Deep Muscle Relaxation and Guided Fantasy as Techniques in the Reduction of Anxiety and Increase of Reading Performance of Third Grade Students

Laurel Didget

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DEEP MUSCLE RELAXATION AND GUIDED FANTASY AS TECHNIQUES
IN THE REDUCTION OF ANXIETY AND INCREASE OF
READING PERFORMANCE OF THIRD GRADE STUDENTS

THESIS

Submitted to the Graduate Committee of the
Department of Curriculum and Instruction
Faculty of Education
State University College at Brockport
in Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Education

by
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Brockport, New York
December, 1983
Abstract

The purpose of this study was to determine whether the techniques of Deep Muscle Relaxation (DMR) and Guided Fantasy (GF) could reduce the level of anxiety in highly anxious children. It was also the intent of this investigation to observe whether reduction of anxiety would result in improved reading achievement and elimination of various problematic reading behaviors. Finally, the study was to indicate whether a significant relationship exists between anxiety level and reading achievement.

Statistical analysis of pre and post anxiety reading scores of the control and treatment groups consisting of highly anxious third graders revealed the following results. The relaxation techniques proved effective in significantly reducing anxiety. Although no statistically significant change in reading achievement occurred, a definite trend towards improvement was apparent.

Problematic behaviors indicative of anxiety and inhibiting fluent efficient reading performance were still present at the conclusion of the treatment program. This could be an indication that a longer relaxation instruction period was necessary. Finally, no significant relationship between reading achievement and anxiety was discovered. This unexpected conclusion conflicts with the majority of research to date. Further investigation in this area is warranted.
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Chapter I

Statement of the Problem

Since mandatory education laws require that everyone spend a substantial portion of his life in educational institutions, Tobias (1977) asserts that reduction of anxiety in education would be of great benefit to the general population. The fact that children are in school for large amounts of time places schools in the position to make an important contribution to the emotional development of children and young adults. Davis (1966) and Hefferman (1966) observe that, unfortunately, they are instead often a source of emotional problems for a variety of reasons including overcrowding, lack of individualized teaching, ability grouping, and excessively high or unrealistic standards for all students regardless of ability, interest, and motivation.

Excessive anxiety can create a host of problems in both academic performance and personal relationships. Proeger and Myrick (1980) state that cognitive functions necessary for scholastic tasks involving complex learning are impaired by anxiety. Furthermore, their study and observations indicate that incidental learning is reduced because anxiety limits the perceptual field of the learner, distorts his perceptions, and reduces responsiveness to the environment. Ruepush (1963) reviewed a body of literature showing that anxiety in children is negatively related to scores of tests of creativity and curiosity,
indicating that those vital qualities for learning are inhibited in the highly stressful student. The results of Penney's (1965) administration of a "reactive curiosity scale" also support the view that anxious children are less adventurous and avoid risk taking. In addition, Proeger and Myrick (1980) note from their extensive observations that verbal and non-verbal skills needed for problem solving tasks suffer when students are highly anxious.

More specifically, anxiety has an adverse effect on the acquisition and mastery of reading skills. Gifford and Marston (1966) found that comprehension is poor in highly anxious students and reading rate is retarded. The results of Merryman's (1974) study also indicate poor comprehension at literal as well as inferential levels in addition to vocabulary deficits. Since a child's self concept and sense of personal worth is strongly linked to his academic performance, especially during the early years, lack of achievement in school can result in low self esteem.

The anxiety-prone child demonstrates some undesirable personality traits which are readily recognized by peers and adults (Cowen, Zax, Klein, Izzo, & Trost, 1965). Avoidance and other negative reactions from these significant others reinforce the anxious student's deteriorating feeling of self confidence.

The debilitating consequences of excessive anxiety in an individual's educational success and personal relationships make it apparent that the tendency toward anxiety needs to be identified and remedied early in a child's formative years. Proeger and Myrick (1980)
and Forbes (1979) stress that the tendency toward anxiety proneness (trait anxiety) begins in childhood and needs to be arrested immediately to avoid the emotional anguish resulting from the poor relationships and lack of school success that accompany it. The escalation of the seriousness of the results of anxiety in adolescent years is also undoubtedly a reason for teachers and parents to make every attempt to alleviate excessive tensions early in a child's development.

Purpose

The purpose of this study was to determine whether the techniques of Deep Muscle Relaxation (DMR) and Guided Fantasy (GF) could reduce the level of anxiety in highly anxious children. It was also the intent of this investigation to observe whether reduction of anxiety would result in improved reading achievement and elimination of various problematic reading behaviors. Finally, the study was to indicate whether a significant relationship exists between anxiety level and reading achievement.

The questions to be answered were:

1. Are the relaxation techniques of DMR and GF effective in the reduction of anxiety in highly anxious children?

2. Does the reduction of anxiety by means of DMR and GF improve reading achievement in highly anxious children as measured by the Ekwall Reading Inventory?

3. Does the reduction of anxiety by means of DMR and GF decrease various problematic reading behaviors in highly anxious children as measured by the Ekwall Reading Inventory?
4. Is there a significant relationship between anxiety level as measured by the State-Trait Anxiety Inventory for Children and reading achievement as measured by the Metropolitan Achievement Tests?

Need for the Study

In light of the far reaching, negative effects of excessive anxiety, it is clear that the development of educational programs aimed at reducing anxiety or adaptation of instruction to certain levels of anxiety would have a very positive influence on society (Tobias, 1977). Sieber (1977) observes that in order to alleviate excessive anxiety it is necessary to modify either the anxiety producing situation, the perception of the situation, the reaction to the situation, or all three factors. It is important to remember that all steps of the anxiety process are interrelated and any one can affect any of the others.

Probably the most obvious remedy to the problem is for teachers to teach more effective problem solving skills. Students need guidance in generating and evaluating a variety of solution alternatives. A great deal of practice and experience approaching problems calmly and logically working out viable solutions in a controlled, "safe" setting can build confidence in coping abilities and make stressful conditions encountered in daily life less ominous and non-threatening.

I. G. Sarason (1972) and Sieber (1977) state that anxious students need help focusing attention on the task facing them since their fear usually directs their concentration to themselves or thoughts of failure, preventing them from performing efficiently. Changing this self defeating
attention pattern can contribute to a more competent, realistic appraisal of the situation and to implementation of an effective coping strategy.

This study made use of Deep Muscle Relaxation (DMS) because it is an anxiety reducing technique that incorporates exploration of problem solving skills as well as increasing student knowledge and understanding of the nature of anxiety and its causes and effects. Systematic relaxation of various muscle groups affected by anxiety was also taught. Proeger and Myrick (1980) and Koeppen (1974) noted the advantages of DMR. It is feasible for classroom use and requires no special training or preparation other than familiarity with a "script" that provides directions for helping children to relax different muscles.

Wittmer and Myrick (cited in Proeger & Myrick, 1980) describe Guided Fantasy (GF) as a useful technique in promoting a feeling of calmness and also in stimulating self exploration and creative imagination. It was used in conjunction with DMR in this study as in Cotler and Guerra's (1976) relaxation tape. The students closed their eyes and a pleasant scene was vividly described by the teacher to help evoke images. When students were more experienced with the technique, they were asked to visualize their own favorite place. Students were encouraged to be acutely aware of their senses in the imagined setting and to let their imaginations roam freely.

Identification and validation of techniques successful in anxiety reduction was a primary objective of this study in hopes it could alleviate the stress of children highly anxious in reading situations,
thereby improving performance in an area essential to most learning. Gottfried (1982) observes that the need to examine specific relationships is indicated by theory and research supporting the view that anxiety and academic intrinsic motivation are differentiated into specific components and vary across situations.

Limitations of the Study

It is doubtful that feelings of anxiety and inferiority that have accumulated over a period of years can be eliminated during an eight week period but an attempt was made to diminish them to some degree and to provide techniques to alleviate the effects of anxiety.

The administrator of the pre and post Ekwall Reading Inventory also instructed the treatment group in DMR and GF. The rapport established during the eight week treatment period may have alleviated anxiety to some degree for the treatment group during the post Ekwall administration while the control group may have felt some anxiety when asked to read for a stranger.

Summary

This study was an attempt to determine a significant relationship between anxiety and reading performance. The intent of this investigation was also to evaluate the successfulness of DMR and GF in anxiety reduction. It was theorized that alleviation of stress would improve reading achievement and eliminate or lessen problematic reading behaviors.
Chapter II

Review of the Literature

Introduction

One purpose of this review is to present a summary of researchers' views on the nature of anxiety in order to provide the reader with a basic understanding of the construct. In addition, this review reports findings on the typical personality characteristics and behaviors of the anxious student and the effects of anxiety on academic performance and educational achievement. A description of the anxiety coping techniques of Deep Muscle Relaxation and Guided Fantasy are included.

The Nature of Anxiety

Anxiety is a normal part of our lives and serves an essential function in enabling us to deal with a sometimes hostile environment. It is, in fact, a very appropriate response at certain times. This might seem a curious statement considering the negative connotations normally associated with anxiety. Some common definitions of the construct offered by researchers support those connotations: an unavoidable, unpleasant experience having physiological, phenomenological, and behavioral manifestations (Sieber, 1977), fear when there is no tangible physical danger (Beck, 1972; Cattell, 1963; Kolb, 1973; Nichols, 1974; Ruebush, 1963; as cited in Proeger & Myrick, 1980), fear of failure to meet a standard or fear that one does not hold the appropriate standard (Satre, 1956).
Sieber (1977) borrows from Spielberger's (1972) concept of anxiety as an emotional process illustrated in the flow chart below. The accompanying explanation gives some insight into the process and a clearer understanding of both the positive and negative aspects of anxiety.

1. An evaluative situation arises that has the potential of being stressful to an individual.

2. The individual perceives the situation as dangerous because of a strong possibility of failure and loss of self esteem.

3. Physiological responses and conscious preoccupation with those responses in combination with such feelings as distress, helplessness, shame, and self deprecation appear.

4. A reappraisal of the situation is considered in the individual and he searches to find a way to deal with the situation.

5. The individual may find an effective coping strategy to solve the problem and alleviate any further stress or could choose an unhealthy and unhelpful alternative causing him to blunder through impulsively, exhibit defensiveness, or simply leave the situation.

There are external and internal circumstances such as the objective characteristics of the situation, and the prior knowledge, attitudes, and acquired skills of the individual determining the outcome of Step 5. These circumstances affect whether anxiety serves a useful purpose by providing the motivation that mobilizes an individual to cope with a problem using positive problem skills or whether anxiety serves as a debilitating force that perpetuates itself.
Some studies (Barrow, 1982; Kaiser & Polczynski, 1982; Merryman, 1974) indicate that moderate levels of anxiety can enhance performance in certain areas. They also note that excessive anxiety produces the opposite result. The problems surrounding anxiety arise when the emotional process does not function optimally and maladaptive forms of coping such as bravado, escape, avoidance, or focus on fear or self rather than the task at hand are resorted to. Lack of coping skills or excessively high anxiety levels could trigger a malfunction in the process. The need to modify the anxiety process by interceding with instruction and guidance or changing the curriculum design then becomes apparent so individuals can eliminate the negative aspects, develop competence in coping and function at full potential.

Phenomenological, physiological, and behavioral responses accompany an individual's reaction to any potentially stressful situation and can be related to Spielberger's process. The phenomenology of anxiety refers to the individual's conscious awareness of his anxiety produced reaction and is measured by self report (Step 3). Heart rate, systolic blood pressure changes, skin moisture, and trembling are some physiological responses commonly occurring with anxiety (Step 3). Anxiety may also be manifested in the behaviors of the actual task performance. This could involve measurement of cognitive (Step 4) or physical (Step 5) behaviors.

Anxiety can be classified in two main categories (Spielberger, 1972). Trait anxiety is a stable condition of an individual's general disposition. When this condition exists, a wide range of objectively
nondangerous situations are nonetheless perceived as threatening and the individual can be described as anxiety prone. This affliction develops as a result of harsh personal experiences with failure or observation of uncomfortable consequences of other people's failures. State anxiety is transitory in nature and arises when a person is confronted with a stressful situation such as taking a test or giving a speech.

High levels of trait anxiety in a person are usually associated with higher levels of state anxiety. A complex task may, however, elicit a high level of state anxiety in a low trait anxiety personality but not in a high trait anxiety individual if s/he already possesses the skills necessary to complete the task. Similarly, a situation that most people would consider harmless could provoke high state anxiety in a low trait individual because of negative past experiences. These two observations concerning trait/state anxiety relationships indicate that background experience and knowledge or mastery of pertinent skills will be determining factors in the way in which a person perceives and responds to a stimulus situation regardless of the level of trait or state anxiety. This is illustrated in Richardson and Woolfolk's (1980) review of college students' math anxiety. Female math anxiety rose significantly when there was a significant sex difference in the number of math courses completed. There was no significant difference in math anxiety between males and females when the number of high school math classes completed was equal.
Personality and Behaviors of the Anxious Student

Anxiety can be identified in children through self report, peer report, teacher observation, or parental perceptions. Evidence gathered by use of these four methods has contributed to knowledge of the far reaching effects of high levels of anxiety on personality and behavior.

A number of studies (Hill & Sarason, S. B., 1966; Lipsitt, 1958; Rosenberg, 1953; Sarason, S. B., Davidson, Lighthall, Waite, & Ruebush, 1960; Suinn & Hill, 1964) using the self report technique clearly indicate that highly anxious people ranging from elementary through college age are self disparaging and lacking in self confidence. They tend to blame themselves for failures and disappointments and possess a poor self image. Proeger and Myrick (1980) cite findings by Cattell and Scheier (1961) that support the evidence that excessive anxiety is associated with guilt, school inadequacy, and lack of self assuredness.

The study of Sarason et al. (1960) also indicates that highly anxious students have difficulty expressing hostility appropriately. Sturge (1982) found a close association between reading retardation and antisocial behavior. The many variables of the situation made speculation on the exact nature of the relationship difficult. Sturge concluded that there was no simple causal relationship but rather that a complex association existed. Davidson (1959) reported parental observations indicating that their children usually found "safe" ways of expressing anger regardless of the nature of the situation. Phillips, Martin, and Meyers (1972), however, observed anxious children acting out their
aggression. The explanation that teacher and parent variables determine the manner in which anger and hostility are expressed was offered by Ruebush (1963).

The results of Penney's (1965) administration of a "reactive curiosity scale" to his subjects suggest that highly anxious children tend to be lacking in curiosity and a spirit of adventure. Proeger and Myrick's (1980) review of the literature supports this evidence, indicating that highly anxious children tend to be more cautious. A series of four studies (Reiter; 1963; Singer, 1966; Singer & Rowe, 1962; Singer & Schonbar, 1961) investigating the relationship between daydreaming and anxiety have found that highly anxious children report a higher incidence of daydreaming than their low anxious counterparts. Fantasizing success and power to compensate for their lack of achievement might be a possible explanation for the behavior.

Cowen, Zax, Klein, Izzo, and Trost (1965) and McCandless, Castenada, and Palermo (1956) conducted research that indicated the peers of anxious children recognize them easily and regard them as less desirable friends. Proeger and Myrick (1980) offer further evidence to support this view in citing Hill's (1963) study of third grade students. It revealed that high levels of anxiety were related to negative sociometric status. Yadusky-Holahan and Holahan's (1983) study of gifted students established a clear link between academic stress and dependency and further indicated that peer support was a crucial aid in dealing with stress.

Teachers also view anxious students in a less favorable light. The investigation by Cowen et al. (1965) indicated that teachers react
negatively to anxious students, perceiving them as less well adjusted and observing a number of negative personality traits such as over-dependency. Phillips et al. (1972) review of the literature in addition to the investigation of Rosenthal (1967) and Sarason et al. (1960) also identify dependency as a common trait of the highly anxious.

Information compiled by a Yale group headed by Sarason and obtained through parental interviews determined that fathers saw their highly anxious children as less mature, less relaxed, and more dependent while mothers tended to take a more defensive posture and rated their high and low anxiety children equally. Davidson (1959) also conducted parental interviews. Trends in the responses indicated parents saw their highly anxious children as less positive about starting school at the beginning of each year and as having more problems in acquiring reading skills.

In summary, the highly anxious child is lacking in self esteem. He is self disparaging and appears less well adjusted. He is also dependent in nature and low in creativity and curiosity. He appears incapable of appropriately expressing anger and is a frequent day-dreamer. The significant others in the anxious student's life readily perceive these negative personality traits and tend to withhold acceptance or otherwise react unfavorably, resulting in reinforcement and perpetuation of a low self concept and feelings of inferiority.
Anxiety affects learning and academic achievement as well as personal relationships. Findings in the majority of research studies conducted have consistently indicated that high anxiety is associated with relatively low performance at elementary through college levels. Studies investigating long term effects of anxiety on academic achievement have yielded some dramatic results.

Gaudry and Bradshaw's (1970) research with seventh and eighth graders showed a highly significant negative correlation between anxiety level and school test scores over a period of time. Hill and Sarason (1966) used elementary subjects to compare anxiety levels with various measures of achievement and determine relationships between the two factors. The results showed that the children who dropped from initially high levels of anxiety to lower levels made significantly better academic gains than those who showed an increase from low level anxiety to a high level.

Research by Phillips (1962) with seventh grade students and by Hawkes and Furst (1971) with fifth and sixth grade students also reveal negative relationships between anxiety and achievement. Results of Morrison's (1974) study also confirm that academic performance can be altered by arousal of anxiety. Both positive and negative verbal motivation stimulated higher levels of anxiety and achievement test scores were negatively affected. The longitudinal study of S. B. Sarason et al. (1964) found that most highly anxious children made
normal progress from grade to grade but their rate of gain was less than that of low anxious children.

Verbal expression seems to be an area adversely affected by anxiety. Proeger and Myrick (1980) note from their extensive observations that anxiety impairs performance in both verbal and non-verbal problem solving tasks. Although more evidence needs to be gathered to clarify the results of the Barnard, Zimbardo, and Sarason's (1961) study, it appears that anxiety also produces inferior verbal behavior in an interview situation.

Titsworth and Ambel (1973) list numerous investigations indicating that high anxiety subjects perform at a lower level than low anxiety subjects on complex tasks. Proeger and Myrick (1980) reach similar conclusions from their review of the literature. They state that not only does anxiety interfere especially in complex learning tasks but also reduces incidental learning by limiting the perceptual field of the learner distorting perceptions, and reducing responsiveness to the environment.

Anxiety and Intelligence

Conflicting evidence exists concerning the relationship between general (trait) anxiety and intelligence test scores. Phillips (1962) found a significant negative correlation between the anxiety and IQ scores of 1,200 fifth and sixth graders. A study by Lighthall, Ruebush, Sarason, and Zweibelson (1959) revealed that children with low levels of anxiety made greater gains on the Otis-Lennon Mental Ability Test over a period of time than children exhibiting high levels of anxiety.
Dodd's (1976) comparison of scores of 150 seventh graders on IQ, general anxiety and test anxiety showed no relationship between general anxiety and IQ. However, a negative relationship between test anxiety and IQ was apparent. I. G. Sarason's (1960) review of the literature as cited in Proeger and Myrick (1980) concludes that the majority of studies reveal a consistent relationship between test anxiety and IQ test performance but general anxiety was not related to IQ.

Taking the question of the direction of the relationship between IQ and anxiety a step further points to evidence that anxiety causes lower IQ scores but the reverse situation is not true. Proeger and Myrick (1980) cite the study of S. B. Sarason, Davidson, Lighthall, Waite, and Ruebush (1960) where low anxiety children exhibited performances superior to that of high anxiety children when IQ was a constant factor. Additional sources are also cited to illustrate that increases in anxiety result in decreases in IQ scores and vice versa.

Anxiety and Reading

Anxiety has a definite impact on reading. A number of investigations have shown deficient performance of highly anxious students on various reading skills and tasks. Gifford and Marston (1966) found that anxiety was related to slow reading rate and lack of comprehension in their sample of fourth grade boys. The moderate and low anxious fifth grade subjects in Merryman's (1974) study performed significantly better in comprehension and in vocabulary than their highly anxious counterparts. Further results of the same study indicated that
moderate levels of anxiety actually enhanced performance on some reading tasks but inhibited it on others. Reading tasks which were more complex provoked a higher degree of anxiety than simpler reading tasks.

Standford, Dember, and Standford (1963) found that a high level of anxiety in their third-grade subjects was related to low reading grades and that anxiety was as effective as IQ in predicting reading grades. Titsworth and Ambel (1973) cited studies suggesting that phrase reading training could improve reading skills of intermediate grade school and junior high school students. Their study attempted to define the relationship between phrase reading and anxiety. A fairly constant negative relationship between the two variables was established.

The objective of Cotler and Palmer's (1971) research was to determine how social reinforcements interacted with achievement level, test anxiety, and sex to affect fourth, fifth, and sixth grade subjects' reading performance. It was found that the combined measures of relative academic achievement level and test anxiety were significantly related to the reading performance of elementary children. Performance of overachieving males with high levels of test anxiety who received no reinforcement was poorer than most other groups. Conversely, performance of overachieving males with low test anxiety was significantly higher than most groups.

Results of the Hill and Sarason (1966) study examined in conjunction with other studies (Sarason, S. B., 1957; Sarason, I. G., 1959, 1963; Walter, Denzler, & Sarason, I. G., 1964) support their conclusion that "... anxiety is more strongly related to reading than to arithmetic in
the early elementary school years, but that the differences weakens
during the course of the elementary school years and disappears in the
late elementary or junior high school years" (p. 63). Since reading
is strongly emphasized and a great deal of importance is attached to
its mastery in the early years of school, it is understandable that the
activity could be a prime source of anxiety.

The Need for Anxiety Reduction Instruction

The previous discussion on the highly anxious personality indicated
that low self esteem was a common characteristic. Patten (1983) cited
several studies (Coopersmith, 1967; Hamacheck, 1971; Sarason, Davidson,
Lighthall, Waite, & Ruebush, 1960) that established a relationship among
self esteem, anxiety and achievement in normal learners. Patten's own
study findings reinforced the interrelatedness of self esteem, anxiety,
and academic achievement for learning disabled students as well.

Taylor and Michael (1981) reported a positive relationship between
academic self concept and reading achievement.

Goodwin and Payne (1981) cited numerous sources (Kent, 1972; Olsen,
1972; Perkey, 1970; Sweet, 1977) who found significant relationships
between self concept and reading achievement in junior high through
college age students. Sweet's longitudinal study specifically showed
that an increase in self esteem produced an increase in reading comprehen-
sion achievement. Goodwin and Payne's treatment of college freshmen
increased the students' self concepts significantly although corre-
sponding significant reading gains were not noted. The direction of
the relationship between anxiety and self esteem is not clear but the
suggestion that either the enhancement of self esteem could decrease
anxiety or that mastery of anxiety reduction techniques could elevate self concept appears reasonable. Previous discussions in this review and the studies cited above indicate that positive benefits and increased academic achievement could be expected.

Gottfried's (1982) research investigated the relationship between academic intrinsic motivation and academic anxiety in the separate subject areas of reading, math, social studies, and science using fourth and seventh grade subjects. Intrinsic motivation was defined as performance of activities for their own sake because of inherent pleasure and academic anxiety was defined as fear about evaluative situations, tests, mastery of instructional objectives, class participation, or peer status. Four hypotheses were stated concerning negative relationship between the two variables implied by the definitions.

First, a negative relationship exists because anxiety inhibits qualities and feelings fostered by intrinsic motivation such as curiosity, exploration, and challenge. Second, intrinsic motivation involves high task involvement while anxiety reduces participation and instead directs focus inward to self. Third, intrinsic motivation develops feelings of competence and mastery but anxiety decreases those feelings. Finally, intrinsic motivation has a positive relationship to school achievement but anxiety is negatively related to school achievement.

The results revealed that at both grade levels a significant negative relationship existed between intrinsic motivation and anxiety and the relationship was differentiated according to specific subject areas. These findings imply that teachers need to realize anxiety or
presence of intrinsic motivation in one subject does not necessarily indicate a trend in all subjects. The results further suggest that specific interventions in instruction and changes in evaluation procedures that enhance academic intrinsic motivation and/or reduce academic anxiety would be most productive and desirable.

The overwhelming majority of anxiety researchers urge the implementation of educational programs aimed at providing anxiety coping skills in their discussions of the implications of their studies. Patten cited Andrews (1966), Black (1974), and Algozzine (1979) as advocates of emotional remediation programs while Gottfried lists Phillips, Martin, and Meyers (1972) as supporters of similar programs. Goodwin and Payne (1981) and Yadusky-Holahan and Holahan (1983) are also among those who have concluded as a result of their research findings that aiding students in expanding their knowledge of anxiety and its effects and providing them with coping techniques is a necessity.

Anxiety Coping Techniques

A variety of coping and relaxation skills such as yoga, meditation, systematic desensitization, biofeedback, deep muscle relaxation, and guided fantasy have been designed to help people deal with the inevitable anxieties of life. Because many parents hold misconceptions about yoga and meditation, these practices are not always suitable for school use. Systematic desensitization and biofeedback require specialized training so deep muscle relaxation (DMR) and guided fantasy (GF) are the most feasible for use by teachers.
Proeger and Myrick (1980) describe DMR as a teacher guided, systematic method of releasing tension from each muscle group of the body. Students learn to tense various muscles tightly first and then relax them completely as the teacher directs them from her "script." They are encouraged to focus their awareness and concentration on how their body feels with each series of tension relaxation movements. Discussion about anxiety, its causes and effects, and how it can be dealt with are an important part of each DMR session. Students gradually gain mastery and can practice this technique independently. Koeppen (1974) advocates DMR for classroom use and provides a script for elementary instruction.

The results of Hiebert and Fox's (1981) study concurred with the original Hiebert report (1977) they cited. It stated that learning to self-monitor anxiety was accompanied by reduction of anxiety level. Subjects of the Hiebert and Fox research project reported that increased awareness of anxiety triggered use of coping skills before anxiety reached intense proportions. They added that they used coping techniques in situations where they had not previously thought of using them. These findings can be used to support the proposed effectiveness of BMR which similarly promotes increased anxiety level awareness and intervention with a specific coping technique.

Guided Fantasy is often used in conjunction with DMR as demonstrated by Cotler and Guerra (1976). It helps students to mentally create a calm, peaceful setting within themselves. The students close their eyes and a pleasant scene is vividly described by the teacher to help
them evoke images or, when they are more experienced with one technique, they can be asked to visualize their own favorite place. Students are encouraged to be acutely aware of their senses in the imagined setting and to let their imaginations roam freely. Besides promoting deep breathing and relaxation, this technique sparks a more creative imagination.

**Summary**

Anxiety is an emotional process that has detrimental results when the affected person lacks appropriate coping skills and is, therefore, prevented from functioning at full potential. The highly anxious child is lacking in self esteem so he is self disparaging and appears less well adjusted. A high degree of dependency and a lack of creativity and curiosity also characterize the anxious personality.

Appropriate expression of anger is difficult for the anxious child and he engages in daydreaming frequently. The significant others in the anxious student's life readily perceive these negative personality traits and tend to withhold acceptance or otherwise react unfavorably, resulting in reinforcement and perpetuation of a low self concept.

The evidence from most research to date on the relationship between anxiety and scholastic performance indicates that anxiety is generally debilitating in regard to academic behavior and interferes with school success as well as personal relationships. Complex learning tasks are more difficult for anxious students and incidental learning is also limited. Verbal and non-verbal performance is impaired and skills necessary for problem solving tasks suffer.
Chapter III

Design of the Study

**Purpose**

The purpose of this study was to determine whether the techniques of Deep Muscle Relaxation (DMR) and Guided Fantasy (GF) could reduce the level of anxiety in highly anxious children. It was also the intent of this investigation to observe whether reduction of anxiety would result in improved reading achievement and elimination of various problematic reading behaviors. Finally, the study was to indicate whether a significant relationship exists between anxiety level and reading achievement.

**Methodology**

**Subjects**

Eighty-four third grade students from a rural Western New York elementary school served as a general population from which a smaller group of twenty-two highly anxious students were identified. The group of twenty-two highly anxious students was divided into a control group of thirteen students and a treatment group of nine students.

**Instruments**

1. *State-Trait Anxiety Inventory for Children* (STAIC) was used to measure the state anxiety level of each student.
2. **Ekwall Reading Inventory** (ERI) indicated independent, instruction, and frustration reading levels of each student as well as providing a reading situation where problematic reading behaviors were identified.

3. **Metropolitan Achievement Tests (MAT)** indicated a reading achievement level.

**Procedure**

The eighty-four student general population was pretested with the STAIC. Those who scored two standard deviations above the mean of the state anxiety inventory were identified as highly anxious. Nine of the highly anxious from one classroom were designated as the treatment group and the remaining thirteen children served as the control group. Both groups were administered the A/B form of the ERI. Independent, instruction, and frustration levels were determined and problematic reading behaviors were recorded. Problematic reading behaviors were defined as those that interfered with or prevented efficient, fluent reading and that indicated anxiety was present in the student. Some examples of such behaviors include unnatural voice tones, hesitant word by word reading, frequent pauses, frequent repetitions, lack of expression, frequent loss of place, and body tension. The treatment group subsequently received one half hour instruction sessions in DMR and GF twice a week for a period of eight weeks. At the conclusion of the eight week treatment period, the control and treatment groups were administered the STAIC and the C/D form of the ERI. Metropolitan
Achievement Test scores were obtained from the school following administration and scoring by the regular classroom teacher.

Following completion of the treatment program and testing, a series of statistical analyses were done. An independent t-test on the pre STAIC scores revealed the significant difference between the treatment and control groups, thus requiring an analysis of covariance. A correlated t-test was run on the percentage of oral errors and on the percentage of correct comprehension questions of both the pre and post ERIs to determine whether reading achievement improved significantly. A qualitative analysis through observation was completed to determine whether problematic reading behaviors had decreased. Finally, a Pearson Product Moment Correlation using pre STAIC and MAT scores was computed to reveal whether a significant relationship existed between anxiety and reading achievement.

Summary

Twenty-two students who scored two standard deviations above the mean on the state anxiety section of the STAIC were divided into a control group and a treatment group. ERIs were administered to all children to determine independent, instruction, and frustration levels as well as to reveal problematic reading behaviors. The treatment group received DMR and GF instruction for an eight week period after which the STAIC and an alternate form of the ERI was administered. Appropriate statistical analyses were done.
Chapter IV

Findings and Interpretation of Data

Purpose

The purpose of this study was to determine whether the techniques of Deep Muscle Relaxation (DMR) and Guided Fantasy (GF) could reduce the level of anxiety in highly anxious children. It was also the intent of this investigation to observe whether reduction of anxiety would result in improved reading achievement and elimination of various problematic reading behaviors. Finally, the study was to indicate whether a significant relationship exists between anxiety level and reading achievement.

Analysis of Data

An independent t test was run on the pre State Trait Anxiety Inventory for Children (STAIC) scores revealing that the performance of the groups was significantly different.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th></th>
<th>Treatment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>df</td>
<td>x</td>
<td>s.d.</td>
<td>df</td>
<td>x</td>
</tr>
<tr>
<td>12</td>
<td>48.92</td>
<td>4.70</td>
<td>8</td>
<td>44.33</td>
</tr>
</tbody>
</table>

\[ t \text{ crit} = 2.086 \]
\[ p < .05 \]
Null Hypothesis 1

The relaxation techniques of DMR and GF do not significantly reduce anxiety in highly anxious children.

An analysis of covariance rejected the null hypothesis indicating that the treatment group exhibited less anxiety beyond chance factor as a result of DMR and GF.

Table 2

Analysis of Variance Between Anxiety Levels of Treatment and Control Groups

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>T_{yy} = 3.96</td>
<td>1</td>
<td>3.96</td>
<td>.07</td>
</tr>
<tr>
<td>Error</td>
<td>E_{yy} = 1124.99</td>
<td>20</td>
<td>56.25</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>S_{yy} = 1128.95</td>
<td>21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

crit. F = 5.87

Table 3

Analysis of Covariance Between Anxiety Levels of Treatment and Control Groups

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>S^1_{yy} = 1128.46</td>
<td>1</td>
<td>1128.46</td>
<td>19.06</td>
</tr>
<tr>
<td>Error</td>
<td>E^1_{yy} = 1124.82</td>
<td>19</td>
<td>54.20</td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>T_{yyR} = 3.64</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

crit. F = 5.92
Null Hypothesis 2

The reduction of anxiety by means of DMR and GF does not significantly improve reading achievement in highly anxious children as measured by the Ekwall Reading Inventory.

Correlated *t* tests were computed on the number of oral reading errors and the number of correct comprehension questions from oral passages. The null hypothesis was not rejected because the reading gains were not statistically significant.

Table 4

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questions</td>
<td>4</td>
<td>78.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.92</td>
</tr>
<tr>
<td>Oral Errors</td>
<td>4</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.64</td>
</tr>
<tr>
<td>t&lt;sub&gt;crit&lt;/sub&gt;</td>
<td>2.776</td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>&lt;.05</td>
<td></td>
</tr>
<tr>
<td>s.d.</td>
<td>10.92</td>
<td>7.64</td>
</tr>
<tr>
<td>df</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>df</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>x</td>
<td>82.4</td>
<td>2.8</td>
</tr>
<tr>
<td>s.d.</td>
<td>7.64</td>
<td>2.68</td>
</tr>
</tbody>
</table>

Null Hypothesis 3

The reduction of anxiety by means of DMR and GF does not decrease problematic reading behaviors in highly anxious children as measured by the Ekwall Reading Inventory.

These data were not subjected to statistical analysis. Instead, a qualitative analysis by the Ekwall administrator indicated no apparent change.
Null Hypothesis 4

There is not a statistically significant relationship between anxiety level as measured by the STAIC and reading achievement as measured by the MAT.

A Pearson Product Moment Correlation was computed using the scores of the total eighty-four third grade student testing population. The null hypothesis was not rejected because results revealed that only a low negative correlation exists between anxiety and reading achievement ($r = -0.03$).
Chapter V

Conclusions and Implications

Purpose

The purpose of this study was to determine whether the techniques of Deep Muscle Relaxation (DMR) and Guided Fantasy (GF) could reduce the level of anxiety in highly anxious children. It was also the intent of this investigation to observe whether reduction of anxiety would result in improved reading achievement and elimination of various problematic reading behaviors. Finally, the study was to indicate whether a significant relationship exists between anxiety level and reading achievement.

Conclusions

The results of this investigation demonstrate that the relaxation techniques of Deep Muscle Relaxation and Guided Fantasy were effective in reducing anxiety in third grade students. Reduction of anxiety did not result in significant improvement of reading achievement as measured by the Ekwall Reading Inventory. A definite trend towards improvement was noted, however, in all students with the exception of one. One or more of the independent, instruction, and frustration scores of each student increased by one level in either silent or oral reading or both.
Comparison of recorded observations of the behaviors and reactions of each student in the treatment group for whom anxiety was decreased during administration of the pre and post Ekwall Reading Inventories did not reveal any noticeable decreases in the problematic reading behaviors exhibited initially. Although state anxiety scores for reading were very high for the students in the treatment group, discussion guided towards feelings in reading situations during DMR instruction stimulated little expression of anxiety for those activities. The most frequently reported source of academic related anxiety was presentation of oral reports. Discussions on anxiety producing situations focused to a great degree on problems with personal relationships with peers, siblings, and parents.

It is interesting to note that four of the treatment group were superior readers, two were of average ability and only three were categorized as poor by judgment of their classroom teacher and their past performance on achievement tests. Two of the superior readers were classified as gifted. Fluency was generally very good for the superior and average readers. Poor memory, observed in several of the subjects, resulted in less than satisfactory comprehension. This observation is supported by a body of research on test anxiety that concludes memory is negatively affected by anxiety.

All subjects exhibited a greater display of anxiety during oral reading. Very visible indications of an increase in anxiety upon encountering unfamiliar words and on unknown comprehension questions implies that the possibility of failure caused great concern for these
highly anxious students. The accomplished readers appeared to place a great deal of pressure on themselves for outstanding performance. They were competitive and concerned with the level of their achievement and performance in comparison to others.

One final conclusion revealed from this research is that only a very low negative correlation exists between anxiety and reading achievement. This extremely low correlation contradicts the findings of the overwhelming majority of anxiety research to date and, therefore, warrants further investigation.

**Implications for Research**

Since a two month anxiety reduction instruction program produced a significant drop in anxiety level and a trend toward improved reading achievement, it would be valuable to determine the effects of long term programs on anxiety and reading performance.

Determination of the most successful relaxation and coping techniques for various age groups, socioeconomic populations, and personality types would be beneficial. Perhaps different coping strategies would prove more effective with certain groups than others, making validation of a variety of relaxation and coping techniques with diverse subjects an important objective.

An interesting observation from this study concerned the high percentage of good readers exhibiting great degrees of anxiety. Research examining the presence and degree of anxiety in students of various achievement levels in different subject areas would be revealing and of great instructional aid to teachers.
One further consideration worth investigation is the relationship of anxiety to performance in various academic subjects. The nature of the impact of anxiety on different disciplines could have important educational implications.

**Implications for Classroom Practice**

Based on the findings of this study, it appears that incorporation of instruction of DMR and GF into classroom educational programs would be of great benefit to students and teachers alike. Not only could improved reading achievement result, it could be possible to reduce anxious behavior which presents distracting situations. Previous research discussed in Chapter II indicates high anxiety levels correspond with negative personality traits. It can be implied, therefore, that anxiety reduction by DMR and GF may improve peer and teacher relationships. The treatment group's reports of increased feelings of relaxation in addition to their expression of appreciation of having a time to share and discuss anxiety producing situations are further support for use of relaxation technique and anxiety coping instruction.

Since memory seemed to be impaired during high anxiety situations, educators could aid their students by teaching memory improvement strategies and by providing them with memory aids. The redesigning of evaluation procedures which are inherently anxiety stimulating to eliminate extensive memory use would be beneficial. Creation of alternative methods of assessing a student's knowledge and abilities would provide a more accurate reflection of the anxious student's academic profile.
The apparent fear of failure and search for validation of self worth in comparison to others observed in this study might be decreased by the teacher's frequent praise and assurance. Affirmation of a significant person's approval in addition to knowledge of coping skills could curb high anxiety.

Summary

The findings of this study clearly illustrate the positive benefits the relaxation techniques DMR and GF can offer third grade students. Further research to validate the use of these techniques with a variety of populations would provide valuable information for educators. The observations of the DMR and GF instructional sessions reveal personality traits of the highly anxious child and offer important instructional implications for the classroom teacher.

In conclusion, it appears that anxiety reduction can be achieved by regular instruction and practice in DMR and GF. This reduction produces a trend towards improved reading achievement. Implications indicate the possibility of improved personal relationships as well as instructional advances for anxiety prone individuals.
References
References


Phillips, B. N. Sex, social class, and anxiety as sources of variation in school achievement. *Journal of Educational Psychology, 1962, 53,* 316-322.


Rosenthal, M. K. The effect of novel situations and anxiety on two
groups of dependency behaviors. *British Journal of Psychology*, 1967,
*58*, 357-364.

Ruebush, B. Anxiety. In H. Stevenson, J. Kagan, & C. Spiker (Eds.),
*Child psychology: The 62nd yearbook of the National Society for the
Study of Education* (Part I). Chicago: The University of Chicago

Sarason, I. G. Intellectual and personality correlates of test anxiety.

Sarason, I. G. Empirical findings and theoretical problems in the use

Sarason, I. G. Test anxiety and intellectual performance. *Journal of

Sarason, I. G. Experimental approaches to test anxiety: Attention and
use of information. In C. D. Spielberger (Ed.), *Anxiety: Current

Sarason, S. B. Test anxiety, general anxiety, and intellectual performance.

Sarason, S. B., Davidson, K. S., Lighthall, F. F., Waite, R. R., & Ruebush,
B. K. *Anxiety in elementary school children: A report of research.*

Sarason, S. B., Hill, K. T., & Zimbardo, P. G. A longitudinal study of
the relation of test anxiety to performance on intelligence and
achievement tests. *Monographs of the Society for Research in Child


