



Relaxation response: an evaluation of a technique for anxiety reduction among college graduate students

by Janice Chrestensen Salisbury

A thesis submitted in partial fulfillment of the requirements for the degree of DOCTOR OF EDUCATION

Montana State University

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Abstract:

The purpose of this investigation was to study the efficacy of the relaxation response as a technique for anxiety reduction among college students who were preparing to take their Master's Comprehensive Examinations. A total of 61 students from Montana State University and Eastern Montana College participated.

Twenty-one students were taught a relaxation technique as outlined by Herbert Benson, M.D., of Harvard Medical School. These students were compared to two other groups of students who had not learned the technique.

Three criterion instruments were administered to all the students: the A-State Self-Evaluation Questionnaire (A-State), the A-Trait Self-Evaluation Questionnaire (A-Trait), and the Palmar Sweat Index (PSI). The A-State and the PSI tests measure a transitory emotional state, while A-Trait measures acquired behavioral disposition in relation to anxiety proneness. Using these evaluative instruments, all participants completed the tests when first contacted, as well as immediately prior to the Master's Comprehensive Examinations and immediately following those examinations.

Hypotheses were developed relating to the performance of the groups on the two subjective and one objective testing instruments.

All hypotheses were tested at the .05 level of significance, using the least-squares analysis of variance and in some instances Duncan's Test of Multiple Comparisons.

Results from the A-State test revealed that the Experimental Group (E), which practiced the relaxation response technique, exhibited significantly less anxiety than the Quasi-experimental Group (Q) or Control Group (C) on the test given immediately preceding the Master's Comprehensive Examinations. The E group demonstrated no significant difference in anxiety level on the three A-State test administrations.

No significant differences were demonstrated among the E, Q, or C groups for the three administrations of the A-Trait test.

Results of the Palmar Sweat test were inconclusive. Unlike the other two treatment groups which indicated significant differences in the anxiety level between the initial test and the test immediately preceding the Master's Comprehensive Examination, the Experimental Group showed no significant differences among the three testing periods. No significant differences existed among the groups for the tests preceding and following the comprehensive examinations.

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In memory of my mother

Mildred Chrestensen

and my aunt

Louise Coleman

who could not wait to
see this task completed

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by

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A thesis submitted in partial fulfillment
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Abstract

The purpose of this investigation was to study the efficacy of the relaxation response as a technique for anxiety reduction among college students who were preparing to take their Master's Comprehensive Examinations. A total of 61 students from Montana State University and Eastern Montana College participated.

Twenty-one students were taught a relaxation technique as outlined by Herbert Benson, M.D., of Harvard Medical School. These students were compared to two other groups of students who had not learned the technique.

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CHAPTER I

Introduction to the Problem

"Considering the morass of complete terminological and conceptual confusion in which the discussion of anxiety has wallowed for 50 years" (Cattell, 1966, p. 24), a specific meaning and agreement among the various disciplines that were involved in research was impossible. Common usage of the term anxiety, however, usually was associated with symptoms of unpleasantness, an excess of which was to be avoided.

Regardless of the nebulous meaning, the term anxiety became a dominant cliché of modern life. In 1961 the cover story in Time was in the Medical Section and devoted five pages to anxiety. Beck, at the University of Pennsylvania Medical School, consented to an interview on "What to do When You're Under Stress" in U.S. News and World Report in 1973. This interview was reprinted in Relax (White & Fadiman, 1976). Numerous other studies on anxiety were sponsored by grants from The National Science Foundation; the Social and Rehabilitation Service of the United States Department of Health, Education, and Welfare; and the United States Public Health Service, Division of Research Resources. Spielberger (1966) found that "since 1950 more than 1,500 studies have been indexed under the term 'anxiety' in Psychological Abstracts. [Also,] . . . in this same period, . . . over 3,500 articles or books related to anxiety" (pp. 5-6). In order to disseminate such information and in order to provide some coping

skills for the general public, paperback editions were published by knowledgeable experts, and collections of articles were published (Benson, 1975; Ornstein, 1973; Selye, 1956, 1974; Walker, 1975; White & Fadiman, 1976).

Relaxation, a technique that attempted to aid in the reduction of tension, anxiety, nervousness, and stress, appeared to be a magical word, a hopeful answer to the panacea of the bodily pain and mental suffering of life. A partial list of the problems for which relaxation was a purported major element for cure might include insomnia, peptic ulcer, nervous fatigue, headache, nail biting, depression, stuttering, constipation, asthma, acute dermatitis, high blood pressure, arthritis, frigidity, and sterility. Alcoholism and attempted suicide were added by some authorities (White & Fadiman, 1976).

Statement of the Problem

The purpose of this study was to investigate the efficacy of the Relaxation Response as a technique for anxiety reduction among college graduate students. The focus of attention was on those students who were enrolled in the Master's program at Eastern Montana College, Billings, Montana, and at Montana State University, Bozeman, Montana.

Questions Investigated

Several questions related to the purpose of this study were developed:

1. Can anxiety be reduced through the use of the Relaxation Response technique?
2. Is there a difference between State and Trait Anxiety?
3. Is there a difference in anxiety between males and females?
4. Is there a relationship between objective and subjective measurement of anxiety as it relates to the examination testing period?

Need for the Study

We college teachers seldom stop to face the fact that we know very little about how we affect our students' behavior in class or out of class. . . . We neglect the role he [the teacher] plays in the classroom and his interpersonal relationships with his students. . . . I intend to emphasize anxiety as one factor which may influence classroom performance (McKeachie, 1951, p. 153).

Certainly the graduate college students' instructors determined the fate of students' futures. Upon their objective and subjective judgments rests the decisions concerning grades "which determine whether he [the student] remains in school, enters graduate school, or obtains a good position upon graduation" (McKeachie, 1951, p. 153). Classroom anxiety could conceivably be present if the student perceives grades as a means to achieving future coveted vocational and social goals (McKeachie, 1951).

Concomitant to academically generated anxiety, graduate students are subject to the potential anxiety of personal problems that are common to every adult and the unique ones that are concerned with

student life. General health of family and friends, separation from family and friends, financial needs, adjustment to new surroundings and establishment of new relationships and new friends were but a few of the situations that confronted graduate students. The mastery of some appropriate coping skills might seem to be an adjunct for academic survival. Not only would this enhance the ability of the individual to achieve his highest potential during the college experience but also this same mastery might continue as a life-long methods for anxiety reduction. "Anxiety is everywhere and in everyone" (Walker, 1975, p. 3).

Research Procedures

Objective measurement for this investigation was accomplished through the use of the Palmar Sweat Print Method (Bixenstine, 1955; Davis, 1957; Ferreira & Winter, 1963; Latis, 1959; Lore, 1966; Silverman & Powell, 1944). The State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970) was chosen as the subjective evaluation for anxiety measurement. The specific relaxation treatment used was the Relaxation Response (Benson, 1975).

Graduate students from Eastern Montana College and Montana State University who participated in the study were given the objective and subjective measurements for anxiety prior to the beginning of treatment in order to establish a baseline measurement. The Experimental Group was instructed in the Relaxation Response technique. Once a week

during the treatment time, the investigator conferred with this Experimental Group to check progress and actual time spent practicing the technique. The Quasi-experimental Group had no training in the relaxation technique but did meet with the investigator or designated representative on a weekly basis for general discussion. All the students in the Control and Experimental Groups took the Palmar Sweat Print Test again and responded to the State-Trait Anxiety Inventory immediately before and immediately after the Master's Comprehensive Examinations.

Collected data were analyzed and then tested for significance of differences. Conclusions were drawn as to the value of Relaxation Response as a technique for anxiety reduction among a sample of college graduate students.

Limitations of the Study

The study was limited to those students who were enrolled in graduate programs at Eastern Montana College and at Montana State University during 1977-78. Although the type of student who volunteered to allocate the required amount of practice time for the treatment might be at the extreme ends of an anxiety continuum--that is extremely anxious or composed--no attempt was made to use matched groups. The study was limited, of necessity, to a current group of enrolled and participating graduate students.

Definitions of Terms

The terms listed here were used throughout the study and were defined as follows:

Anxiety: a reaction or a state of being measured by an objective instrument and by a self-reporting subjective instrument.

Palmar Sweat Print Index: an instrument used to measure anxiety objectively.

Relaxation Response Technique: a treatment which was an integrated physiological response that acted to control the harmful effects of stress (Benson, 1975). This technique was learned and practiced by the Experimental Group in the study.

State Anxiety (A-State): described

. . . a transitory emotional state or condition of the human organism that is characterized by subjective, consciously perceived feelings of tension and apprehension, and heightened autonomic nervous system activity. A-States may vary in intensity and may fluctuate over time (Spielberger, Gorsuch, & Lushene, 1970, p. 3).

State-Trait Anxiety Scale: an instrument used to measure anxiety subjectively.

Trait Anxiety (A-Trait): considered to be that which

. . . refers to relatively stable individual differences in anxiety proneness, that is, to differences between people in the tendency to respond to situations perceived as threatening with elevations in A-State anxiety (Spielberger, Gorsuch, & Lushene, 1970, p. 3).

Summary

The term anxiety has been used to denote so many things throughout the years that it has been recognized as an adaptive type of behavior of man. Numerous funded research projects which were done in reference to anxiety seemingly promoted a need for the reduction of anxiety as a desired state of release from stress. In this study a problem was postulated as to the efficacy of the Relaxation Response technique for anxiety reduction among a selected group of graduate students at Eastern Montana College, Billings, Montana, and at Montana State University, Bozeman, Montana, during 1977-78. Objective and subjective testing instruments were identified and a brief resume of the research procedure was described.

CHAPTER 2

Review of the Literature

Anxiety was identified as a condition of humans ever since the days of the cave man who was anxiously concerned with food, shelter, his women, and the state of darkness during the night (Walker, 1975). Because researchers defined it differently, the term anxiety has suffered from certain ambiguities of meaning. The Dictionary of Psychological and Psychoanalytical Terms stated that authors from various disciplines tended to use the words conflict, drive, and fear where the word anxiety might be appropriate. Readers were admonished to consider anxiety "with great vigilance for an author's meaning, or more often than not, his several meanings" (English & English, 1966).

In order to bring some clarity to this problem of anxiety, this chapter was divided into four sections. These sections are the psychological reactions to anxiety and the physiological reactions with a third section on college student anxiety. The relaxation technique as a release for anxiety-created tension is the fourth section.

Psychological Reactions

Lader (1975) of the Institute of Psychiatry of the University of London described the word anxiety as a difficult term to define. He contended that the extent of the problem in relation to patients and the "caring professions [doctors]" was of more importance than the "scientific rigour with which cases are identified." He believed that:

Anxiety can be a mood, a feeling, an emotional response, a symptom, a syndrome, or an illness with course, prognosis, etc. What is common is its generally unpleasant nature, its projection to the future, its similarity to fear, and its lack of referents (p. 6).

Rogers (1951) viewed anxiety as a threat to the self-concept.

Dissonance between perceptions of reality and conceived self generated tension which was the basis for anxiety.

If the individual becomes to any degree aware of this tension or discrepancy, he feels anxious, feels that he is not united or integrated, that he is unsure of his direction. [In addition,] . . . if the self cannot defend itself against deep threats, the result is a catastrophic psychological breakdown and disintegration (pp. 511-16).

Cattell (1966), postulated anxiety as a function that was related to uncertainty of reward. The magnitude of the total need fulfillment was connected to the degree of manifested anxiety.

In case histories that deal with anxiety (Goldstein & Palmer, 1963; Jacobson, 1964) and in the previously presented definitions, anxiety seemingly was used as the intellectual synthesis for describing many response patterns of normal or pathological behaviors. Because of this ambiguity and broad connotation, Sarbin (1968) recommended that the concept of anxiety be discontinued. However, such a recommendation was not feasible as the concept does fulfill a need that is imperative. The alternative would be to restrict the concept to a limited set of phenomena.

In an effort to clarify semantic confusion, Spielberger (1966) identified two constructs of anxiety: state and trait. A transitory state (A-State) was "characterized by subjective, consciously perceived feelings of apprehension and tension, accompanied by or associated with activation or arousal of the autonomic nervous system" (p. 17). In the A-State condition, emotional reactions varied in the level of intensity and occurrence. Anxiety as a personality trait (A-Trait) reflected "anxiety-proneness differences between individuals in the probability that anxiety states will be manifested under circumstances involving varying degrees of stress" (p. 15). A-Trait anxiety predisposed an individual to perceive a wide range of situations as dangerous or threatening and thus responded with A-State reactions. Measures of A-Trait appeared to be stable and were less subject to the fluctuations of measured A-State anxiety.

As an additional conceptual framework with which to view anxiety phenomena, Spielberger (1972) described anxiety-as-process to distinguish further between A-State and A-Trait anxiety. The process instigated by internal cues that were perceived as threatening or external stressful stimuli that activated immediate cognitive appraisals were followed by A-State reactions or an increase in anxiety state intensity. Although the A-State reaction was apparently the center of the anxiety process, cognitive appraisals of stressful situations might be more threatening to some individuals than to others. The

determination of intensity and persistence over time of the reaction mediated the type of coping behavior that was elicited in order to escape from the situation or reduce the anxiety. Psychological defenses were inclined to minimize the A-State intensity. Such defenses as repression, denial, projection, and other mechanisms were the ways stimuli perceptions were used by the individual unable to avoid or cope with the stress that instigated the anxiety process.

Physiological Reactions

Selye (1956) contributed a major breakthrough in the field of physiological reactions to stress. From his forty years of research on stress, he conceived it to be "the state manifested by a specific syndrome which consists of all the nonspecifically induced changes within a biologic system" (p. 54). Selye further developed a descriptive system of reactions to stress which he labeled the General Adaptive Syndrome (G.A.S.). These adjustments to stress evolved in time through three successive stages.

Stage I. Stage I was the alarm reaction. In this stage, the organism was startled in direct proportion to the magnitude of the aggression. This reaction was the "bodily expression of a generalized call to arms of the defensive forces in the organism" (p. 31).

Stage II. Stage II was the stage of resistance. In this stage, adaption was optimal for the organism to produce natural catatoxic (substances which attack damaging agents) or syntoxic (substances

which act as tissue tranquilizers) enzymes to increase the productivity of the defense system toward the establishment of heterostasis, or formation of a new steady state resulting in a higher level of resistance (Selye, 1974).

Stage III. Stage III was the stage of exhaustion. During this stage, acquired adaption was lost after continual exposure to the stressor which is any stimuli that produces stress. In many cases, the irreversible loss of adaptability ended with the death of the organism. However, a temporary exposure to a stressor might cause the organism to progress to the stage of exhaustion; but the process was reversible. A good night's rest or a few weeks of a relaxing vacation might restore the individual to the original capacity of adaptability (Selye, 1974).

Selye purported the theory that adaption energy was finite. The human machine was unable to go on forever continually being subjected to the constant demands of a stressor. Selye found such a condition analogous to an inherited fortune from which withdrawals could be made at any time or at any rate, but no guarantee or provision was made for any additional deposits. Therefore, complete restoration would be highly improbable since irreversible chemical scars were left by every biologic activity.

Chemical changes within the body also were identified by Selye (1974) during the triphasic evolution of the G.A.S. Characteristic symptoms of prolonged stress were enlarged and discolored adrenals,

involuted thymus and lymph nodes, and an ulcerated stomach wall. During the alarm reaction, adrenal cortex cells secreted corticoids (hormones) into the bloodstream. The blood became concentrated; such concentration was followed by loss of body weight. At the stage of resistance, the defense system of the body caused increased production of hormones; the blood was diluted; and the body weight approached the normal level. This acquired adaptation of Stage II was lost as the organism approached the stage of exhaustion after prolonged exposure to the noxious agent that caused the stress. Body symptoms of Stage III resembled more those of Stage I than those of Stage II. Death was imminent at Stage III if the defense mechanisms that were needed to maintain body homeostasis (steady state) were nonfunctional. If the agent which was responsible for the stress was of temporary duration and of a less serious nature, for example, body exhaustion from running or a mentally frustrating unsuccessful struggle, rest or diversion might restore the body and leave minimal chemical scars.

The stress syndrome was the result of exposure to noxious agents or stressors. Stressors were identified as anything that might activate the G.A.S. Stress was relative in proportion to the intensity of the stressor and the effect on the individual organism. Anxiety, fear, pain, viruses, and bacteria--all stressors--affected individuals differently because of time, place, condition, and degree of inherited or conditioned adaptive ability (Selye, 1974).

College Student Anxiety

"Anxiety is everywhere and in everyone" (Walker, 1975, p. 3); therefore, what was said of the general population certainly might be said of the college student. The research and discussion in this section were formulated from a point of reference applicable to the college student and to his sometimes unique and idiosyncratic situation.

Jacobson (1964) and Walker (1975) concurred that moderate amounts of anxiety did serve to provide motivation not only for performance but also for increased coping ability. Efficient and successful living resulted from the control of anxiety; however, the extinction of anxiety might lead conceivably to a dull and drab existence. Excessive anxiety was equally debilitating. With the reaching of a specific peak, additional amounts of anxiety resulted only in the deterioration of performance. Since anxiety is a fact of existence, coping techniques were seen then as alternatives to the development of psychosomatic (mind-body) disorders (Walker, 1975).

Schoonmaker (1971) identified the following as stress-causing areas for graduate students prior to the actual academic experience:

1. What is the possibility of not completing the program? A 40% attrition rate, for example, was found to occur with candidates on Ph.D. programs.
2. What will be the effect of working at another job while going to school? The strain quite often was so great because of the

combination of working and studying that many individuals never completed a program.

3. What effect will graduate school have on personal ambitions, values and habits? A student needed a total internal commitment as the completion of graduate work became psychologically necessary.

4. What is the probability of marital conflict? "Most graduate students are married and of those married, over half had children when they started and almost three-fourths when they finished" (Berelson, 1960, p. 189). Husbands and wives, also, were deeply concerned financially because of economic pressure and the concomitant situation of deprivation of comfort and of security. In many instances, a complete change of life style took place.

Moreover, Schoonmaker (1971) noted that the following anxiety situations were generated by academic life:

1. Students came to consider themselves as stupid and then concluded that they lacked sufficient intelligence to continue in a program.

2. Students found the increased workload assignments too difficult. In this respect, possibly earlier study habits were forgotten because of long disuse.

3. Competition proved to be greater at the graduate than at the undergraduate level.

4. Those students who were afraid and confused too often failed to admit to any fear or confusion.

5. A feeling of helplessness occurred because of the almost completely subjective grading of the professors.

6. Indignation resulted from acting as an unpaid research assistant.

7. Students exhibited a lack of physical and emotional stamina plus "the ability to keep your head down, to work like hell and to do exactly what you are told" (p. 287).

8. The producing of a thesis proved to be the greatest stumbling block of all.

McKeachie (1951) correlated college student anxiety with the teaching behavior of the instructor. Since the student was completely dependent upon the instructor, he faced either prestige and social rewards or coped with a threat of failure. This, in turn, determined whether he could remain in school in order to obtain a good position upon graduation.

Moreover, Spielberger and Katzenmayer (1959) reported that poor scholastic performances were given by those male college students who demonstrated a high level of anxiety. Furthermore, Pickrel (1958) found that a high level of manifest anxiety resulted in superior test score when the test provided a minimal number of alternatives. On a complex test, however, which included several alternatives for

decision making, an increase in anxiety resulted in an impairment of performance.

Those test-anxious college students who were treated by the cognitive modification technique which utilized relaxation as a part of the treatment (Meichenbaum, 1972) were found to exhibit a reduced test anxiety. Meichenbaum also pointed out that a further examination of this group revealed that those who experienced anxiety demonstrated a type of anxiety that was of a facilitating rather than of a debilitating nature.

Relaxation

A Chinese physician described the circumstances:

But the present world is a different one. Grief, calamity, and evil cause inner bitterness . . . there is disobedience and rebellion . . . Evil influences strike from early morning until late at night . . . they injure the mind and reduce intelligence and they also injure the muscles and the flesh (Benson, 1975, p. 15).

Although this Chinese physician lived 4,600 years ago, his observations could easily have been describing the present time in the 20th century. Coping skills were needed then as they are now.

In order to survive in the jungle of contemporary life, White and Fadiman (1976) contend that a knowledge of the inner self is necessary for complete health of body and mind. The unconscious must become a conscious state of awareness. Therein lies the root of many relaxation-related problems.

Rest and relaxation has been prescribed by physicians for such maladies as strained muscles, high blood pressure, and post-operative convalescence. If the relaxation was just physical inactivity, doctors found their patients in many instances more distressed than when previously evaluated. Some people found relaxation difficult without additional help and knowledge of a structured relaxation technique (Jacobsen, 1938). Because of this dilemma and the variety of methods for relaxation, a few of the systematic approaches to the problem were reviewed.

Progressive relaxation (Jacobsen, 1938) was a physical method of reducing muscle tension with the help of a trained therapist. The individual was taught to become aware of tension by contracting a particular muscle group and then relaxing this area. With this technique a specified sequence of muscles was used. Dependent upon the degree of patient cooperation, the time involved ranged from a dozen instructor sessions to several months or even years. The instructoral sessions lasted for one-half to one hour 3 to 4 times a week with individual practice 1 to 2 hours a day. As the patient acquired new habits of muscle relaxation, he became aware of the sensation of "not doing." When the muscles relaxed, the "nervous re-education" of the body occurred concomitant with reduction of emotional tensions. During this very gradual process, ability was gained "to

localize tensions when they occur during nervous irritability and excitement and then to relax them away" (Jacobsen, 1938, p. 40).

In the tank isolation technique (Lilly, 1977), the individual free floated in approximately 50 inches of saturated aquas solution of Epsom salts (53%). The tank of general use was about 5 by 7½ feet filled with approximately 50 inches of solution kept at a constant temperature of 93°F or 94°F. When the lid was closed on the tank, a continuous flow of oxygen was pumped across the surface of the water. The insulation and construction of the tank reduced to a minimum the sources of sound stimulation from the external reality. From records dating from 1954, persons using the tank for one to several hundred hours indicated Lilly and his associates had devised a method for attaining the deepest rest ever experienced (Lilly, 1977).

In the province of the mind, what one believes to be true, either is true or becomes true within certain limits. These limits are to be found experientially and experimentally In the province of the mind, there are no limits. The body imposes definite limits (Lilly, 1977, p. 63).

While floating in the completely dark and soundless tank, the individual became acutely aware of breathing and sounds of heart beat. Later as thoughts sifted from problems of the outside world, reveries and fantasies occupied the thought process. Usually these were of a very personal nature and reactions varied from complete suppression to relaxed enjoyment. The next mental stage was projection of visual

imagery much like seeing in the dark. Colors, designs, and moving objects were often common in this mental state.

After a tank experience, some people found their internal clock out of synchronization with the day, as though the day just started regardless of the reality of the man clock. Others found a need for social re-adjustment as they re-entered the people domain. Regardless of the experience, the responsibility of the "happening" was solely the responsibility of each unique individual. "Alone with one's God, there are no alibis" (Lilly, 1977, p. 63).

Structural integration or rolfing (Rolf, 1977) was a system of tension reduction by means of manipulative intervention of the myofascia (elastic soft tissue) of the body by a trained therapist. In theory the fascia was compared to a sack of glue surrounding the muscle. Muscular tension had the proclivity for disuse. If this condition continued, the glue or fascia dried up. The problem then was to control the tone or elasticity of the fascia. By manual intervention the body became re-structured and tended to become re-aligned with the earth's gravitational field. When this occurred, balanced movement of joints and tissues resulted with a smooth flow of energy.

If acceptance could be made of a physical personality as a co-entity of the psychological personality, then it would follow that an impairment of physical structure could be reflected in the disorganization of the psychological person. In fact, "as the body changes in

structural processing, we can observe psychological changes paralleling physical improvement" (Rolf, 1977, p. 22). Upon the premise of the duality of personality and the relationship to the physical body, a more relaxed state of well-being was experienced by the technique of structural integration. The individual no longer "solidifies his mental attitude into biological mud" (Rolf, 1977, p. 37).

Schutz (1977) has used rolfing in conjunction with the guided daydream as a technique to facilitate the state of inner peace. In this instance the rolfing experience was used as the symbol to start the fantasy rather than the traditional method of having the symbol supplied by the guide. As the rolfee reported on the image of the mind, the guide (Schutz) offered support to face painful situations and to see fantasy relationship pertinent to reality. Later as relaxation was seemingly apparent, the person concluded the fantasy. This technique required many sessions with a trained therapist and could involve many months of treatment.

The Alexander method (Alexander, 1974; Kurtz & Prester, 1970) depends upon the concept of the organic wholeness of the body in conjunction with Gestalt principles. In the beginning the individual was made aware of the "hows"--how he stood, walked, sat, and wrote. Through self-observation and outside guidance, this was accomplished over a period of time. From there the student was instructed to experience the body differently, the idea being that although one

has learned one way--to the point of automation--habit patterns can be eliminated and replaced with alternate forms of movement and behavior. Trained teachers assisted the student to develop kines-
thetic awareness directing attention to the moment-to-moment processes rather than ultimate goals. Incorrect use of the body in relation to gravity caused overall tension to continually re-build. From this re-education the student had conscious control to halt an old pattern and substitute a new one. As one moved from a central core, the result was feeling balanced and more alert.

In this process (Kurtz & Prester, 1970) of manual intervention by the teachers, the student may release traumatic material. In this case, the teachers have been trained to "stay" with the person as they worked through and reintegrated these experiences that caused distress.

Originally the Alexander method was practiced one to one. Later, however, small groups worked together to achieve the same results. This technique required a trained therapist not only for the body manipulation but also in the area of psychotherapy (Kurtz & Prester, 1970).

In contrast to the more externally related methods of achieving bodily and concomitant mental relaxation, the practice of Zen focuses on the internal self. Zen (Herrigel, 1960) has been described as a way of life which encompassed the body, mind, and spirit. The

Zen Buddhist, ever mindful of suffering, conducted himself so as not to give offense to others. This trait is emphasized in the strict, precise training the pupil received in the monastery. The relationship of Master to student has been viewed as unique judged by Western world standards. Implicit faith and trust in the Master is a necessary attribute for the pupil. The pupil ultimately learned that, although seemingly cruel and severe, these were acts by the Master to further the development of self-discipline (Herrigel, 1960).

The method of Zen began with correct nose breathing exercise. In this state, the student sat in the lotus position (if possible) and practiced counting regular, normal, breaths as a preparatory exercise for concentration and mental tranquility. Meditation began with concentration on a koan such as "Hakuin held his hand in the air and told his pupils to listen to the sound it made. What was it like?" (Herrigel, 1960, p. 40). After hours, days, and weeks of meditation, the pupil found an acceptable solution for the Master. This was satori or enlightenment, "an illuminating insight into the very nature of things" (Herrigel, 1960, p. 45). Other koans were given to the pupil in order to "make the process of enlightenment more familiar . . . not in order to complete enlightenment--for it is imparted at one stroke and as an invisible whole, since the whole of Zen is contained in each koan" (Herrigel, 1960, p. 55).

An inner transformation of a revolutionary nature was brought about by the experience of satori. As daily meditation continued, the personality change became evident. Mental rigidity and emotional self-centeredness emerged in "the way" to flowing warmth, self-mastery, courage, and compassion (Kapleau, 1973).

Another Far Eastern discipline was the science of Yoga. By using a threefold approach of body, mind, and spirit, synthesized as one, relaxation and a mysterious inner experience were discovered (Hittleman, 1969a; and Vishnudevananda, 1960). During the practice of Yoga, specific deep breathing exercises were advocated. While sitting in the Lotus position, rhythmic counting of the flow of breath was regulated by alternately stopping the nostrils. Instructions were given for the position of hands and fingers as the breathing technique (pranayama) was performed during inhalation, retention, and exhalation (Hittleman, 1969b). The physical health of the body was maintained through yogic exercises. The various positions (840,000) and their action on ligaments, joints, and muscles were related to age-old beliefs. "All yogic exercises are based on the formula of stretching, relaxation, deep breathing, and increasing circulation and concentration" (Vishnudevananda, 1960, p. 68).

Complete relaxation from the yoga philosophy could not be attained until there was physical, mental, and finally spiritual relaxation. During meditation (samadhi) concentration was directed to attention

exclusively upon any object with a view to the identification of consciousness or unity with the object (Hittleman, 1969a).

That very moment we are able to realize the eternal presence of the Universal Mind . . . it is the letting go of our ego which constitutes liberation and enlightenment (nirvana) . . . you cannot, therefore, attempt to reason about and understand the super consciousness. You can only experience it! (Hittleman, 1969a, p. 40-41).

So, from the mental relaxation, he withdraws himself and identifies himself with the all-pervading, all-powerful, all peaceful and joyful self, or pure consciousness within himself, because all the sources of power, knowledge, peace, and strength are in the soul and not in the body (Vishnudevananda, 1960, p. 214).

When in 1959, Maharishi Mahesh Yogi first exposed the continental United States to Transcendental Meditation (TM), he started a trend toward new experiences for the individual. In 1975 an estimated 20,000 to 30,000 people learned the technique each month, the total of which was close to 1,000,000 (Bloomfield, 1976).

This widely practiced Yoga technique was not learned from books but by private instruction of teachers qualified through Maharishi's personal supervision. The training, conducted in Switzerland, consisted of 6 months of intensive study. Final exams had to be passed without error and "flawless knowledge of the course material" was required in order to become a certified TM teacher. Harold H. Bloomfield, a graduate of Yale University School of Medicine and who became the first American psychiatrist to be a trained, qualified TM teacher, commented on the training:

The testing on this course was as rigorous as the testing I underwent during my medical school years. When I graduated from the course, I felt a real sense of pride and a high degree of professionalism, now not only as a psychiatrist but also as a teacher of the TM program (Bloomfield, 1976, p. 154).

A standardized 7 step course for TM instruction has been designed by Maharishi. The first two were attendance at introductory lectures where benefits and overview of the TM program were explained. A personal interview with the instructor and filling out an application form completed the third step. Personal instruction was the fourth step. Here the student was given a mantra and told how to meditate. Immediately the student began individual practice for 20 minutes in the morning and evening concomitant to experiencing the benefits of the program. The remaining three steps were follow-up during the three days after personal instruction. Group and individual meetings were deemed essential for assurance of proper practice and for expectations of future effects (Bloomfield, 1976).

During meditation intense concentration was not necessary. Thoughts and images passed through the conscious mind and with proper use of the mantra the individual experienced a "state of least excitement" or state of "inner wakefulness without thought or perception . . . The TM technique makes use of the mind's natural tendency to transcend thinking" (Bloomfield, 1976, p. 50).

Because of the quantity of seemingly unexplained benefits reported by people who practiced TM, research and the effects of TM became an area of interest. The structured organization of the method for instruction encouraged scientific research. In 1976 a collection of 102 papers from 13 countries, many based on MS, EdD, and PhD theses relating to various aspects of TM, were published. Positive results were documented in such diversified areas as metabolic changes, electroencephalographic changes, health, athletic performance, academic performance, personality development, rehabilitation in addition to productivity and quality of life were examined (Orme-Johnson & Farrow, 1976). This seemingly indicated more research would be conducted to further explore the altered state of consciousness or "state of least excitement" experienced by those who practiced TM.

Benson, Beary, and Carol (1974) identified an altered state of consciousness (ASC) as a commonality among such disciplines as Zen, Yoga, Christian prayer (15th Century Christian Saints John and Terese described repetitive prayer techniques to achieve this state), Judaism (practices dated 2nd Century B.C.), Sufism, Shintoism, Taoism, and Shamanism. Other subjective evidence was found among some of the less traditional types of religious practices in the United States. Nature mystics, such as Wordsworth and Thoreau, were also included. Practices for which objective data were found included

autogenic training, progressive relaxation, hypnosis (if relaxation was suggested), sentic cycles, Yoga, TM, and Zen.

Usually, four basic elements, mental device, passive attitude, decreased muscle tonus, and a quiet environment were required to achieve the ASC. Concomitantly physiological changes occurred. Correlated subjective and objective data from persons practicing these disciplines resulted in the title "Relaxation Response" (Benson, et al, 1974)..

Wallace (1976) established the fact in 1970 that a fourth state of consciousness, a state of wakeful alterness, did exist. This state, separate from sleep, wakefulness, and dreaming was produced by those practicing TM and was a physiological and biochemically unique altered state of consciousness. Wallace, Benson, and Wilson (1971) found that "consistent and pronounced physiologic changes occurred during the practice of a mental technique called Transcendental Meditation" (Wallace, et al, 1971, p. 797). At this time the fact was mentioned that the changes represented in the wakeful hypometabolic state might be elicited by other means:

Concurrent with the thought of another means of producing the hypometabolic state found in TM, Beary, Benson, and Klemchuk (1974) and Benson, Greenwood, and Klemchuk (1975) investigated the concept. Using a simple psychophysiologic technique (described in detail in Chapter 3, page 34,) subjects were self-taught by reading their instructions for

the practice of this new relaxation method. The participants were allowed one hour to learn and practice the technique before data relating to the efficacy of this method was collected. Results closely paralleled previous research of other studies on TM. The combined research data supported the premise of the existence of a "relaxation response" which is a wakeful hypometabolic state--a fourth state of consciousness.

Although the Relaxation Response technique has not been subjected to the intense research of some other forms of popular meditation practices, there appeared sufficient evidence to pursue further investigation. If physiological changes were achieved in order to decrease debilitating effects of anxiety, which is a symptom of stress, then humanity, graduate students in particular, could possibly function at its highest potential. The Relaxation Response by Herbert Benson, M.D. (1975) could be an adjunct to a more enjoyable life.

Tart (1969), in discussing altered states of consciousness, remarked:

I suspect that within a few years the psychology graduate school that does not offer course work and research opportunities in ASCs simply will not attract many bright students it is simply saying that the profession [psychology] must pay adequate attention to these areas of such importance to students if we want to avoid losing some good, potential psychologists (Tart, 1969, p. 5).

Summary

The literature was reviewed in reference to anxiety as it affected people generally and college students specifically. Two types of reactions were discussed: psychological and physiological. In addition, literature that pertained to the college student and his particular types of anxiety-producing factors was reviewed. Several types of relaxation techniques were briefly discussed: progressive relaxation, tank isolation, structural integration or rolfing method, Alexander method, Zen, Yoga, TM, and ASC. Commonality of divergent disciplines was identified and the Relaxation Response was traced to the origin of its concept.

CHAPTER 3

Procedures

Introduction

The purpose of this study was to investigate whether the Relaxation Response might be an aid to anxiety reduction among college graduate students who were enrolled at Eastern Montana College (EMC), Billings, Montana, and Montana State University (MSU), Bozeman, Montana. The development of this chapter follows nine major guidelines. The sections are as follows: (a) introduction, (b) population description and sampling procedure, (c) treatment procedures, (d) methods of collecting data, (e) methods of organizing data, (f) statistical hypotheses, (g) analysis of the data, (h) precautions taken for accuracy, and (i) summary.

Population Description and Sampling Procedure

The population for this investigation came from graduate students at Eastern Montana College, Billings, Montana, and Montana State University, Bozeman, Montana. Students who were enrolled in the Master's program at EMC and at MSU and who took their comprehensive examinations during 1977-78 comprised the Billings and Bozeman sampling groups. See Appendix E for major areas of concentration.

From the identified graduate students who would be taking the written comprehensive examinations, all were contacted as to their willingness to participate in this investigation. The volunteer students, then, were assigned randomly into one of three groups:

the Control Group (C), the Quasi-experimental Group (Q), or the Experimental Group (E). All participants completed initial pre- and post-objective and subjective assessments and the treatment to which they were assigned randomly.

Treatment Procedures

With the Control Group (C), the treatment consisted of completing the objective and subjective assessments for anxiety measurement. These assessments were given at the beginning of the quarter in which they intended to take their comprehensive examinations. The same instruments were repeated immediately preceding the examination and directly following the Master's Comprehensive Examination.

With the Quasi-experimental Group (Q), the treatment was the same as for the Control Group except that they were required to spend time each week with the investigator or a designated representative. During these weekly meetings, discussion centered upon selected non-academic articles (Appendix A). This group was included in the study for the purpose of acting as a control for contaminating variables in results due to the Hawthorne effect, i.e., that a study was being done with experimental manipulation. This effect could possibly cause a change in the subjects (Kerlinger, 1973).

With the Experimental Group (E), the treatment included the completion of the objective and subjective assessments and attendance at weekly meetings with the investigator or a designated representative.

At the initial meeting with this group (E), participants were given specific instructions for the practice of the Relaxation Response technique (Appendix B). The purpose of the method was explained as a technique to ". . . influence one's ability to deal with difficult situations . . . and should markedly enhance one's well-being" (Benson, 1975, pp. 27-28).

The Relaxation Response, as outlined by Dr. Herbert Benson (1975), incorporated four essential factors. These factors were:

1. A Quiet Environment: in order that external distractions and internal stimuli be minimized, a quiet place or room should be selected.

2. A Mental Device: this device can be a word or phrase repetition to be used to combat the proclivity for mind wandering. When distracting thoughts become conscious, constant repetition of a syllable aids the mind to shift from logical, oriented-thought patterns.

3. A Passive Attitude: during this phase, an attempt is made to empty the mind of extraneous distractions. Feelings, imagery, and thoughts are expected to drift into an individual's awareness. The perceptions are allowed to pass without concern of concentration and return to the repetition of the mental device. "A passive attitude appears to be the most essential factor in eliciting the Relaxation Response" (p. 111).

4. A Comfortable Position: a sitting position that alleviates undue muscle tension and that can be maintained comfortably for 20 minutes is recommended. A supine position is to be avoided as this attitude promotes a tendency for sleep.

Benson, Associate Professor of Medicine at the Harvard Medical School and Director of the Hypertension Section of Beth Israel Hospital of Boston, developed the specific relaxation response technique used in this investigation. This technique by Benson was extremely simple. Nothing was new as the elements of this method were known and used for centuries in many cultures throughout the world. No professional expertise was required to be learned, and it was an "innate response within us and each one has the capacity to experience the Relaxation Response" (Benson, 1975, p. 164). Essentially, this technique appraised an age-old wisdom which has been validated scientifically.

The following detailed instructions for the utilization of the four factors to elicit the Relaxation Response were given to the members of the Experimental Group to insure consistency. This procedure was taught and practiced using cassette tapes during the weekly meetings.

- (1) Sit quietly in a comfortable position.
- (2) Close your eyes.
- (3) Deeply relax all your muscles, beginning at your feet and progressing up to your face. Keep them relaxed.

(4) Breathe through your nose. Become aware of your breathing. As you breathe out, say the word, "ONE," silently to yourself. For example, breathe IN . . . OUT, "ONE"; IN . . . OUT, "ONE"; etc. Breathe easily and naturally.

(5) Continue for 20 minutes. You may open your eyes to check the time, but do not use an alarm. When you finish, sit quietly for several minutes, at first with your eyes closed and later with your eyes opened. Do not stand up for a few minutes.

(6) Do not worry about whether you are successful in achieving a deep level of relaxation. Maintain a passive attitude and permit relaxation to occur at its own pace. When distracting thoughts occur, try to ignore them by not dwelling upon them and return to repeating "ONE." With practice, the response should come with little effort. Practice the technique twice daily, but not within two hours after any meal, since the digestive processes seem to interfere with the elicitation of the Relaxation Response (Benson, 1975, pp. 162-63).

Methods of Collecting Data

During this investigation, two types of assessment instruments were administered to all participants. The objective measurement was accomplished by using the Palmar Sweat Index. The State-Trait Self-Reporting Questionnaire constituted the foundation for a subjective measurement. A copy of this self-evaluation questionnaire is included in Appendix D.

The Palmar Sweat Index. The Palmar Sweat Index is the most widely used measure of palmar sweat. Production of palmar sweat (amount of moisture exuded through pores of the skin) is utilized as a physiological correlate and as an objective measurement of anxiety and emotional tension (Bixenstine, 1955; Calvin, McGuigan, Tyrrell, &

Soyars, 1956; Davis, 1957; Haywood, 1962; Laties, 1959; Lore, 1966; Silverman & Powell, 1944). The reading of the print at the point of maximum density elicited an interjudge reliability coefficient of .99 (Lotsof & Downing, 1956; Mowrer, Light, Luria, & Zeleny, 1953).

Basically, the technique for palmar sweat prints involved three steps:

1. The painting of the fingers with a solution of ferric chloride.
2. The placing of the painted areas upon a paper that was impregnated with tannic acid.
3. The reading of the "print," a step that determined the amount of precipitate that is left on the paper by finger contact. The rationale was that the more sweat that is produced, the more precipitated ferric tannate would be deposited on the paper. This precipitate results from the dissolving of the ferric chloride and sweat in the fingers with the tannic acid on the paper. The amount of precipitate on the paper resulted in varying degrees of intensity of darkness of the palmar print.

Ferreira and Winter (1963) recommend the following technical procedure that was used for this investigation. The solution that was to be painted on the four fingertips of the subjects was readied three days in advance of the test. Such solution was prepared by dissolving 13 grams of anhydrous ferric chloride in 400cc of

chemically pure acetone with three drops of hydrochloric acid to be added. The paper used to record the prints was Whatman No. 1 filter paper that was impregnated by immersing it for 3 minutes in a 5% aqueous solution of tannic acid. Then, the solution was applied to all subjects through the use of a brush. The length of time that the subjects' fingers remained in contact with the treated paper was 3 minutes. Print density was read by a McBeth RD100 densitometer. Recorded findings were an average of the darkest area of each of the four fingerprints. Moreover, the quality control for paper color was recorded by a densitometer reading of an unstained area. This result, then, was subtracted from the individual's average in order to determine the actual amount of precipitate.

State-Trait Self-Reporting Questionnaire. When, in 1964, test construction for a single test to measure anxiety was begun, two types of anxiety were found to exist--state and trait. State anxiety was identified as the here and now--at this very moment--while trait anxiety was considered to reflect an enduring disposition of personality. Revisions in theory and concept in reference to anxiety in the present form of the instrument was the State-Trait Anxiety Inventory Form X (Spielberger et al., 1970).

The revised form that was used in this investigation was composed of two scales. Form X-1 A-State required the participant to respond

to 20 items about his immediate feelings "at this moment." These responses were in terms of a four-choice scale that ranged from a "not at all" response to a "very much so" response which was on the degree of individual agreement with the statement. The A-Trait or Form X-2 was similar except the individual was asked to indicate how he "generally feels." This form also had a four-choice scale that ranged from an "almost never" response to an "almost always" response.

Participants were asked to complete this assessment instrument at the initial meeting and immediately preceding the Master's Comprehensive Examination and then again immediately following the same examination. At each time of administration, the A-State scale was given first and followed by the A-Trait scale. A forced-choice response to all items was requested. Directions for administration complied with those recommended in the manual (Spielberger, et al., 1970) (Appendix D).

Correlation between the two scales--State and Trait--was dependent upon the existing conditions in which the State scale was administered. "It is also possible that the particular pattern of autonomic responses associated with an immediate threat situation is different from the 'steady state' pattern" (Martin, 1961, p. 242).

Experimental testing with college students in which different types of anxiety-producing situations were used has been reported.

For females, the correlations between A-State and A-Trait scales varied between .11 and .53 with a median "r" of .30. Corresponding correlations for males varied between .37 and .67, with a median "r" of .47. . . . Consistent findings that correlations between the scales are typically higher for males than females suggest that high A-Trait males are generally more prone to experience anxiety states than are high A-Trait women (Spielberger et al., 1970, p. 12).

Test-retest reliability of the A-Trait scale ranged from .73 to .86, but the A-State scale was lower and ranged from .16 to .54. This finding may be an expected result since a valid measure of a transitory condition would not be statistically reliable from day to day but should reflect the individual's sensitivity to the existing situation at the time of testing (Spielberger et al., 1970).

Evidence of validity for the A-Trait scale was established in comparing the IPAT (Illinois Personality and Ability Test) Anxiety Scale and the Taylor Manifest Anxiety Scale. These correlations were .75 and .80 respectively. Construction validity for the A-State Scale was known to have been accomplished by testing college students at Florida State University under various experimental conditions--motion pictures, examinations, and normal and relaxed situations. Resultant alpha reliabilities ranged from .83 to .94 (Spielberger et al., 1970).

Methods of Organizing Data

Resultant data from the assessment instruments was scored and computer analyzed. A comparison and an interpretation between and

within the groups was made. Tables were constructed to explain the results and conclusions of this investigation.

Statistical Hypotheses

The purpose of this study was to investigate the efficacy of the Relaxation Response as a technique for anxiety reduction among college graduate students. Measurement of anxiety was accomplished by the use of two assessment instruments. In order to evaluate this investigation efficiently, the following null hypotheses were postulated:

Hypothesis 1. There is no significant difference on the scores of the A-State Anxiety Scale among the three groups for the three administration periods.

Hypothesis 2. There is no significant difference on the scores of the A-Trait Anxiety Scale among the three groups for the three administration periods.

Hypothesis 3. There is no significant difference on the scores of the Palmar Sweat Print Index among the three groups for the three administration periods.

Hypothesis 4. There is no significant difference on the scores of the A-State Anxiety Scale between males and females as a result of three different test administration periods.

Hypothesis 5. There is no significant difference on the scores of the A-Trait Anxiety Scale between males and females as a result of three different test administration periods.

Hypothesis 6. There is no significant difference on the scores of the Palmar Sweat Print Index between males and females as a result of three different test administration periods.

Analysis of Data

The collected data for the investigation which were dependent on residual scores for analysis were treated by computing an analysis of variance which assigns different parts of the variation to specific causal situations and Duncan's Test of Multiple Comparisons for related measures was used to specify areas of significance at the .05 level of confidence (Ferguson, 1976).

Data from the investigation was tested at the .05 level of confidence. The opinion of the investigator was that the possibility of saying that a difference exists when no such difference does exist was of relatively less importance than not recognizing a difference that actually does exist. In other words, if an error were made in this investigation, then to commit a Type I error and to reject a true null hypothesis would be less serious than to commit a Type II error and to retain a false null hypothesis (Ferguson, 1976).

Precautions Taken for Accuracy

In order to eliminate as much human error as possible, the different scales were scored by computer when applicable. Also, to aid in accuracy of results, the materials were subjected to computer analysis wherever feasible.

Summary

The procedures and design for an investigation that was concerned with the efficacy of the Relaxation Response as a technique for anxiety reduction among college graduate students at Eastern Montana College and at Montana State University was discussed. Eastern Montana College graduate students and Montana State University graduate students who took Master's Comprehensive Examinations during 1977-78 were identified as the target population for this investigation.

Treatment procedures for the various groups were explained with special emphasis and details of the proposed Relaxation Response Technique to be used in the study. The Palmar Sweat Print Index and the State-Trait Anxiety Inventory were reviewed as measures of anxiety to assess the Relaxation Response Technique.

Six hypotheses were listed as a means to determine the value of the Relaxation Response technique. Statistical methods were delineated in order to analyze the results of the assessment instruments to evaluate the treatment techniques of the investigation.

CHAPTER 4

Analysis and Discussion

Graduate students from Montana State University, Bozeman, Montana, and Eastern Montana College, Billings, Montana, who were preparing to take their Master's Comprehensive Examinations, were randomly placed in one of three treatment groups:

1. Experimental Group (E)
2. Quasi-Experimental Group (Q)
3. Control Group (C)

Table 1 delineates the distribution of the participant population for this investigation.

Table 1

Group Participants: Population Distribution

	Males	Females	Total Participants
Experimental Group	11	10	21
Quasi-Experimental Group	7	9	16
Control Group	13	11	24
Total	31	30	61

All students were tested by two subjective instruments, A-State and A-Trait Self-Evaluation Questionnaire plus one objective instrument, the Palmar Sweat Index. All three tests were administered to all participants at three different times. The first administration

was approximately three weeks before the Master's Comprehensive Examination; the second administration was on the examination day immediately prior to the examination; the third administration was on the examination day immediately following completion of the examination.

Using a two-way analysis of variance, three F scores were derived for each of the six null hypotheses used in this investigation. These tests analyzed the following differences: (a) differences among groups, (b) differences among times of administration of the assessment instrument, and (c) the differences in interactions between groups and administration times. When an appropriate level of significance was derived, Duncan's Test of Multiple Comparisons was utilized to analyze the data and further explain the results. Data obtained from the 61 participants responding to the testing instruments were then computer scored. These scores were used to test the hypotheses at the .05 level of significance.

Analysis

Null Hypothesis 1. There is no significant difference on the scores of the A-State anxiety scale among the three groups for the three administration periods.

Table 2 presents the analysis of variance results from the Experimental, Quasi-Experimental, and Control Groups on the A-State Test for the three administrations.

Table 2

Least-Squares Means and Analysis of Variance Summary Among
the Three Groups for the A-State Test Administrations

Groups	First Administration	Second Administration	Third Administration	Averages
Experimental	38.14	38.19	37.09	37.80
Quasi- Experimental	34.06	49.43	37.87	40.45
Control	<u>32.62</u>	<u>52.91</u>	<u>43.79</u>	43.11
Averages	34.93	46.84	39.58	

Source	Degrees of Freedom	F
Treatment Groups	2	4.65 *
Administration Times	2	21.199*
Groups and Test Administration Times	4	6.380*
Remainder	174	

*Significant at the .05 level

Table 3 presents specific areas of significance for the three groups at the three administration periods from results obtained using Duncan's Test of Multiple Comparisons.

Table 3

Summary of Duncan's Test of Multiple Comparisons for the
Three Groups at the Three Administration
Periods of the A-State Test

Rank	Groups in Rank Order	Least-Squares Means	1	2	3	4	5	6	7	8	9
1	C-before exam	52.93	-								
2	Q-before exam	49.43	-	-							
3	C-after exam	43.79	X	X	-						
4	E-before exam	38.19	X	X	X	-					
5	E-initial test	38.14	X	X	X	-	-				
6	Q-after exam	37.88	X	X	X	-	-	-			
7	E-after exam	37.10	X	X	X	-	-	-	-		
8	Q-initial test	34.06	X	X	X	-	-	-	-	-	
9	C-initial test	32.62	X	X	X	X	X	X	-	-	-
	C-all A-state administrations	43.11	-								
	Q-all A-state administrations	40.45	X	-							
	E-all A-state administrations	37.45	X	X	-						
	All groups 2nd A-state Adm.	46.84	-								
	All groups 3rd A-state Adm.	39.58	X	-							
	All groups 1st A-state Adm.	34.93	X	X	-						

Key: X = Significant values at the .05 level
 - = Non-significant values at the .05 level
 E = Experimental Group
 Q = Quasi-Experimental Group
 C = Control Group

Since the computed F value of 4.65 was greater than the critical value of 3.05, the null hypothesis that there is no significant difference among the three treatment groups for the A-State anxiety scale was rejected.

Since the computed F value of 21.199 was greater than the critical value of 3.05, the null hypothesis that there is no significant difference among the three times of administration of the A-State anxiety scale was rejected.

Since the computed F value of 6.380 was greater than the critical value of 2.42, the null hypothesis that there is no significant difference among the three treatment groups and the three times of administration for the A-State anxiety scale was rejected.

From the summary of Duncan's Test of Multiple Comparisons, Table 3, the results indicated the following:

1. There was no significant difference between any of the administration periods for the A-State Test in the Experimental Group.
2. There was a significant difference among all of the three administration periods for the A-State test in the Control Group.
3. There was a significant difference between the first and second administration as well as between the second and third administration of the A-State test in the Quasi-Experimental Group.

No significant difference was displayed between the first and third A-State administrations for this group.

4. There was no significant difference between the Quasi-Experimental Group and the Control Group at the first A-State test administration or between the Experimental and Quasi-Experimental groups at the first A-State administration.

5. There was a significant difference between the Experimental Group and both the Quasi-Experimental and the Control Groups for the second A-State test administration. No significant difference existed between the Quasi-Experimental and Control Groups for the A-State test at the second administration period.

6. Results from the third A-State test administration showed a significant difference between the Control and Experimental Groups as well as between the Control and Quasi-Experimental Groups.

7. The average scores of all A-State administrations for the Experimental Group were significantly lower than the averages of either the Quasi-Experimental Group or the Control Group for these administrations.

8. Combining all groups, there was a significant difference in A-State scores among all of the administration periods.

Null Hypothesis 2. There is no significant difference on scores of the A-Trait anxiety scale among the three groups for the three administration periods.

Table 4 presents the least-square means and the analysis of variance summary for the three groups at the different administration times of the A-Trait Test.

Table 4
Least-Squares Means and Analysis of Variance Summary Among
the Three Groups for the A-Trait Test Administrations

Groups	First Administration	Second Administration	Third Administration	Averages
Experimental	33.66	32.14	31.76	32.52
Quasi- Experimental	32.12	32.31	31.68	32.04
Control	<u>33.29</u>	<u>33.12</u>	<u>32.87</u>	33.09
Averages	33.02	32.52	32.10	

Source	Degrees of Freedom	F
Treatment Groups	2	.231
Test Administration Times	2	.175
Groups and Test Administration Times	4	.074
Remainder	174	

Since the computed F value of .231 was not greater than the critical value of 3.05, the null hypothesis that there is no significant difference among the three treatment groups for the A-Trait anxiety scale was not rejected.

Since the computed F value of .175 was not greater than the critical value of 3.05, the null hypothesis that there is no significant difference among the three times of administration of the A-Trait anxiety scale was not rejected.

Since the computed F value of .074 was not greater than the critical value of 2.42, the null hypothesis that there is no significant difference among the three treatment groups and the three times of administration of the A-Trait anxiety scale was not rejected.

Null Hypothesis 3. There is no significant difference on the scores of the Palmar Sweat Print Index among the three groups for the three administration periods.

Table 5 presents the least-squares means and the analysis of variance summary among the groups for the three administrations of the Palmar Sweat Print Index Test. Table 6 further explains the results of the analyzed data using Duncan's Test of Multiple Comparisons.

Table 5

Least-Squares Means and Analysis of Variance Summary Among Three
Groups for the Palmar Sweat Print Index Test Administrations

Groups	First Administration	Second Administration	Third Administration	Averages
Experimental	.3995	.4408	.4278	.4227
Quasi- Experimental	.3040	.5052	.5151	.4078
Control	<u>.2628</u>	<u>.5463</u>	<u>.5270</u>	.4453
Averages	.3221	.4974	.4563	

Source	Degrees of Freedom	F
Treatment Groups	2	.632
Test Administration Times	2	14.8 *
Groups and Test Administration Times	4	3.389*
Remainder	171	

*Significant at the .05 level

Table 6

Summary of Duncan's Test of Multiple Comparisons for the
Three Groups at the Three Administration Periods
of the Palmar Sweat Print Index Test

Rank	Groups in Rank Order	Least-Squares Means	1	2	3	4	5	6	7	8	9
1	C-before exam	.5463	-								
2	C-after exam	.5270	-	-							
3	Q-before exam	.5052	-	-	-						
4	E-before exam	.4408	-	-	-	-					
5	E-after exam	.4278	-	-	-	-	-				
6	Q-after exam	.4141	X	-	-	-	-	-			
7	E-initial test	.3995	X	-	-	-	-	-	-		
8	Q-initial test	.3040	X	X	X	X	X	-	-	-	
9	C-initial test	.2628	X	X	X	X	X	X	X	-	-
	All Groups Second PSI Test	.4974	-								
	All Groups Third PSI Test	.4563	-	-							
	All Groups First PSI Test	.3221	X	X	-						

Key: X = Significant values at the .05 level
 - = Non-significant values at the .05 level
 E = Experimental Group
 Q = Quasi-Experimental Group
 C = Control Group

Since the computed F value of .632 was not greater than the critical value of 3.05, the null hypothesis that there is no

significant difference among the three treatment groups for the Palmar Sweat Print Index Test was not rejected.

Since the computed F value of 14.8 was greater than the critical value of 3.05, the null hypothesis that there is no significant difference among the three times of administration of the Palmar Sweat Print Index was rejected.

Since the computed F value of 3.389 was greater than the critical value of 2.42, the null hypothesis that there is no significant difference among the three treatment groups and the three times of administration for the Palmar Sweat Print Index was rejected.

From Table 6, the summary of Duncan's Test of Multiple Comparisons of the three groups for the three test administrations of the Palmar Sweat Print Test, the results indicated the following:

1. The Experimental Group maintained a stable level displaying no significant differences throughout the three testing periods.
2. The Control and Quasi-experimental Groups both showed a significant increase in anxiety levels between the first and second and between the first and third administrations of the Palmar Sweat Index.
3. Combining all groups, the average of the PSI was significantly higher at the second administration than at the first administration.

Null Hypothesis 4. There is no significant difference on the scores of the A-State Anxiety Scale between Males and Females as a result of three different test administrations.

Table 7 presents the least-squares means and the analysis of variance summary for the two groups at the different administration times of the A-state test.

Table 7

Least-Squares Means and Analysis of Variance Summary Between Males and Females for the A-State Test Administrations

Groups	First Administration	Second Administration	Third Administration	Averages
Male	33.09	44.74	39.96	39.26
Female	<u>36.72</u>	<u>48.68</u>	<u>39.27</u>	41.56
Averages	34.91	46.71	39.62	

Source	Degrees of Freedom	F
Sex	1	2.063
Test Administration Times	2	18.449*
Sex and Test Administration Times	2	.877
Remainder	174	

*Significant at the .05 level

Since the computed F value of 2.063 was not greater than the critical value of 3.90, the null hypothesis that there is no significant difference between males and females for the A-State anxiety scale was not rejected.

Since the computed F value of 18.449 was greater than the critical value of 3.05, the null hypothesis that there is no significant difference among the three times of the A-State test administration was rejected. There was a significant difference between test sessions 1 and 2, 1 and 3, and 2 and 3.

Since the computed F value of .877 was not greater than the critical value of 3.05, the null hypothesis that there is no significant difference between males and females and the three times of administration for the A-State test was not rejected.

Null Hypothesis 5. There is no significant difference on the scores of the A-Trait anxiety scale between males and females as a result of three different test administration periods.

Table 8 presents the least-squares means and the analysis of variance for the two groups at the different administration times of the A-Trait Test.

Table 8

Least-Squares Means and Analysis of Variance Summary Between
Males and Females for the A-Trait Test Administrations

Groups	First Administration	Second Administration	Third Administration	Averages
Male	33.67	32.83	32.87	33.12
Female	<u>31.72</u>	<u>31.41</u>	<u>30.58</u>	<u>31.24</u>
Averages	32.70	32.12	31.72	

Source	Degrees of Freedom	F
Sex	1	2.644
Test Administration Times	2	.236
Sex and Test Administration Times	2	.047
Remainder	174	

Since the computed F value of 2.644 was not greater than the critical value of 3.90, the null hypothesis that there is no significant difference between males and females for the A-Trait anxiety scale was not rejected.

Since the computed F value of .236 was not greater than the critical value of 3.05, the null hypothesis that there is no significant difference among the three times of administration of the A-Trait anxiety scale was not rejected.

Since the computed F value of .047 was not greater than the critical value of 3.05, the null hypothesis that there is no significant difference between the two groups male and female and the three times of administration for the A-Trait anxiety scale was not rejected.

Null Hypothesis 6. There is no significant difference on the scores of the Palmar Sweat Print Index between males and females as a result of three different test administration periods.

Table 9 presents the least-squares means and the analysis of variance summary for the two groups at the different administration times of the Palmar Sweat Print Test.

Table 9

Least-Squares Means and Analysis of Variance Summary Between
Males and Females for the Palmar Sweat Print Test Administrations

Groups	First Administration	Second Administration	Third Administration	Averages
Males	.337	.536	.511	.461
Females	.305	.458	.409	.391
Averages	.321	.497	.460	

Source	Degrees of Freedom	F
Sex	1	6.559*
Test Administration Times	2	15.184*
Sex and the Test Administration Times	2	.559
Remainder	174	

*Significant at the .05 level

Since the computed F value of 6.559 was greater than the critical value of 3.90, the null hypothesis that there is no significant difference between males and females for the Palmar Sweat Print Index was rejected.

Since the computed F value of 15.184 was greater than the critical value of 3.05, the null hypothesis of no significant difference among the three times of administration of the Palmar Sweat Print Index was rejected. There was a significant difference between the first and second test administrations as well as between the first and third test administrations.

Since the computed F value of .559 was not greater than the critical value of 3.05, the null hypothesis of no significant difference between the two groups, male and female, and the three times of administration for the Palmar Sweat Print Index was not rejected.

Discussion

A-State: Treatment Groups. Using the A-State Self-Evaluation Questionnaire as a measure of the individuals' feelings at the moment, the Experimental Group exhibited more anxiety than the Control and Quasi-Experimental Groups at the first time of testing. Perhaps the individuals in this group experienced or reacted more strongly to the experiential pressures and stress situations discussed earlier in Chapter 2 (Schoonmaker, 1971) than did the other groups. These results were not anticipated. Therefore, this research design provided no systematic evaluation process for assessing the possible effects of stress-producing conditions which might exist outside the actual examination situation and influence the individual's self-perceived anxiety.

The Experimental Group demonstrated less anxiety than either the Quasi-Experimental or Control Group on the second and third test administrations. No significant differences existed between test administrations for the Experimental Group. Seemingly, the cumulative effects of practice of the Relaxation Response technique provided the Experimental Group with the coping skills necessary to approach the Master's Comprehensive Examination without significant increase in anxiety. The Control and Quasi-Experimental Groups who had not practiced the technique exhibited significantly higher anxiety levels on the examination day.

A-Trait: Treatment Groups. Using the A-Trait Self-Reporting Questionnaire as an assessment of the individuals' "general" feelings, no differences were evident among the three groups. Results from the A-Trait were stable during the investigative three testing periods. Apparently, the potentially stress producing Master's Comprehensive Examinations (second testing period) had no effect on the scores of this test.

Palmar Sweat Index: Treatment Groups. Although the recommended procedure (Ferreira & Winter, 1963) suggested that one person be in charge of painting the fingers of the participants with the anhydrous ferric chloride solution, this was not possible for the following reasons. At Montana State University, the majority of the Master's Examinations were given on one day, at five different campus locations,

with varying times for beginning and ending the examinations.

Eastern Montana College also chose the same day as one of its examination days.

In order to collect all the necessary data and maintain a degree of quality control, five doctoral candidate colleagues from Montana State University volunteered to be trained and assist with this phase of the investigation. Part of the Eastern Montana College investigation was under the direction of a master's candidate who utilized this experience in investigative technique as part of her curriculum requirements. This deviation from the recommended technique may have caused some differences in the results of the PSI as a measure of Anxiety.

Perhaps of more importance to the final results of the last test administration of the PSI was the inability to control the time lapse between completion of the examination and the actual taking of the sweat print.

The skin's state changes continuously and in different directions over minutes and hours in both cyclical and unpredictable fashion throughout the day because people normally are continuously responding to both internal and external changes These diverse, interacting voices complicate the reporting of skin talk (Brown, 1974, p. 68). . . . it is not the skin that skin talk is talking about primarily; the skin is talking about the mind (Brown, 1974, p. 55).

Results from the administration of this test as an objective measure of anxiety for the three groups at the three testing periods

were inconclusive. Unlike the other two treatment groups, the Experimental Group showed no significant difference among the three test administrations. When compared to the Control Group, the Experimental Group exhibited a significantly higher level of anxiety at the first administration. Comparing the Experimental Group and the Quasi-Experimental Group, this result was not evidenced. This might be attributed to the reasons previously discussed in analyzing the A-State Test, i.e., the effect of and reactions to life pressures and stress situations (Schoonmaker, 1971). No significant differences were demonstrated between the Experimental Group and the other two groups at the second and third test administrations. However, the skin reflecting the state of the mind (Brown, 1974) indicated a significant increase in anxiety level for the Quasi-Experimental and Control Groups on the day of the Master's Comprehensive Examinations as compared to the first test administration.

Variation in time between completion of the examination and painting of the participants' fingers for the PSI could account for some of the higher scores obtained at the final test administration. If the skin was reflecting the state of mind, then those participants who completed their examination early and who had time to review their responses might have been more calm, i.e., showed lower density prints, than those who finished right at the established time limit.

An additional factor influencing the time lapse was the completion of the examination by numerous study participants at about the same time, so that some were forced to wait for testing. It is possible that in waiting with their colleagues to be tested, sufficient relaxation occurred to produce a different PSI than would have been recorded had the test been administered to each examinee immediately upon completion of the examination. This possibility was unforeseen at the time the research design was developed; therefore, no provision was made to control this variable.

A-State: Males and Females. Using the A-State test as a subjective measure of anxiety, and dividing the participant population on the basis of sex, there was no difference between the feelings of the males and females at the moment of the three test administrations. Both groups demonstrated significantly increased anxiety at the second test administration when compared to the first and third administrations.

A-Trait: Males and Females. Assessment of the participant population on the basis of sex, using the A-Trait test, corroborated the results found when separating the population into treatment groups. Since no significant differences were found between or within the groups of males and females for any of the test administrations, the A-Trait instrument could be deemed as being stable over a period of

time that included a potentially anxiety producing situation. Because this test was not meant to reveal fluctuating feelings of anxiety the data seemed to indicate this was a common population, the members of which felt generally about themselves in the same way--males no different from females in their self-evaluation.

Palmar Sweat Index: Males and Females. Using the Palmar Sweat Index as a measure of anxiety for comparing males and females resulted in finding both groups showing significantly higher anxiety levels on the second and third administrations than on the first. Men consistently exhibited higher levels of anxiety on all three test administrations. Perhaps this group was initially more anxious, or deviations from recommended procedure in addition to the effect of time lapse in the final testing contributed to the results for this specific investigative period.

Altered State of Consciousness. Throughout this investigation the use of the term "altered state of consciousness" was carefully avoided. No measurements of physiological changes during meditation were attempted in this investigation as they were in Beary's (1974). However, the collected data from the second testing period indicated that significant differences existed between the group that practiced the Relaxation Response technique and the two groups that did not have this knowledge. A self-reporting questionnaire and an objective instrument, both purporting to measure transitory anxiety, revealed

significantly lower scores for the Experimental Group than for the other groups. Previous research (Beary et al., 1974) has shown that, after only one hour of self-instruction and practice of this relaxation technique, subjects were able to produce physiological manifestations of the Relaxation Response. Perhaps after approximately three weeks of practice the group of graduate students who had learned this technique experienced an altered state of consciousness and developed the ability to decrease anxiety in a situation that produced significantly increased anxiety in others.

Summary

Each of the six hypotheses and their component parts were analyzed and discussed with regard to their being rejected or not rejected at the .05 level of confidence. Tables were presented to verify and explain the collected data.

Two types of anxiety were examined--State and Trait. The former was measured by the A-State Self-Evaluation Questionnaire and the Palmar Sweat Print Index, the latter by the A-Trait Self-Evaluation Questionnaire. All testing instruments were administered three times.

When tested with the A-Trait Questionnaire, no significant differences were displayed among or within the groups during the three administrations. Data obtained from the A-State and Palmar Sweat Index assessment administered immediately prior to the Master's Comprehensive Examination exhibited significantly lower scores for

the Experimental Group which practiced the Relaxation Response technique.

Data comparing males and females in the various phases of the investigative period displayed no significant differences. Both groups exhibited significantly increased anxiety on the A-State and Palmar Sweat Index at the second test administration.

The Relaxation Response or altered state of consciousness was discussed in regard to the information given the participants in the investigation. On the basis of previous research and the performance of the Experimental Group in this study, it is possible that an altered state of consciousness was experienced by that group.

CHAPTER 5

Summary, Conclusions, and Recommendations

Summary

The purpose of this investigation was to study the efficacy of the Relaxation Response as a technique for anxiety reduction among college graduate students. This was attempted by teaching a group of college graduate students a relaxation technique as outlined by Herbert Benson, M.D., of Harvard Medical School. These students were compared to a group of students that had not learned the technique.

Evidence of the prevalence of anxiety and its related problems can be observed by the articles appearing in popular magazines that attempt to acquaint the public with pertinent information regarding the symptoms and possible solutions. Books on the subject of anxiety are being reproduced in low cost paperback editings to increase the availability to concerned persons.

Prominent among the paperback editions were Selye's books (1956, 1974) that explained physiological reactions. He developed the General Adaptive Syndrome (GAS) and described the three stages of bodily adjustment to stress.

Spielberger (1966) explained some psychological symptoms of anxiety and identified two constructs; anxiety (A-State) was "characterized by subjective, consciously perceived feelings of apprehension and tension, accompanied by or associated with activation or arousal of the autonomic nervous system" (p. 17). In this condition

emotional reactions varied in the level of intensity as perceived by the individual. Anxiety as a personality trait (A-Trait) reflected "anxiety-proneness differences between individuals in the probability that anxiety states will be manifested under circumstances involving varying degrees of stress" (p. 15). Anxiety measured by the A-Trait test appeared to be stable and was less subject to the fluctuations of transitory anxiety measured by the A-State test.

Concomitant to the anxiety experienced in the general milieu of the average person, Schoonmaker (1971) identified several pre-enrollment concerns of graduate students. Moreover, he also noted anxiety producing situations generated by the academic life of the graduate student. Feelings of stupidity, fear, confusion, helplessness and indignation contributed to an ever-increasing level of anxiety for the graduate student in college.

McKeachie (1951) emphasized anxiety as a factor which might influence classroom performance. Certainly then, some method of coping with academic life, some method to decrease debilitating anxiety would be an adjunct to graduate students' intellectual abilities.

Since anxiety cannot simultaneously co-exist with a state of relaxation, several methods of relaxation were examined. Some of the systematic approaches to relaxation considered to be of possible use were: Progressive Relaxation, Tank Isolation, Structural Integration, and the Alexander Method. In contrast to these more externally

orientated methods, the practices of Zen, Yoga, TM, and the Relaxation Response were examined.

Because of the simplicity of the Relaxation Response technique and the ease of teaching and learning the procedure, this method of relaxation was chosen as a possible means of decreasing anxiety for the graduate student. The short practice time required to experience the resulting altered state of consciousness added to the feasibility and practicality of the choice for this investigation. Graduate students from Montana State University and Eastern Montana College who were preparing to take their Master's Comprehensive Examinations during 1977-78 were the identified population. Students were contacted approximately 4 weeks before their examination and were randomly selected for one of three groups depending on their stated time commitments for the project. The Experimental Group (E) was taught the Relaxation Response and met weekly for training. The Quasi-experimental Group (Q) met 4 times with their designated representative and responded orally or in writing to thought problems or situations. There were no meetings held with the Control Group (C).

Three criterion instruments were used to measure the effects of the treatment procedures: (a) A-State Self-Evaluation Questionnaire, (b) A-Trait Self-Evaluation Questionnaire, and (c) the Palmar Sweat Print Index. Using these evaluative instruments, 61 participants responded to an initial test when first contacted in addition to the

test immediately prior to the comprehensive examination and immediately following the examination.

Data which displayed the varying amounts of anxiety experienced at the different testing periods by these students were collected. By computer analysis using the least-squares means among the groups for a two-way analysis of variance and Duncan's Test of Multiple Comparisons, the following null hypotheses were tested for significance at the .05 level of confidence:

Null Hypothesis 1: there is no significant difference on the scores of the A-State anxiety scale among the three groups for the three administration periods.

Null Hypothesis 2: there is no significant difference on the scores of the A-Trait anxiety scale among the three groups for the three administration periods.

Null Hypothesis 3: there is no significant difference on the scores of the Palmar Sweat Print Index among the three groups for the three administration periods.

Null Hypothesis 4: there is no significant difference on the scores of the A-State anxiety scale between males and females as a result of the three different test administrations.

Null Hypothesis 5: there is no significant difference on the scores of the A-Trait anxiety scale between males and females as a result of three different test administration periods.

Null Hypothesis 6: there is no significant difference on the scores of the Palmar Sweat Print Index between males and females as a result of three different test administration periods.

Conclusions

The following conclusions were derived after an analysis of the collected data for this investigation.

1. As measured by the A-State Self-Evaluation Questionnaire, the Experimental Group who practiced the Relaxation Response technique exhibited significantly less anxiety than either the Quasi-experimental or Control Group on the second test administration which was given immediately preceding the Master's Comprehensive Examination. The Experimental Group demonstrated no significant differences in their anxiety level for the three A-State Test administrations.

2. There was no difference among or within the Experimental, Quasi-experimental, or Control Groups for the three administrations of the A-Trait Self-Evaluation Questionnaire.

3. Results of the Palmar Sweat Test among the three treatment groups for the three test administrations were inconclusive. Unlike the other two treatment groups which indicated significant differences in the anxiety level between the first and second test administrations, the Experimental Group showed no significant differences among the three testing periods. However, no significant differences were

demonstrated between the Experimental Group and the other two groups at the second and third test administrations.

4. There was no significant difference between males and females using the A-State Test as a subjective measure of anxiety. However, both groups demonstrated more anxiety on the second test than on the first or third administration.

5. There was no significant difference between or within the group of males and females for the three administrations of the A-Trait Test.

6. Using the Palmar Sweat Index as an objective measure of anxiety, both males and females demonstrated significantly higher anxiety on the second and third test administrations than on the first administration. Men obtained higher scores than women for the three test administrations.

Recommendations

Based upon the statistical results and the conclusions of this investigation, several recommendations emerge as appropriate areas for further research.

1. This investigation, as it relates to a specific anxiety reduction technique, should be replicated on other college and university campuses. It is important to know if these findings can be applied to a larger national segment of graduate students.

2. This investigation should be replicated using samples of students other than graduate students. Undergraduate students, especially those who suffer from test anxiety, could benefit from learning this relaxation technique.

3. This relaxation technique should be assessed by college counselors and professors as a method to ascertain whether a reduction in anxiety has an effect upon a student's successful classroom functioning. This approach would be equally feasible for groups or for individual instruction.

4. An evaluative instrument to assess the varying amounts of stress caused by specific changes in the lives of the designated population should be administered. Changes in a person's life pattern could account for increased stress causing one group initially to be more anxious than another.

5. A larger population would be necessary to compare men and women and further research is needed to compare treatment groups based on sex.

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APPENDICES

APPENDIX A

Non-Academic Articles

No Tag, No Service

Mrs. John Akers was busily cooking breakfast for her four school-bound children when she noticed the black smoke pouring from the stove. Swiftly she phoned the High Ridge, Missouri Volunteer Fire Department, and a few minutes later ten firemen riding three trucks arrived at the scene. Smoke was seeping from the eaves of the 6-year old \$18,000 ranch-style house as they tugged a hose into the garage. But now Assistant Fire Chief Robert Ellison had a question: Had the Akers family bought the \$7 tag entitling them to fire service. "No," said Mrs. Akers. "No tag, no service," Ellison replied. Then he ordered his men: "Roll it up, boys!"

Vainly Mrs. Akers argued with the firemen as the flames crackled hotter. "Go ahead and put it out; I'll pay the costs," she begged. "I'm sorry. I can't do it," Ellison replied. While workbound neighbors pitched in to help the family tote furniture out of the house; 18-year-old David Akers climbed to the roof with a garden hose but was unable to chop a hole through to the fire. Soon the roof was so hot David had to jump off. Then it was left to 13-year-old Cathy Akers to plead with the firemen to save her home. The volunteers watched the blaze.

The house burned to the ground. Akers moved his family in with nearby neighbors while an angry controversy blazed up over the fire department's scorched-earth policy. "You can't imagine," said a neighbor of the Akers family, "what a horrible feeling it is to watch a nice, almost new house burn right down to the ground with the firemen and the equipment standing there. I just stood there and cried." But one fire department trustee defended Ellison's decision. "If we would have put out that fire," he said, "the first thing you know the other tag holders would say, "Why should we buy a tag?" Well, pretty soon you wouldn't have a fire department." More than 100 tags were sold during the two days after the Akers' fire.

A week later firemen were called to the home of Mr. and Mrs. Philip Rush to put out a fire. The High Ridge department strung the fire hoses and prepared to fight the fire. But after determining that the house did not have a tag and that the Rush family was not home, firemen announced that they would not put the fire out. About 15 or 20 angry neighbors urged the firemen to fight the fire. Some members of the crowd pushed and jostled the firemen. Finally one of them said, "We'll put it out; we're taxpayers." The firemen dropped the hoses.

Just at that moment Jefferson County Deputy Sheriff Seth McKeen arrived on the scene. "Nobody touches this equipment," warned Deputy McKeen. "The first person that touches that equipment goes to jail."

The crowd cursed the firemen. Someone said, "Shoot em!" and another person growled, "Let's throw them in the fire." The deputy called for help, and soon red blinking lights surrounded the Rush home.

In the meantime Philip Rush returned home and told firemen that one of his children might be in the house. Assistant Chief Ellison ordered the firemen into action. The department has a policy of fighting any fire when a life might be in danger. No one was found in the house which had extensive interior damage.

Case of the "Murdered Wife"

The setting of this story is a moderately-sized town, divided through the middle by a river. On one side of the river lived a certain husband and his wife. The husband worked the night shift in the local factory. Sometimes after the husband had left for the factory to assume his work, the wife left the home and took the ferryboat across to the other side of the river for a rendezvous with her boyfriend.

I should make it clear at this point that there were two means of crossing the river in this town--one, the ferryboat; and two, a bridge which was operated by a bandit. It was well-known that for a person crossing the bridge there was a high probability of his or her being killed by the bandit.

Now, on this particular night, the husband went to work in the evening as usual. Later on the wife left the home, crossed the river

on the ferryboat, and met her boyfriend. However, the two quarreled, and the boyfriend refused to give her the money for crossing back on the ferryboat to her home and returning to him at a later date as he had been accustomed to doing.

First she went to the ferryboat operator and asked him to loan her the amount necessary for the fare, or to take her across on credit, or simply to take her across free. He did not accept any of the alternatives, so she went to an old high school sweetheart that resided on the same side of the river as she was now. He saw no reason for helping her at this point; and as a last resort, she tried to cross over on the bridge but was killed by the bandit.

End of Story

Now, assuming that each of the six characters in this story, namely the husband, wife, ferryboat operator, boyfriend, high school sweetheart, and bandit all shared some degree of responsibility of the death of the wife, have each respondent indicate on some kind of a continuum the degree of responsibility due each character. It may be useful also to have each respondent indicate on separate sheets the degree of responsibility for the woman's death shared by each character as assigned by the other members of the group.

Have each person identify his or her response as to the sex of the respondent, i.e., man, woman.

It Didn't Happen in Lichen

Lichen, Illinois is a small town of about 3,000 people situated in southern Illinois. For several years Lichen has been plagued with juvenile problems. The youth it seems were only interested in making trouble. In one year alone, youth were the cause of stolen gasoline from bulk tanks, stolen automobiles, broken windows in buildings, and a large amount of shoplifting. Other indications of the problem were: school drop-outs, pregnant unwed teenagers, and unemployment for those not in school.

Mr. Delbert, President of the PTA and resident of the community for two years, was very concerned about these problems and decided something should be done. He contacted Mr. Brown, a friend of his who lived in the community for three years, and they decided that the solution would be a youth center. This youth center, they thought, should be advised by a council composed of adults and youth but should be managed primarily by the youth. They approached several youth about this project and were greeted with encouragement. Mr. Delbert and Mr. Brown, both well paid industrial managers in the nearby city, decided to rent an empty building and let the youth pay them from cash income on the pop machine, pay dances, and so on. The center was to be open every evening after school until 7:30 and until midnight on Saturdays. News of their plans became public knowledge as they talked about their project with others in casual conversation.

Just as they were ready to begin action by renting a building and organizing a council they met with resistance from many areas of the community. The real estate office would not rent them a building because the businessmen had organized a committee to block the project; school teachers and principals rose up against it because it would disturb many of the youth's study habits; several churches railed against it because there would be dancing and this would encourage more immoral sexual behavior.

Mr. Delbert and Mr. Brown took very determined stands against every one of these groups at every turn. But the resistance continued to get stronger until finally Mr. Delbert and Mr. Brown gave up. They moved their families to another town. The people of Lichen drew a sigh of relief and things returned to normal.

Questions:

1. What reasons can you see for Mr. Delbert's and Mr. Brown's failure?
2. What might they have done differently and better?
3. Is this situation uncommon to your community? (Not the youth center but the resistance to someone's project.)

Conflict Between Generations

Issue #1. The rapid pace at which our society changes makes it necessary for people to adjust to major shifts in the style and rhythm of life every few years. Social changes in the past took place

over a generation or two and even then were absorbed with some difficulty. Today it is not only a question of the grandparent or parent feeling strange in their children's world. Only a decade difference in age can cast people into separate worlds.

Growing old or obsolete can occur at very early ages. Not only one's skills but also one's language, living habits, mode of dress and cultural tastes appear out of date very rapidly in a society moving at a momentous pace.

The generations do not agree as to social customs, morality, political loyalties, economics or religious practices. They have a different music, different heroes, different desires. Because they do not understand one another, they are suspicious of each other and do not communicate.

The separation of the generations makes people prematurely old and obsolete. It proposes a perplexing and painful problem for parents and teenagers, the aging, those slow to adapt and to learn, and the traditionalists who cherish their heritage from the past. It deprives the young of a sense of history, continuity and identity. Here is a major issue which defines an important part of the missionary concern of the Christian person in today's world.

Case Study #1. Mary is 20 years of age, a junior at one of the outstanding universities where she is an honor student. Upon graduation from college, she plans to study law and work several years

before marriage, home, and family. Mary was always regarded by those in her little hometown as the ideal example of Christian youth. She was active in church, Girl Scouts, and other character and leadership development organizations. Her mother was always more than proud about the good example she set before her only child. Her father, more of the world than of the church, was always a bit dubious about the very strict "ethical-morality mold" into which his daughter was being poured.

During the summer vacation last year, Mary's mother almost became psychotic when she discovered a packet of oral contraceptive pills on the dresser in her daughter's room. With her heart pounding with anger, overwhelmed by a deep sense of defeat, she approached Mary with the evidence of her sexual immorality and indiscretion.

Confronted with the evidence, Mary's response was calm and unemotional. She told her mother that she felt that her sex life was her own business. At the age of 20, she felt quite capable of making choices independent of either mother's moral codes or the ancient teachings of the church which she had concluded was not written for her in her particular situation. "Medical technology," she insisted, "had freed her of the fears implanted in her about sex."

For Mary, the choice is no longer between early marriage and sex within the bounds of traditional morality or career development without fear of pregnancy. She has chosen a third alternative--sex

and career development without the fear of pregnancy. "The traditional Christian ethic may forbid it," said Mary, "but medical science makes my decision possible."

Mary's father responded with joy that his daughter has had the courage to make a responsible decision without being "brainwashed" by mother or the church. He is quite willing to affirm Mary in the decision she has made with respect to sex morality.

Mary's mother, on the other hand, feels strangely alienated and separated from both her husband and daughter. She feels utterly defeated.

Some questions to explore:

1. What is Mary really saying about the church? Her family? Society?
2. On the basis of your understanding of the Biblical Faith, how do you assess Mary's decision?
3. How do you assess mother's response?
4. How do you assess father's response?
5. What is the mission of the church to this family?

APPENDIX B

Practice of Relaxation Response Technique

The Relaxation Response, as outlined by Dr. Herbert Benson (1975), incorporates four essential factors. These factors are:

1. A Quiet Environment: in order that external distractions and internal stimuli be minimized, a quiet place or room should be selected.

2. A Mental Device: this device can be a word or phrase repetition to be used to combat the proclivity for mind wandering. When distracting thoughts become conscious, constant repetition of a syllable aids the mind to shift from logical, oriented-thought patterns.

3. A Passive Attitude: during this phase, an attempt is made to empty the mind of extraneous distractions. Feelings, imagery, and thoughts are expected to drift into an individual's awareness. The perceptions are allowed to pass without concern of concentration and return to the repetition of the mental device. "A passive attitude appears to be the most essential factor in eliciting the Relaxation Response" (p. 111).

4. A Comfortable Position: a sitting position that alleviates undue muscle tension and that can be maintained comfortably for 20 minutes is recommended. A supine position is to be avoided as this attitude promotes a tendency for sleep.

This technique by Benson is extremely simple. Nothing is new as the elements of this method were known and used for centuries in many

cultures throughout the world. No professional expertise is required to be learned, and it is an "innate response within us and each one has the capacity to experience the Relaxation Response" (Benson, 1975, p. 164). Essentially, this technique appraises an age-old wisdom which has been validated scientifically.

Detailed instructions for the utilization of the four factors to elicit the Relaxation Response are given here. This procedure is to be taught and practiced with the E Group during the weekly meetings.

- (1) Sit quietly in a comfortable position.
- (2) Close your eyes.
- (3) Deeply relax all your muscles, beginning at your feet and progressing up to your face. Keep them relaxed.
- (4) Breathe through your nose. Become aware of your breathing. As you breathe, say the word, "ONE," silently to yourself. Breathe easily and naturally.
- (5) Continue 20 minutes. You may open your eyes to check the time, but do not use an alarm. When you finish, sit quietly for several minutes, at first with your eyes closed and later with your eyes opened. Do not stand up for a few minutes.
- (6) Do not worry about whether you are successful in achieving a deep level of relaxation. Maintain a passive attitude and permit relaxation to occur at its own pace. When distracting thoughts occur, try to ignore them by not dwelling upon them and return to repeating "ONE." With practice, the response should come with little effort. Practice the technique twice daily, but not within two hours after any meal, since the digestive processes seem to interfere with the elicitation of the Relaxation Response (Benson, 1975, pp. 162-63).

APPENDIX C

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By Peggy Ferris
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Date February 2, 1979

APPENDIX D

SELF-EVALUATION QUESTIONNAIRE

Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI FORM X-1

NAME _____ DATE _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *feel* right now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	①	②	③	④
2. I feel secure	①	②	③	④
3. I am tense	①	②	③	④
4. I am regretful	①	②	③	④
5. I feel at ease	①	②	③	④
6. I feel upset	①	②	③	④
7. I am presently worrying over possible misfortunes	①	②	③	④
8. I feel rested	①	②	③	④
9. I feel anxious	①	②	③	④
10. I feel comfortable	①	②	③	④
11. I feel self-confident	①	②	③	④
12. I feel nervous	①	②	③	④
13. I am jittery	①	②	③	④
14. I feel "high strung"	①	②	③	④
15. I am relaxed	①	②	③	④
16. I feel content	①	②	③	④
17. I am worried	①	②	③	④
18. I feel over-excited and rattled	①	②	③	④
19. I feel joyful	①	②	③	④
20. I feel pleasant	①	②	③	④



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SELF-EVALUATION QUESTIONNAIRE
STAI FORM X-2

NAME _____ DATE _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	①	②	③	④
22. I tire quickly	①	②	③	④
23. I feel like crying	①	②	③	④
24. I wish I could be as happy as others seem to be	①	②	③	④
25. I am losing out on things because I can't make up my mind soon enough	①	②	③	④
26. I feel rested	①	②	③	④
27. I am "calm, cool, and collected"	①	②	③	④
28. I feel that difficulties are piling up so that I cannot overcome them	①	②	③	④
29. I worry too much over something that really doesn't matter	①	②	③	④
30. I am happy	①	②	③	④
31. I am inclined to take things hard	①	②	③	④
32. I lack self-confidence	①	②	③	④
33. I feel secure	①	②	③	④
34. I try to avoid facing a crisis or difficulty	①	②	③	④
35. I feel blue	①	②	③	④
36. I am content	①	②	③	④
37. Some unimportant thought runs through my mind and bothers me	①	②	③	④
38. I take disappointments so keenly that I can't put them out of my mind	①	②	③	④
39. I am a steady person	①	②	③	④
40. I become tense and upset when I think about my present concerns	①	②	③	④

APPENDIX E

Major Concentration Areas of the Sample Population
Participating in this Investigation

Eastern Montana College

guidance and counseling

elementary education

special education

Montana State University

guidance and counseling

elementary education

secondary education

administration

physical education

mathematics

microbiology

bacteriology

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