, in the morning before classes, starting in April, 2008 and as a run-up to the administering of standardized testing at the participating school. Below is a chronological schedule of events.

<table>
<thead>
<tr>
<th>DAY</th>
<th>EVENT</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Wed.</td>
<td>Lecture/Discussion (20 minutes)</td>
<td>An introduction of this study’s relaxation protocol to treatment group participants.</td>
</tr>
<tr>
<td>1: Wed.</td>
<td>Pretest Phase (20 minutes)</td>
<td>The administration of two short questionnaires, one for test anxiety (FTA), the other for self-esteem (SES), to all eighth grade students.</td>
</tr>
<tr>
<td>2: Mon.</td>
<td>Treatment Day 1</td>
<td>The first of 15 relaxation training sessions, 6-7 minutes in length, took place at approximately 7:40 a.m. in a specially designated classroom with treatment group participants. The Relaxation Training Narrative was delivered. Student Relaxation Training Journals were distributed.</td>
</tr>
<tr>
<td>Day</td>
<td>Event Description</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>3: Tues.</td>
<td>Treatment Day 2 Relaxation training session same as Day 1. Students kept individual journals.</td>
<td></td>
</tr>
<tr>
<td>4: Wed.</td>
<td>Treatment Day 3 Same as Treatment Day 2.</td>
<td></td>
</tr>
<tr>
<td>5: Thur.</td>
<td>Treatment Day 4 Same as Treatment Day 2.</td>
<td></td>
</tr>
<tr>
<td>6: Fri.</td>
<td>Treatment Day 5 Relaxation training session same as Day 1. Student Relaxation Training Journals were collected and writings transcribed over the weekend.</td>
<td></td>
</tr>
<tr>
<td>7: Mon.</td>
<td>Treatment Day 6 Relaxation training session same as Day 1. Individual journals were returned to students.</td>
<td></td>
</tr>
<tr>
<td>8: Tues.</td>
<td>Treatment Day 7 Same as Treatment Day 2.</td>
<td></td>
</tr>
<tr>
<td>9: Wed.</td>
<td>Treatment Day 8 Same as Treatment Day 2.</td>
<td></td>
</tr>
<tr>
<td>10: Thur.</td>
<td>Treatment Day 9 Same as Treatment Day 5. (No school on Friday that week.)</td>
<td></td>
</tr>
<tr>
<td>11: Mon.</td>
<td>Treatment Day 10 Same as Treatment Day 6.</td>
<td></td>
</tr>
<tr>
<td>12: Tues.</td>
<td>Treatment Day 11 Same as Treatment Day 2.</td>
<td></td>
</tr>
<tr>
<td>13: Wed.</td>
<td>Treatment Day 12 Same as Treatment Day 2.</td>
<td></td>
</tr>
<tr>
<td>14: Thur.</td>
<td>Treatment Day 13 Same as Treatment Day 2.</td>
<td></td>
</tr>
<tr>
<td>15: Fri.</td>
<td>Treatment Day 14 Same as Treatment Day 5.</td>
<td></td>
</tr>
<tr>
<td>16: Mon.</td>
<td>Treatment Day 15 Same as Treatment Day 6.</td>
<td></td>
</tr>
<tr>
<td>17-19: Tu.-Th.</td>
<td>Standardized Testing Eighth grade students took comprehensive standardized test (ERB) over three days.</td>
<td></td>
</tr>
<tr>
<td>20: Wed.</td>
<td>Posttest Phase (20 minutes) See description for Pretest Phase (Day 1).</td>
<td></td>
</tr>
<tr>
<td>20: Wed.</td>
<td>Lecture/Discussion (10 minutes) A follow-up session to answer any questions, process feedback and return journals to students.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Collecting Test Scores The collection of standardized (ERB) test scores as they became available from the participating school.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Analysis Statistical analysis of self-report scores, standardized test scores and qualitative analysis of student journals.</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER IV

RESULTS

Preliminary Analyses

Prior to conducting the proposed analyses, descriptive statistics for the pretest and posttest scores of the Friedben Test Anxiety Scale (FTA), the Rosenberg Self-Esteem Scale (SES) and the Educational Records Bureau (ERB) standardized test scores were examined for the full sample. Table 1 (see below) presents a summary of the mean, median, standard deviation and range for these variables. A slight increase in FTA scores was observed from pretest to posttest, while SES scores remained relatively stable. The level of dispersion for each of these measures, indicated by the standard deviation (SD), remained relatively stable from pretest to posttest.

A further examination of FTA and SES mean scores shows that the subjects’ survey scores were generally in the high-moderate range for test anxiety and self-esteem. As would be expected among a group of high-achievers, some of the subjects’ survey scores were at or near the top in point totals. However, some participants scored in the low to moderate range. This indicated a reasonable potential for an increase in posttest mean scores. A ceiling effect for these scores was not observed.

Participants’ ERB standardized test scores as compared against the national norm, ranged from the 43rd percentile to the 99th percentile, with an average score of 86.62. This
very high percentile mean score firmly established this subject pool in the elite of academic high-achievers. Descriptive statistics of study variables are shown in Table 1 below.

<table>
<thead>
<tr>
<th>Table 1. Descriptive Statistics of Study Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>FTA Pre</td>
</tr>
<tr>
<td>FTA Post</td>
</tr>
<tr>
<td>SES Pre</td>
</tr>
<tr>
<td>SES Post</td>
</tr>
<tr>
<td>ERB</td>
</tr>
</tbody>
</table>

Frequency distributions for each of the five variables were also examined. A visual inspection of these distributions, as well as an examination of the skewness and kurtosis statistics, suggested that FTA and SES variables at both pretest and posttest phases were normal or near-normal distributions. Below is a frequency distribution representing the distribution of FTA pretest scores (Figure 1).

Standardized test scores were somewhat skewed in the negative direction ($S = -1.58$, $SE = .34$), indicating a ceiling effect. Although this shows a significant deviation from normality, this study’s general linear model and correlational analysis are robust to violations of normality. Below is a second frequency distribution representing standardized test scores administered to the participants (Figure 2).
Figure 1. Frequency Distribution of FTA Pre-test Scores

![Frequency Distribution of FTA Pre-test Scores]

Mean = 41.81
Std. Dev. = 9.611
N = 48

Figure 2. Frequency Distribution of Standardized Test Scores

![Frequency Distribution of Standardized Test Scores]

Mean = 86.62
Std. Dev. = 13.147
N = 48
Effect of Relaxation Training on FTA and SES

To examine the effect of relaxation training on participants’ test anxiety, a one-way repeated measures analysis of variance (ANOVA) was conducted with treatment condition (intervention vs. control) entered as a between-subjects factor and FTA scores included as a within-subjects factor. Results showed a significant effect of time, $F (1, 46) = 15.52, p < .01$, indicating a significant increase in FTA scores from baseline ($M = 41.81$) to follow-up ($M = 45.31$) regardless of treatment condition. No main effect was found for treatment condition, $F (1, 46) = .19, p > .67$, indicating that, when collapsed across the two time points, FTA scores among the treatment and control groups were statistically equivalent.

A significant time by treatment interaction effect was found, $F (1, 46) = 22.88, p < .05$. Pairwise comparisons between baseline and follow-up scores within treatment groups indicated that FTA scores significantly increased from baseline ($M = 40.29$) to follow-up ($M = 48.04$) in the treatment group only, $t (23) = -4.73, p < .01$, yet remained stable in the control group, $t (23) = 1.10, p = .28$ (see Figure 3, below). These results indicate that FTA scores improved significantly over time only among those students who received the intervention. A summary of the between- and within-group means of this effect is presented below in Table 2.
In addition, a change score was calculated for each participant by subtracting each individual’s FTA pre-test score from their post-test score. Thus, a positive change score indicates an increase in FTA scores from baseline to follow-up. A mean comparison of these change scores revealed that the level of change was significantly higher among those in the treatment group ($M = 7.75$, $SD = 8.03$) than those in the control group ($M = -0.75$, $SD = 3.35$), $t(46) = -4.78$, $p < .01$.

Based on the above analyses, the null hypothesis proposed in Hypothesis 1 (H1), that there will be no statistically significant difference in the reduction of test anxiety as measured by FTA on pretest mean scores minus posttest mean scores among the control group participants, was accepted. No difference was found in pretest and posttest scores in the control group.

However, these data do indicate that the null hypothesis proposed in H2, that there will be no statistically significant difference in the reduction of test anxiety on pretest mean scores minus posttest mean scores among the experimental group participants, was rejected. In addition, the null hypotheses proposed in H5, that there will be no statistically significant interaction effect in the reduction of test anxiety between pretest and posttest mean scores among the control group participants, and between

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**Table 2. Summary of between- and within-group FTA scores**

<table>
<thead>
<tr>
<th></th>
<th>Mean FTA score (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
</tr>
<tr>
<td>Control Group</td>
<td>43.33 (10.61)(^1)</td>
</tr>
<tr>
<td>Treatment Group</td>
<td>40.29 (8.45)(^1)</td>
</tr>
</tbody>
</table>

*Note.* Equivalent subscripts indicate the cell means are statistically equivalent.
pretest and posttest mean scores for the experimental group participants, was also rejected.

The acceptance of H1 and the rejection of H2 and H5 confirm the assumption of research question number 1, that relaxation training techniques reduce test anxiety as measured by FTA, suggesting it was an effective intervention for the purpose of decreasing test-related anxiety. It also confirms the assumption of research question number 4, that relaxation training is a practical and effective intervention that helps high-achieving students reduce school-related stress. Figure 3 represents the relationship between pretest and posttest treatment group FTA mean scores and pretest and posttest control group FTA mean scores.
A similar analysis was conducted to examine the effects of relaxation training on self-esteem (SES). In this case, the treatment condition was again entered as a between-subjects factor while SES scores at pretest and posttest phases were entered as the within-subjects factor. No effect was found for treatment condition, $F(1, 46) = .59, p = .45$. Likewise, there was no effect of time, $F(1, 46) = .07, p = .79$, and no time by treatment interaction effect, $F(1, 46) = 3.39, p = .07$.

Based on these results, (a) the null hypothesis in H3, that there will be no statistically significant difference in the increase of self-esteem as measured by SES on pretest mean scores minus posttest mean scores among the control group participants, was accepted; (b) the null hypothesis in H4, that there will be no statistically significant difference in the increase of self-esteem on pretest mean scores minus posttest mean scores among the experimental group participants, was accepted; and (c) the null hypothesis in H6, that there will be no statistically significant interaction effect in the increase of self-esteem between pretest and posttest mean scores among the control group participants, and between pretest and posttest mean scores for the experimental group participants, was accepted.

The relaxation training had no effect on students’ self-esteem scores in the experimental group and no interaction effect between the control and experimental groups. The acceptance of H3, H4 and H6 invalidates the assumption of research question number 2, that relaxation training techniques increase self-esteem.
Effect of FTA and SES on Standardized Test Scores

In the next set of analyses, the relation between test anxiety, self-esteem and standardized test scores was observed. In this case, only the posttest scores for FTA and SES were examined, since they were the closest in time to the collection of standardized test scores. An inspection of the simple bivariate correlations, using a *Pearson product moment correlation*, indicated a moderate and significant linear relation between FTA and ERB, \( r = .35, p < .05 \). This statistic suggests that students who reported lower levels of test anxiety (indicated by higher scores on the FTA measure) tended to score higher on standardized test scores than those with higher levels of test anxiety (see scatterplot, Figure 4). No such relation was found between SES and ERB, \( r = .20, p = .17 \).
A strong positive relation was also found between SES and FTA, $r = .84, p < .01$. This confirmed that those who scored high on the FTA measure (indicating low test anxiety) also reported high levels of self-esteem. A scatterplot of this effect is shown in Figure 5 below.

![Figure 5. Plot of Bivariate Correlation Between FTA Post-Test and SES Post-Test Scores](image)

To examine the combined effect of test anxiety and self-esteem on standardized test scores, a multiple linear regression was performed. This analysis replicated the finding reported above, that an increase in test anxiety was related to a decrease in standardized test scores. There was no interaction effect found, indicating no combined effect of self-esteem and test anxiety on test scores.

Based on this final set of analyses, the null hypothesis proposed in H7, that students’ levels of self-esteem and test anxiety are not statistically significant predictors
of performance on standardized tests, was partially accepted. Test anxiety was a significant predictor of standardized test scores, however self-esteem was not. The partial acceptance of H7 partly confirms the assumption of research question number 3, that students’ levels of self-esteem and test anxiety are statistically significant predictors of performance on standardized tests.

*Effect of Relaxation Training on Standardized Test Scores*

Though not specifically hypothesized, the effect of relaxation training on standardized test scores was also examined using a one-way ANOVA. The main effect of treatment condition was non-significant, $F(1, 46) = .01, p = .93$, indicating that relaxation training had no effect on test performance. Although the treatment caused a change in test anxiety, the treatment did not result in a change in standardized test scores.
CHAPTER V

DISCUSSION

Summary

A combination of cue-controlled relaxation, progressive muscle relaxation and positive suggestion phrases were utilized among high-achieving eighth grade students to determine whether test anxiety could be reduced and self-esteem increased. Also investigated was the extent to which test anxiety and self-esteem could predict standardized test scores of the participating students.

In this quasi-experimental, pretest-posttest control group design, students were given two validated surveys: one for test anxiety (Friedben Test Anxiety Scale, FTA) and another for self-esteem (Rosenberg Self-Esteem Scale, SES). In between pretest and posttest phases, the relaxation training regimen was administered for 15 consecutive school days to the treatment group only (n = 24), and a comprehensive standardized test (Educational Records Bureau, ERB) was given to both the treatment and control groups.

It was found that mean comparisons of FTA scores at pretest and posttest among the experimental group were statistically significant, and those among the control group were not. This indicated that relaxation training led to a significant decline in test anxiety among experimental group participants, suggesting it was an effective intervention for decreasing test anxiety. It was also found that mean comparisons of the SES scores
among the experimental group were not statistically significant, signifying that relaxation training had no effect on students’ self-esteem.

In addition, the relationship between test anxiety, self-esteem and standardized test scores was examined. Posttest scores for FTA and SES were utilized along with simple bivariate correlations. It was determined that a moderate and significant linear relationship between FTA and ERB existed, suggesting that students who reported lower levels of test anxiety tended to score higher on the standardized test. Therefore, test anxiety was determined to be a significant predictor of standardized test scores. There was no such correlational relationship found between SES and test scores.

Also, there was no interaction effect found between test anxiety and self-esteem and test scores, indicating no combined effect of self-esteem and test anxiety on test scores. Finally, it was determined that the effect of relaxation training on standardized test scores was not statistically significant.

Recommendations for Future Research

Length of Treatment Phase

These preliminary findings warrant further scientific inquiry. Certain adjustments in research design could enhance the efficacy of future related studies. By augmenting the treatment phase to at least 30 to 40 sessions, and lengthening the duration of each session, students could more fully internalize their physiological responses to mental stress and physical anxiety. Due to school scheduling constraints, a treatment phase of only 15 relaxation sessions over the course of 15 consecutive school days was possible in this study, with each session lasting only six to seven minutes.
According to Benson (1975), the relaxation response is a learned phenomenon that needs to be brought about consciously over a considerable period of time. In his relaxation training studies with middle and high school students, the relaxation interventions often spanned one to two school semesters or longer, and the statistical analyses demonstrated increases in self-esteem and academic achievement (Benson et al., 1994; Benson et al., 2000).

The participants in the present study demonstrated a high level of cooperation and responsiveness during the relaxation sessions and seemed to be successfully eliciting the relaxation response. Their studious dedication could have been enhanced by a longer relaxation intervention. One of the precise goals of this study was to teach the participants specific relaxation techniques that could be readily applied to everyday life situations. Fifteen short sessions, as successful as they may have been, were not enough for these students to fully learn and make use of all the requisite relaxation techniques.

Test Anxiety as a Viable Outcome Measure

Some researchers argue that test anxiety has little effect on the performance of students with high scholastic ability, and that there are relatively low correlations between grades and test anxiety because test anxiety does not affect all high-performing students equally. They further state that there are numerous reasons that these students experience superior academic achievement such as intense interest, intelligence, aptitude and socio-economic factors. These advantages tend to alleviate such potentially harmful psychological realities as test anxiety and low self-esteem (Tryon, 1980).
Other researchers have examined high performing students at the high school and college levels and have had success with not only reducing test anxiety but increasing test scores (Benson et al., 2000; Gregor, 2005; Kennedy & Doepke, 1999; Sharp et al., 2000). This researcher suggests a closer examination of a subset of high-achievers with high test anxiety and low self-esteem that tend to underachieve in testing situations.

*Self-Esteem as a Study Variable*

A lack of positive findings in this study regarding self-esteem and relaxation training and self-esteem and higher test scores could prompt other researchers to find innovative ways to investigate self-esteem among high-achievers. Numerous studies have found relaxation training to be an effective means of increasing self-esteem among adolescents (Benson et al., 1994; 2000; Benson et al., 1994; Rosenberg, 2007). Thus, the Rosenberg Self-Esteem Scale for Adolescents (SES) was chosen for this study because it is a widely used and respected survey. However, researchers may want to choose other self-esteem scales that could prove to be more applicable to the high-achieving student population or design a new scale with the high-achiever in mind.

The SES was validated with over 5,000 high school students of varying academic abilities. Such survey items as “All in all, I am inclined to feel that I am a failure” and “At times, I think I am no good at all” may have seemed unreasonable to the present study’s elite participants. One of the participating school’s classroom teachers, who assisted in handing out the surveys to the students, mentioned to this researcher that some of her students were joking about survey items on the SES. A redesigned survey that
includes items similar to a college or adult self-esteem scale may be more appropriate for these very discerning research subjects.

When studying high-achievers, it may be worth considering testing for locus of control rather than, or in addition to, testing for self-esteem. Young adolescents are beginning the new and difficult process of becoming emotionally mature, as well as making nascent strides towards self-actualization. An increase of internal locus of control has shown to be connected to the reduction of negative psychological indicators, and it may be a more discriminating method of examining high-achievers’ self-efficacy (Benson, et al., 1994).

Surveys versus Biological Testing Methods

The use of surveys as a sole measure in relaxation training studies has been the subject of some debate among researchers (Hill & Wigfield, 1984; Kraag et al., 2006; Tryon, 1980). In the present study, no biological testing methods were used to measure muscle tension, brain waves, vascular activity or heart rate in order to collect detailed physiological evidence of mental and physical changes. Many relaxation training studies have employed such methods with success (Benson, 1975; Benson et al., 1978; Counts et al., 1978; Ergene, 2003; Hoffman et al., 1982; Walton, 1980). Some researchers believe that high-achieving students, especially high achieving boys, tend to fake their responses on surveys (Hill & Wigfield, 1984). Thus, it would seem logical to consider utilizing some form of biological testing in order to elicit more precise scientific data. Other investigators, utilizing surveys without the inclusion of biological testing methods, have found great success in understanding adolescent stress among high-, moderate-, and low-
achievers (Benson et al., 2000; Gregor, 2005; Kennedy & Doepke, 1999; Sharp et al., 2000).

*When to Present the Posttest*

There has been debate among researchers regarding the optimal time to present posttests to participants. Some claim that the best time to administer a posttest, such as the FTA, is at the instance of taking a standardized test. A real-life, accurate reading of test anxiety can then be gathered in the “heat of the moment.” Others believe that test anxiety is a stable psychological construct that can be measured at different instances within the time frame of a given study. This researcher had limited access to the students; delivering the posttest six days after the conclusion of the standardized test was his best and perhaps only option. In spite of this supposed time lag, the posttest occurred only nine days after the administering of the last of 15 relaxation training sessions.

Some may surmise that the students in this study reported lower levels of test anxiety at the posttest phase due to the fact that the standardized testing had ended and the students were less anxious. Others may surmise that the positive residual effects of the relaxation training were still present when the treatment group took the posttest. The fact that the treatment group’s test anxiety significantly decreased from pretest to posttest phases and their self-esteem remained unchanged indicates that the relaxation training most likely played a role in this clear outcome differential. Furthermore, test anxiety only changed in the treatment group and not in the control group.
Small, Non-Randomized, Volunteer Sample

The use of a small (n = 48), non-randomized, volunteer sample limits external validity and makes this study’s results less conclusive. However, researchers should take note of the statistically significant reduction of test anxiety among treatment group participants as something worthy of further investigation. Also, the programmatic features of this study could be used as a feasible model for middle school teachers and counselors when introducing relaxation training programs in their schools.

Implications for Education

Building Comprehensive Relaxation Training Programs

The incomplete nature of this relaxation training program may have altered or limited the results. Due to time constraints on the part of the school, there was no school-wide attempt to incorporate what was learned during the relaxation sessions into the everyday classroom experience of the students. School counselors were not actively involved, and classroom teachers were involved only in a peripheral way. Students were asked to partake in the sessions outside the timeframe of regular scheduled classes and without the oversight of any of their classroom teachers or counselors. This researcher acted as the sole relaxation session leader.

Though this researcher coached the students to practice the specified relaxation procedures at home and in school, no other adult assisted in guiding the students through the learning process. In addition, the omission of a post treatment relaxation training phase (treatment follow-up) may have limited the students’ full understanding of this study’s relaxation training techniques.
Numerous researchers have advocated for school-wide stress reduction programs that involve the whole school community (Bass et al., 2002; Benson et al., 2000; Credit & Garcia, 1999; Laselle & Russell, 1993; Rimer, 2007). In assessing the results from their comprehensive, two-year relaxation response curriculum study with middle school students, Benson, et al. (2000) stated,

The relaxation response curriculum teaches students self-regulatory skills and strategies for self-care. Anecdotal reports from students in this study suggest that they were incorporating the skills they learned into their everyday lives…. [T]he benefits of incorporating a relaxation response curriculum into the schools outweigh the costs of implementing such a program. Students’ academic achievement scores improved and this type of curriculum has now been shown to be effective at different grade levels. (p. 163-164)

A comprehensive, school-wide stress management program specifically designed for upper middle school students and covering the entire academic year is recommended (Bass et al., 2002; Benson et al, 2000; Credit & Garcia, 1999; Kraag et al., 2006; Rimer, 2007). It would need to include long-term goals and objectives conceptualized around the needs of the intended school population, as well as specific ways in which the school community proposes to reduce school-related stress and improve academic outcomes.

Essential program components include:

1. Comprehensive training for staff and students;
2. Daily relaxation sessions administered to the students by the classroom teachers;
3. Full parental and staff involvement to assist students in the acquisition of relaxation skills as a means to manage stress and improve school performance;
4. Teacher-to-student and student-to-student dialogue and role playing for knowledge acquisition and long-term program viability;
5. Student relaxation journals to help students organize thoughts and feelings concerning the program; and
6. Intermittently administered teacher and student surveys to assess the progress and success of the program.

*Eighth Grade Students as a Subject Pool*

Eighth grade students tend to be less than forthcoming about their perceptions and feelings and somewhat reticent in their attempts at being actively engaged. With the onset of puberty and the accompanying leap into full adolescence, eighth graders are often awkwardly caught between the carefree lower middle school years and high school. As a subject pool, eighth graders can be challenging. Though this study’s participants proved to be cooperative to the extent of showing up for the relaxation training sessions, they tended toward boredom and dispassion and had to be regularly coaxed to hand in their Relaxation Training Journals.

Much relaxation research includes high school and college students as well as younger elementary and middle school students who tend to be motivated and enthusiastic. While this researcher believes eighth graders are could benefit from relaxation training programs, it may be more effective to involve them before they reach
the eighth grade. Many relaxation training researchers have enlisted younger school children with success (Benson et al., 2000; Cabot, 1997; Gilbert & Orlick, 1996; Lopata, 2003; Stueck & Gloeckner, 2003).

*The Benefits of Self-Care for Adolescents*

An important facet of this study is that it instilled in the participants the idea of self-care (Cullen-Powell et al., 2005; Newsome et al., 2006; Rimer, 2007; Stanley et al., 2004). During the two lecture/discussions at pretest and posttest, this researcher explained the significance of learning specific relaxation training techniques in order to apply them to everyday situations. Also, students were encouraged to apply what they learned during the relaxation training sessions to stressful situations in school and at home. Some researchers train their subjects to utilize relaxation modalities simply for the sake of data collection. In this study participants were persuaded to internalize certain techniques for future use and thus become active participants for the sake of their own betterment. This educative dimension was a vital design component that gave educational value and meaning to this study, and it should be an important factor in designing future studies.

*Analysis of Students’ Relaxation Training Journal Responses*

In response to Journal Section #1, which asked what the students’ general impressions of the relaxation training program were, several student responses stood out as being important, including the following: “I’m almost a different person,” and “I have never experienced anything like relaxation training before…” and “It’s [sic] seems healthy and makes me feel more confident and happy.” Another student said, “Weird,
different; I used to think of meditation as funny and weird, but now I see that it can really help people.”

Such revelatory comments can have a powerful and lasting impression on how these students perceive self-care interventions such as relaxation training. The “Aha!” moment for these students seems to have occurred when they realized that they felt “different” while partaking in the relaxation sessions.

In response to Journal Section #2, which asked whether or not today’s relaxation session helped them feel relaxed, the following responses seemed significant, including: “I felt a little nervous today and couldn’t focus as much because I have a lacrosse game today,” “I’ve got a quiz to take in English class and I hope this will help me do better,” and “The relaxation time seems to get easier to do each day, like a good habit.”

The first two students realized how the potential benefits of the relaxation sessions could help them with upcoming stress-inducing experiences like a competitive sports event or a testing situation. The third remark highlights the importance of making relaxation training a daily part of one’s life.

In response to Journal Section #3, which asked if the students had experienced a stressful moment recently, and how they reacted to it, some comments were: “I had an argument with my dad about homework. The training seems to make me a little less aggressive in arguments,” and “My sister and I are always fighting. Maybe this training could help me talk slower to her.” These students are beginning to understand how relaxation training can reduce their levels of aggression and improve their attitudes towards others.
In response to Journal Section #4, which asked if relaxation training could reduce test anxiety, and how the students might be able to utilize their newly acquired skills in a testing situation, students said the following: “The slow, relaxing breathing really calms me down. That would be good to do before a test,” and “I love taking tests because they are like puzzles or game. But I don’t always do well on tests because I go too fast. If I could slow down that might help,” and “I like calming words while breathing. That trains my mind to think differently.”

These students are making the connection between a slow, calming breath, with or without a cue word, and becoming more relaxed. This understanding that the breath is the gateway to a state of calmness is essential for eliciting the relaxation response and all its requisite benefits.

In response to Journal Section #5, which asked if integrating relaxation techniques into everyday life is possible for them, and which relaxation training techniques the students could imagine using on a daily basis, they responded with some of the following: “1. Yes. 2. TONS! 3. Deep breathing. Tension, release. 4. Fights. Deep breathing gives me time to think and calm down,” and “Positive affirmations is [sic] something I’ve done before and would be great to use for school work,” and “If I meditated every day that would be cool,” and “I could use many of these techniques all the time. They are simple and don’t take a lot of time.”

Here, the students are claiming a chosen relaxation technique to be something they can understand and make a part of their lives on a regular basis. Benson (1975) stated that the relaxation response is a learned phenomenon that takes time and practice to
physiologically and mentally integrate. All of the above techniques the students mentioned can play a critical role in bringing forth a calmer, happier and more focused individual. The fact that the students understand that relaxation training is vital to improving their lives is an important breakthrough that could have positive ramifications for them and the people around them.

Not all of the students’ responses were positive. The following are some negative statements reported by the students pertaining to the relaxation training sessions: “It was really hard for me to feel relaxed. I kept wanting to open my eyes and move around,” and “I started getting nervous, and my muscles starting [sic] getting stiff,” and “The tense-release part made me feel tight in my neck,” and “I kept thinking of stuff; I couldn’t stop it.”

It can take several days of participation to adjust to a contemplative atmosphere of calmness and quietude. Breathing slowly and staying calm and peaceful may be antithetical to how these young people perceive themselves. While sitting very still in a meditative state can cause minor physical and mental discomfort, none of the students openly complained that the sessions were too mentally or physically demanding; nor did they demonstrate any hostility or anxiety.

When working with adolescents it can be helpful to remind them that: (a) because their minds are accustomed to being flooded with thoughts and images, they may not be able to eliminate them completely while in a meditative state; (b) they can reduce distracting thoughts by focusing on the exhalation of the breath; (c) experiencing some
muscle tension or jitteriness is a normal part of adjusting to sitting still and relaxing; and (d) relaxation techniques take time and practice to master.

There were no student responses to Journal Section #6, which invited students to write a stream-of-consciousness entry, using the technique of free-writing, reflecting their thoughts, feelings or any other inspirations concerning their experiences with relaxation training. If this researcher had had the additional time to facilitate a few minutes’ of guided free-writing after each relaxation training session, more insightful information could have been collected.

Conclusion

The pressure to succeed in our competitive society is sometimes overwhelming and unhealthy to body, mind and spirit. In our often fast-paced and aggressive culture, it is assumed that high-achieving students are the ones best primed to successfully function and compete. Whether these students are in an academic setting with its concomitant high-stakes testing and performance-based scholastic tracking, or in the real world dynamics of their social milieu, high-achieving adolescents may be the least likely segment of the school-aged population to receive the benefits of relaxation training (Rimer, 2007; Way & Hughes, 2007).

According to current research, there is ample evidence that upper middle school adolescents can experience high levels of stress and anxiety due to such critical factors as the onset of puberty and peer pressure (Benson et al., 2000; Rimer, 2007; Rosenberg, 2003). Among high-achieving students, researchers have found serious issues pertaining to self-esteem and test anxiety as they relate to parental, academic and peer pressure, drug
and alcohol abuse and the increased frequency of high-stakes, standardized testing (Bass et al., 2002; Benson et al., 2000; Credit & Garcia, 1999).

Studies such as this should begin to dispel the notion that high-achievers experience little or no test anxiety. The results of this study indicate that relaxation training may reduce test anxiety in high-achieving eighth grade students. In addition, lower test anxiety may lead to higher test scores. With scholastic and societal pressures significantly increasing for many students in upper middle school, it would seem prudent to implement a comprehensive, well-designed relaxation training program as an essential component of the school culture.
REFERENCES


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APPENDICES
APPENDIX A

Parent Letter/Consent Form
[Dated and signed on participating school letterhead]

Dear 8th Grade Parents,

As a school that strives to promote balance in the lives of its students, we're often in discussion about how we provide opportunities for students to learn to manage their increasingly busy schedules and the rising expectations which get placed on them. One such opportunity has presented itself for our 8th graders this year: to participate in a relatively brief relaxation training program designed to teach simple, time-tested relaxation techniques to improve test-taking ability and reduce stress. All participating students will be asked to complete two short questionnaires pertaining to test anxiety and stress during the spring semester.

As part of his doctoral project, Jonathan Kasper [AKA John P. Kacprowicz, Jr.], long time [school name deleted to maintain anonymity] lower school guitar teacher, will be administering the relaxation sessions during the spring semester once a day over the course of three weeks. Each relaxation session will last approximately 6 to 7 minutes and will take place in a specifically allocated room just before regular scheduled classes commence, and will be programmed three weeks in advance of the administering of standardized tests this spring. Students will be seated in their chairs as Mr. Kasper trains the students how to relax their muscles, deep breathe and use positive affirmations.

After several discussions between the 8th grade faculty and Mr. Kasper, we've identified a schedule that will take very little time from students' academic day while enabling an experience that may hold long-term benefits for the students involved (and, I hope, for future classes as well). As a school that seeks to model the best educational practices, it may not surprise you to know that we're solicited regularly with requests to participate in studies of apparent educational value, and, true to our mission, we try to participate where appropriate and where we believe value exists for our students. Last year, for instance, you may recall 7th graders participated during math class in a Vanderbilt graduate-level study designed to collect data about how students learn the Distributive Property most effectively.

Many adolescent students can benefit from acquiring the skills to properly relax themselves during demanding situations such as test taking and public speaking. Mr. Kasper and I agree that relaxation training is a great way for [school name deleted to maintain anonymity] Middle School students to learn to relax and feel calm in order to
reduce stress in today’s fast-paced world. Included along with this letter is a short consent form for you to read and sign.

If you have any questions about this program or about relaxation training, please feel free to contact Mr. Kasper via email: dragonfly927@comcast.net, or by phone: (615) 383-8516. He will be very happy to talk to you and answer any questions.

Sincerely,
[principal’s name deleted to maintain anonymity]
Head of Middle School
[school contact information deleted to maintain anonymity]

--------------------------------------- CUT HERE ----------------------------------------

PARENTAL CONSENT FORM

Yes, I give permission for my son/daughter to participate in the [school name deleted to maintain anonymity] relaxation training program for eighth graders during the spring semester of 2008. Jonathan Kasper, M.Ed. has my permission to administer the relaxation training program to my child, and to use the data from this project as part of a doctoral dissertation. Standard research rules of anonymity will be upheld to protect the identity of the participating students as required by the College of Education and the Institutional Review Board at Tennessee State University. Any student can opt out of this project at any time. All self-report scores and test scores will be kept anonymous by assigning each student a random number, and research data will be destroyed at the conclusion of this study. Mr. Kasper can be contacted at dragonfly927@comcast.net or (615) 383-8516.

Date: ____________________________

Parent/Guardian Signature: ____________________________________________

Child’s Name: _________________________________________________________
APPENDIX B

Relaxation Training Narrative

The relaxation leader uses a quiet and pleasant voice while guiding the students through the relaxation regimen. The classroom lights are turned off. A “Do Not Disturb” sign is hung outside the classroom door. The relaxation narrative is read verbatim during each session. The narrative, which includes segments dedicated to deep breathing, cue-controlled relaxation, progressive muscle relaxation, and positive suggestion phrases, is as follows:

[Deep breathing] *Sit in a comfortable upright position with your palms on your upper legs. Close your eyes and settle into the place where you are sitting, with a good posture. Begin to inhale and exhale slowly and gently until these deep breaths feel natural. You may inhale through your nose or silently through your mouth. Relax your facial muscles including the jaw. Release your tongue from the roof of your mouth.*

[Guided imagery] *As your body and mind become calm and tranquil, imagine yourself in a relaxing situation, sitting by a crystal clear lake or wandering through a beautiful field. If distracting thoughts come into your mind, or if you’re interrupted by outside noise, let the thought go. Continue breathing deeply and slowly. (Pause for approximately 30 seconds.)*

[Progressive muscle relaxation] *While sitting in stillness, tense the muscles of your shoulders, arms and hands for three seconds... one, two, three... and now relax*
them for three seconds... one, two, three.... Again, tense the muscles of your shoulders, arms and hands for three seconds... one, two, three... and now relax them for three seconds... one, two, three.... And one more time, tense... and relax....

Tense your stomach abdominal muscles for three seconds... one, two, three... and now relax them for three seconds... one, two, three.... Again, tense your stomach abdominal muscles for three seconds... one, two, three... and now relax them for three seconds... one, two, three.... And one more time, tense... and relax....

Tense the muscles of your legs, feet and toes for three seconds... one, two, three... and now relax them for three seconds... one, two, three.... Again, tense the muscles of your legs, feet and toes for three seconds... one, two, three... and now relax them for three seconds... one, two, three.... And one more time, tense... and relax....

[Deep breathing] Remaining in a comfortable but upright posture, breathe in slowly and gently, and breathe out slowly and gently. Breathing in... and breathing out.... Breathing in... and breathing out....

[Cue-controlled relaxation] As you continue with your slow, gentle breathing, silently say the word “calm” to yourself on each long exhale. Breathe in... and breathe out, “calm.” Breathe in... and breathe out, “calm.” Keep your eyes closed as you continue in this breathing pattern. (Pause for approximately 30 seconds.)

[Positive suggestion phrases] Repeat the following phrase to yourself at your own pace: “Worry is a thing of the past; I feel calm, relaxed and confident. (Pause) Worry is a thing of the past; I feel calm, relaxed, and confident.” (Pause) Continue silently
repeating that phrase to yourself at your own pace: “Worry is a thing of the past; I feel calm, relaxed and confident.” (Pause for approximately 30 seconds.)

Eyes are closed and breath is slow and relaxed. (Pause) As you go through the rest of the day, remember what this relaxed state feels like. If you become nervous or upset at any time during the day, breathe slowly and silently say the word “calm” on your exhalation to relax yourself.

When you are ready, very slowly open your eyes. (Pause) Class, you did a great job. Thank you very much. We’ll see you tomorrow. (The duration of this narrative is approximately 6.5 minutes.)
APPENDIX C

Students’ Relaxation Training Journals

The participating students were given three-ring binders, full of loose-leaf, lined paper, divided into six research-relevant sections. The journals included introductory instructions. At the beginning of each section were printed questions to facilitate writing, except for the sixth section, which included directions for free-writing.

Introductory Instructions for Students’ Journal

This Relaxation Writing Journal will be for your use during the course of the three-week Relaxation Training Program. It is divided into six sections with questions to help you organize your thoughts and feelings about the relaxation program. Journals will be collected on each Friday and will be returned on the following Monday on a volunteer basis only.

Journal writing is voluntary, but the researcher would find it helpful to summarize your feedback and catalogue it in his study. Your writing may be brief or lengthy and in any style that is comfortable for you. Feel free to add more paper if necessary. Please write the date after each entry. Thank you for your participation.

Your journal belongs to you. It will remain private and anonymous and will be returned to you at the end of this study.

Journal Section #1: General Impressions

1. What are your general impressions of the relaxation training program?
2. Does relaxation training make you feel different?

3. In situations at home or at school, are you acting differently?

4. As time goes on, can you tell if relaxation training is having a positive, negative, or neutral effect on you? Please explain.

*Journal Section #2: Feeling Different Today*

1. Do you feel different because of today’s relaxation training session? Try to be specific.

2. Did you feel like you were able to relax during today’s session more than usual or less than usual? Why? What was different?

*Journal Section #3: Stressful Moments*

1. Did you experience a stressful moment or event recently? If so, how did you react to it?

2. Did the relaxation training sessions that you’ve been shown have any impact on the way in which you responded? If so, how?

*Journal Section #4: Taking Tests*

1. Do you think that relaxation training could be a useful way to ease nervous tension before and during taking tests?

2. How might you imagine yourself using relaxation techniques in a test/exam situation?

*Journal Section #5: Using Relaxation Techniques*

1. Do you think it would be beneficial to integrate relaxation techniques like the ones you’ve learned into your everyday life?
2. Do you think it would help lessen the degree of anxiety or stress?

3. If so, what kinds of relaxation techniques could you imagine using on a daily basis: deep breathing with eyes closed; calming words on the exhalation; saying positive affirmations while in a relaxed state; any others?

4. In what kinds of situations would you include any of these techniques? How might it help?

*Journal Section #6: Free-Writing*

In this section you may write any thoughts, feelings, concepts, conclusions, ideas, or inspirations concerning relaxation training or any other related topic or event. In free-writing, the only rules are: don’t stop and don’t judge.

Try and write continuously for at least three or four minutes without stopping or lifting your pen from the paper. You may scribble until words come to you. Don’t second-guess your writing here. Let your mind go and let your writing flow!
APPENDIX D

Friedben Test Anxiety Scale for Adolescents* (FTA)

Below is a list of statements dealing with your general feelings about yourself. If you

STRONGLY AGREE, circle SA. If you AGREE with the statement, circle A. If you

DISAGREE, circle D. If you STRONGLY DISAGREE, circle SD.

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>1. STRONGLY AGREE</th>
<th>2. AGREE</th>
<th>3. DISAGREE</th>
<th>4. STRONGLY DISAGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOCIAL DEROGATION:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. * If I fail a test I am afraid I’ll be rated as stupid by my friends.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>2. * If I fail a test I am afraid people will consider me worthless.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>3. * If I fail a test I am afraid my teachers will derogate me.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>4. * If I fail a test I am afraid my teachers will believe I am hopeless</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>5. * I am very worried about what my teacher will think or do if I fail</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>6. * I am worried that all my friends will get high scores in the test</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>7. * I am worried that failure in tests will embarrass me socially.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>8. * I am worried that if I fail a test my parents will not like it.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td><strong>COGNITIVE OBSTRUCTION:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. During a test my thoughts are all clear and I neatly answer all</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>questions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. During a test I feel I’m in good shape and that I’m organized.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>11. I feel my chances are good to think and perform well in tests.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>12. I usually function well in tests.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>13. * I feel I just can’t make it in tests.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>14. * In a test I feel like my head is empty, as if I have forgotten all I have learned.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>15. * During a test it’s hard for me to organize what’s in my head in an orderly fashion.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>16. * I feel it is useless for me to sit for an examination; I shall fail no matter what.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>17. * Before a test it is clear to me that I’ll fail no matter how well prepared I am.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
</tbody>
</table>

**TENSIENESS:**

| 18. * I am very tense before a test, even if I am well prepared. | SA | A | D | SA |
| 19. * While I am sitting in an important test, I feel that my heart pounds strongly. | SA | A | D | SA |
| 20. * During a test my whole body is very tense. | SA | A | D | SA |
| 21. * I am terribly scared of tests. | SA | A | D | SA |
| 22. * During a test I keep moving very uneasily in my chair. | SA | A | D | SA |
| 23. I arrive at a test with no serious tension or nervousness. | SA | A | D | SA |

*Asterisks and subscale headings will not be revealed on the students’ copies of this self-report.*

Scoring for the FTA 4-point Likert questionnaire: SA = 3, A = 2, D = 1, SD = 0. Items with an asterisk are reverse scored, that is, SA = 0, A = 1, D = 2, SD = 3. Scores for the 23 items are tabulated. High scores indicate low test anxiety.
APPENDIX E

The Rosenberg Self-Esteem Scale for Adolescents* (SES)

Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle SA. If you agree with the statement, circle A. If you disagree, circle D. If you strongly disagree, circle SD.

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>1. STRONGLY AGREE</th>
<th>2. AGREE</th>
<th>3. DISAGREE</th>
<th>4. STRONGLY DISAGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. On the whole, I am satisfied with myself.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>2. * At times, I think I am no good at all.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>3. I feel that I have a number of good qualities.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>4. I am able to do things as well as most other people.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>5. * I feel I do not have much to be proud of.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>6. * I certainly feel useless at times.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>7. I feel that I am a person of worth, at least on an equal plane with others.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>8. * I wish I could have more respect for myself.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>9. * All in all, I am inclined to feel that I am a failure.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
<tr>
<td>10. I take a positive attitude towards myself.</td>
<td>SA</td>
<td>A</td>
<td>D</td>
<td>SA</td>
</tr>
</tbody>
</table>

*Asterisks will not be revealed on the students’ copies of this self-report.

Scoring for the SES 4-point Likert questionnaire: SA = 3, A = 2, D = 1, SD = 0. Items with an asterisk are reverse scored, that is, SA = 0, A = 1, D = 2, SD = 3. Scores for the ten items are tabulated. High scores indicate high self-esteem.
Students’ Responses to Relaxation Training Journal Questions

Journal Section #1: General Impressions

What are your general impressions of the relaxation training program? Does relaxation training make you feel different? In situations at home or at school, are you acting differently? As time goes on, can you tell if relaxation training is having a positive, negative, or neutral effect on you? Please explain.

Student A. “The relaxation training program helps relax me. It helps me throughout the day. If I get stressed I simply close my eyes and think that everything is OK.”

Student B. “I like it. I should do it at home. I feel good. Can’t tell any big difference yet.”

Student C. “It makes me feel different; like I’m almost a different person; calmer and less nervous. It seems like the day slows down a little when I do this.”

Student D. “I have never experienced anything like relaxation training before, and never knew how simple it could be to calm myself. Just after a few days of relaxation I feel less anxious and stressed out. This is very positive.”

Student E. “Relaxation training is something that looks easy to do, but for me it’s not so easy to sit still and get quiet. It was really hard for me to feel relaxed. I kept wanting to open my eyes and move around.”
Student F. “It’s [sic] seems healthy and makes me feel more confident and happy.”

Student G. “Weird, different; I used to think of meditation as funny and weird, but now I see that it can really help people.”

Student H. “The tension/release is the best because it teaches me how to relax.”

Journal Section #2: Feeling Different Today

Do you feel different because of today’s relaxation training session? Try to be specific. Did you feel like you were able to relax during today’s session more than usual or less than usual? Why? What was different?

Student A. “I felt a little nervous today and couldn’t focus as much because I have a lacrosse game today.”

Student B. “Not really. First day I was pretty relaxed.”

Student C. “It’s not hard for me to relax during the training; my mind needs to slow down.”

Student D. “During today’s session I was very sleepy because I was up late studying. I thought I might fall asleep while deep breathing but I didn’t. It still felt good to be here.”

Student E. “I’ve got a quiz to take in English class and I hope this will help me do better.”

Student F. “The relaxation time seems to get easier to do each day, like a good habit.”
Student G. “I kept thinking of stuff; I couldn’t stop it. I can’t tell a difference from day to day; it’s all the same but feels good.”

Student H. “I started getting nervous, and my muscles starting [sic] getting stiff. Today’s session was very quiet. I felt very calm at times, and not so calm at other times. It’s not easy staying calm when I’m used to being very fast and nervous.”

Journal section #3: Stressful Moments

Did you experience a stressful moment or event recently? If so, how did you react to it? Did the relaxation training sessions that you’ve been shown have any impact on the way in which you responded? If so, how?

Student A. “I usually try to use the relaxation techniques before sports. It keeps me on track.”

Student B. “Yes. Breathed deeply. I would’ve been really mad otherwise.”

Student C. (nothing written)

Student D. “Just getting through the school day is stressful for me. Usually I feel stressful when I’m in science class because it’s a difficult subject for me. Deep breathing might help.”

Student E. “I had an argument with my dad about homework. The training seems to make me a little less aggressive in arguments.”

Student F. (nothing written)

Student G. “Stress seems to be all around. My parents, me, my sister, the teachers, my friends.”
Student H. “My sister and I are always fighting. Maybe this training could help me talk slower to her.”

Journal Section #4: Taking Tests

Do you think that relaxation training could be a useful way to ease nervous tension before and during taking tests? How might you imagine yourself using relaxation techniques in a test/exam situation?

Student A. “Didn’t have any, but good method.”

Student B. (nothing written)

Student C. “I know this will help me before tests. It helps my mind focus and relax.”

Student D. “Tests can be so serious and difficult; they take a lot of energy to do well. Relaxation techniques like closing my eyes and breathing out a calming word would help.”

Student E. “The slow, relaxing breathing really calms me down. That would be good to do before a test.”

Student F. “Tests are the hardest thing in school. Calming myself down during tests would be great.”

Student G. “I love taking tests because they are like puzzles or games. But I don’t always do well on tests because I go too fast. If I could slow down that might help.”

Student H. “I like the calming words while breathing. That trains my mind to think differently.”
Journal Section #5: Using Relaxation Techniques

Do you think it would be beneficial to integrate relaxation techniques like the ones you’ve learned into your everyday life? Do you think it would help lessen the degree of anxiety or stress? If so, what kinds of relaxation techniques could you imagine using on a daily basis: deep breathing with eyes closed; calming words on the exhalation; saying positive affirmations while in a relaxed state; any others? In what kinds of situations would you include any of these techniques? How might it help?


Student B. (nothing written)

Student C. “This relaxation could really help me in sports where the pressure to win is high.”

Student D. “Positive affirmations is [sic] something I’ve done before and would be great to use for school work.”

Student E. “When I’m arguing with my mom or dad I could use relaxation techniques like deep breathing.”

Student F. “I like calming words on the exhale. That really helps me.”

Student G. “The tense-release part made me feel tight in my neck. If I meditated every day that would be cool.”

Student H. “I could use many of these techniques all the time. They are simple and don’t take a lot of time.”
Dear Tennessee State University Dissertation Committee Members,

As principal of [school name deleted to maintain anonymity] Middle School, I, [principal’s name deleted to maintain anonymity], give permission to Jonathan Kasper [AKA John P. Kacprowicz, Jr.] to administer his relaxation training program to the [school name deleted to maintain anonymity] 8th grade class during the spring semester of the 2007-2008 academic year as partial fulfillment of his doctoral degree in education.

Mr. Kasper’s relaxation training project will include two lecture/discussions with the participating students, the administering of two published questionnaires designed for the young adolescent, and a three week relaxation treatment period (6-7 minutes per day) utilizing the research-proven relaxation techniques of progressive muscle relaxation, cue-controlled relaxation, and positive suggestion phrases.

According to Mr. Kasper, all research rules of anonymity will apply to this research project in order to protect the identity of the participating students. Only those parents who have signed a consent form will have their children participate. Any student can opt out of this project at any time.

I look forward to working with Mr. Kasper on this project and hope the students benefit from relaxation training.

Yours truly,
[principal’s name deleted to maintain anonymity]
Head of Middle School
[school contact information deleted to maintain anonymity]

Signature _[deleted to maintain anonymity]_ Date __________________