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The Effects of Relaxation Training on Anxiety Levels, Absenteeism, and Academic Performance in First, Second and Third Grade Children: Implications for Coping with Stress

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THE EFFECTS OF RELAXATION TRAINING
ON ANXIETY LEVELS, ABSENTEEISM, AND ACADEMIC
PERFORMANCE IN FIRST, SECOND, AND THIRD GRADE CHILDREN:
IMPLICATIONS FOR COPING WITH STRESS

by

So Hee Jon, BSN

A Thesis Submitted to the Faculty of the Graduate School
of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
Master of Science in Nursing

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VITA

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	ii
VITA	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
CONTENTS OF APPENDICES	vii
Chapter	
I. INTRODUCTION	1
Purpose and Significance	1
Definition of Terms	2
Hypotheses	4
Assumptions	5
Limitations	5
Summary	6
II. REVIEW OF THE LITERATURE	7
Stress	7
Anxiety	12
Coping	16
Relaxation Training	19
Summary	26
III. METHODOLOGY	27
Setting	28
Subjects	29
Instrumentation	32
Collection of Data	37
Summary	40
IV. ANALYSIS OF DATA	41
Descriptive Data	41
Hypotheses Testing	44
Summary	46
V. DISCUSSION AND CONCLUSIONS	47
Suggestions for Future Research	52
Summary	53

BIBLIOGRAPHY	55
APPENDIX A	62
APPENDIX B	64
APPENDIX C	67
APPENDIX D	77
APPENDIX E	82
APPENDIX F	84
APPENDIX G	87
APPENDIX H	90
APPENDIX I	93

LIST OF TABLES

Table	Page
1. Description of Subjects	31
2. Methodological Design	39
3. CAS : Anxiety Scores	42
4. Absenteeism During the Project	42
5. Academic Performance	44

CONTENTS FOR APPENDIXES

	Page
APPENDIX A Deep Breathing Exercise	62
APPENDIX B Progressive Relaxation Training	64
APPENDIX C Meditations	67
APPENDIX D CAS Questionnaire and Instructions	77
APPENDIX E Academic Performance	82
APPENDIX F Introductory Letter to Parents	84
APPENDIX G Sample Form for Obtaining Parents or Guardian's Consent When No Risk is Involved	87
APPENDIX H Explanation of the Study to the Children ...	90
APPENDIX I Raw Data	93

CHAPTER I

INTRODUCTION

Until relatively recent years, relaxation as a means of stress reduction was used primarily with adults (Moore, 1965; Kanfer, 1975), however, relaxation procedures have also been found to be very useful with children (Herzog, 1982; Tisdelle, 1984). There is some objective evidence to support the idea that the practice of relaxation by children can be beneficial for them in various ways. For example, Herzog (1982) found that there could be significant changes in attentiveness and concentration in school children when relaxation training was used. Kohen (1987) asserted that children who learned relaxation and mental imagery exercises missed fewer days of school. Johnson and Spielberger (1968), and Lamontagne, Mason, and Hepworth (1985) have shown that scores on various measures of anxiety can be lowered as a result of the use of relaxation procedures with children. These researchers also suggest that relaxation may positively influence academic performance and school attendance.

PURPOSE AND SIGNIFICANCE

The purpose of this replication and extension study was to examine the effects of relaxation training on anxiety, absenteeism and academic performance in first, second and third grade children. Specifically, the work

done by Lamontagne, Mason, and Hepworth in 1985 supplied the stimulus for this study.

The findings of the original study and of this replication study may provide useful information for pediatric nurses, school teachers, parents, and children who experience stress in their lives. It is recognized that relaxation training is effective in reducing anxiety in adults (Inoffo, 1988; Borkovec, 1987; Knafer, 1975). Perhaps if children learn how to cope with stress during their early years, they will also be able to do so as adults. Children experience stress from multiple sources, i.e., family problems, difficulties with school work, peer pressures, and global problems such as the threat of nuclear war. In this study, an attempt was made to explore the effect of relaxation training as a coping strategy for children who experience stress. This emphasis is consistent with the function of the role of the psychiatric mental health nurse.

DEFINITION OF TERMS

Relaxation - a release of physiological and psychological tension due to stress. The relaxation response involves physiological and psychological changes that occur in the organism especially when one experiences deep muscle relaxation (Humphrey, 1984).

Relaxation Training - a programmed series of activities to reduce muscular tension and psychological tension, a form

of coping. In this study, the relaxation training program consists of three parts: (1) the breathing exercises (see Appendix A) suggested by Yogi and refined by Benson (1975), (2) progressive muscular relaxation (see Appendix B) used by Wolpe (1958) and (3) guided imagery, i.e., meditations (see Appendix C) used by Herzog (1982).

Anxiety - a state of apprehension, a stress reaction that occurs when a situation is perceived as being potentially embarrassing, degrading, or guilt-provoking, in which there is, consequently, a threat to self-concept or self-image (Watson and Lidgren, 1973). An abnormal and overwhelming sense of apprehension is often marked by such physical symptoms as tension, tremor, sweating, palpitation, and increased pulse rate (Webster's ninth New collegiate dictionary, 1984). In this study, a measure of the level of anxiety was obtained using the Children's Anxiety Scale (CAS) developed by Gillis and Cattell in 1980. (see Appendix D).

Absenteeism - the failure of a pupil to be present at school (Dictionary of education, 1959) which may be a reaction to an unknown stimulus. In this study, the number of days absent from school or failure to be present at more than half of a class session was used as a measure of absenteeism.

Academic achievement - the quality of students' performance associated with the educational process. In this study, students' academic achievement was identified by the

evaluation provided by the teacher (see Appendix E).

First, Second and third grade children - students in the early educational years in an accredited elementary school that is concerned primarily with general education, including those skills, facts, and attitudes which are required by society of all its members (Dictionary of education, 1959). In the present study, the subject group was composed of children aged 6 to 9 years, who were matriculating in the first, second and third grades in an approved private grammar school in a middle class neighborhood in major mid-western city.

HYPOTHESES

- H₁ : There is no significant difference in the anxiety levels of children who have experienced relaxation training and children who have not experienced relaxation training.
- H₂ : There is no significant difference in absenteeism in children who have experienced relaxation training and children who have not experienced relaxation training.
- H₃ : There is no significant difference in academic performance in children who have experienced relaxation training and children who have not experienced relaxation training.

ASSUMPTIONS

1. The children who participated in the study responded honestly and accurately.
2. The children were capable of being taught and capable of learning relaxation techniques.
3. The teachers did not treat the children in the experimental group differently from those in the control group.

LIMITATIONS

1. The lack of random selection, although random assignment procedures were used, was a problem. This factor, along with the small group of subjects (53) limited the generalizability of the findings.
2. The children's responses to the CAS may have been influenced by unknown emotional events which could have occurred prior to attending school.
3. There is a possibility of the Hawthorne effect with both groups. The administrators and teachers in the school thought that the ten minutes prior to the classroom teaching, which was used for the experimental treatment, might be best used by the control group as a play period. It is possible, however, since both groups responded to the CAS, that individual students may have responded because they knew they were participating in a research project.
4. Developmental differences exist among various age groups, for example, psychological maturity, intellectual

capability, etc. An attempt to control for this factor was the use of random assignment of potential subjects to each of the two groups.

5. It should be noted that the students in the control group played while the students in the experimental group were engaged in the relaxation training. It is possible that the play period could also have been relaxing for children in the control group. In addition, the students in the experimental group may have perceived the relaxation program as a learning task.

SUMMARY

In this chapter, the purpose of the study, definition of terms, hypotheses, assumptions and limitations of the study have been presented.

CHAPTER II

REVIEW OF LITERATURE

In order to explore the effect of relaxation training on anxiety, absenteeism and academic performance in children, it is necessary to consider the literature related to the concepts of stress, coping, anxiety, and relaxation training. In the following pages, these concepts will be reviewed.

Stress

As society becomes more complicated and scientific knowledge develops, stress is inevitable in everyday life. If one is not able to cope with stress, physiological and psychological disease may result.

Selye (1952) conceptualized stress in two parts, the stimulus and response. He described stress in terms of the physiological response of the body to a threat, that is, a non-specific response of the body to any demand. He (1952) emphasized the importance of the person's adaptative response to stress-producing factors (stressors), rather than the quality of the stressors, whether these be pleasant or unpleasant ones. Selye (1952) called a group of signs or symptoms which occur together and are produced by diverse noxious stimuli, the "General Adaptation Syndrome" (GAS) or the biological stress syndrome.

Selye (1976) stated that animals exposed to

continuous stress for long periods of time go through the three phases of the GAS : (1) the initial alarm reaction, followed by (2) resistance and, eventually (3) exhaustion. He thought that "...each individual inherited a certain amount of adaptation energy...and that... he must budget accordingly" (p.82).

Mason (1975) theorized stress in terms of a non-specific stimulus, as opposed to Selye's non-specific response to stimulus. He believed the stimulus always involved a psychological or emotional component. He studied the neuroendocrine (pituitary-adrenal cortical system) response to psychological stressors.

Mechanic (1962) defined stress in terms of a stimulus. He postulated that stress is a circumstance external to a person, which makes unusual demands on the person.

Lazarus (1966) also conceptualized stress in a psychological sense. He explained the mechanisms that intervene between the stimulus and the stress reaction. Lazarus (1966) asserted that, for a stimulus to produce a stress reaction in a person, the person must regard the stimulus as threatening or dangerous to his/her psychological well being. What is harmful or noxious depends on the nature of the psychological structure of a person, including motives and beliefs, rather than the stimulus itself.

According to Lazarus (1966), the process of

perception of stress occurs as follows: (1) primary appraisal of threat, (2) anticipation of harm and secondary appraisal relevant to coping, (3) an action tendency relevant to coping, for example, fear and anger, and (4) motor-behavioral acts expressing a coping impulse, i.e., alterations of adaptive functioning, including physiological changes. Lazarus explained the term "appraisal of harm" as follows: for a threat to occur, an evaluation must be made of the situation, to the effect that harm is signified. The individual's knowledge and beliefs contribute to this process.

The appraisal of threat is not a simple perception of the elements of the situation, but a judgment, "an inference in which the data are assimilated to a constellation of ideas and expectations" (Lazarus, 1966, p.44). He further asserted that the mechanism of interplay between an individual's psychological structure and the stimulus can be understood as a cognitive appraisal (Lazarus and Alfert, 1964). Cognitive appraisal of subjectively experienced stress depends on the person's perception and interpretation of the objective or external stress situation (Krohne and Laux, 1982). Lazarus (1966) stated that cognitive appraisal is subjective affect. The quality and intensity of emotion and its action impulse depend on the cognitive appraisal of the present, or the future anticipatory adaptation, for the person's well being. In this study, stress will be defined as a stimulus

which a person perceives as a threat to his/her psychological well being (Lazarus, 1966).

In the past, stress and stress reactions of adults have been a primary focus. How stress affects children and what stress reactions are commonly used by children are not well researched.

Lists of childhood stressors have been developed which rank life events in order of the amount of tension which adults suppose each will cause children (Chandler, 1982). In these lists, positive experiences such as an outstanding personal achievement or decrease in the number of arguments between parents are considered by adults to involve low levels of stress for children (Codington, 1972; Cohen, Sandler, Berman, and King, 1982). Whether or not this, and other stimuli are perceived by children as stressful remains to be documented.

Potential stress reactions in children include excessive anxiety, absenteeism and poor academic performance. In the present study, these variables were observed before and after the introduction of one particular coping strategy, specifically, relaxation training.

Hudesman (1987) studied the effects of stress management for college health science students. The experimental treatment included biofeedback. The results indicated that students ($n = 43$) using this technique experienced less anxiety in a high pressure situation. He

also suggested that lessening anxiety was related to an increase in academic performance.

Research findings reported by Kanner, Coyne, Schaeffer and Lazarus (1981) suggests that when several stressors are combined, the effects are more likely to increase geometrically rather than simply in an additive fashion. Rutter (1979) showed that ten year olds living in London under two chronic life stressors were four times as likely eventually to need psychiatric care as children who had to cope with only one chronic stress. He also found that there was a multiplying effect on the stress level when children experienced more than two short term strains at one time. Several researchers, including Segal (1983) and Asarnow (1987), stated that children's stress must be understood in terms of the stress interaction with environmental factors.

Bronfenbrenner (1979) and Belsky (1980) postulated that stress can be caused by the interaction of three factors. The first is the microsystem which includes the child's own characteristics, those of immediate family members, and interactional family patterns. This is in the center of the system. The second factor is the exosystem which encompasses the family's social networks of acquaintances, friends, and relatives. Some sources of children's stress arise when families move to new homes, acquire or lose relatives and friends, and when there are changes in the parents' employment status. Finally, the

third factor, the macrosystem, refers to those cultural values and beliefs evident in the surrounding larger society. Stress occurs when a family deviates from accepted cultural norms. Whatever the stressors, it is generally accepted that stress, even in children, stimulates anxiety.

Anxiety

Although the concept of anxiety has been important in man's thinking since the beginnings of philosophy and religion, Freud was the first to attempt to indicate the diverse conditions under which anxiety arises. Freud (1930) considered the complex of sensory, motor, and physiological experiences which suddenly flood the immature nervous system of the fetus at birth to be the prototype of all later anxiety reactions. According to Freud (1926), young children feel helpless in the face of strong biological and social forces over which they have little control. These forces include instinctual energy, which is biological in origin, and the social experiences that are part of family life. Freud (1953) asserted that all children develop sexual and hostile feelings toward their parents which lead to conflict, anxiety, and, in some, to neurosis.

Freud's most basic concept was the biological energy which he postulated as the source of the basic drives. Freud (1933) asserted that all children are born with a fixed amount of psychological energy which underlines all

future behaviors, motives, and thoughts. This energy can be channeled in different ways. According to Freud, there are three sources of energy or instinct. Those are: (1) sexuality (libido), (2) the life-preserving drives of hunger and pain, and (3) aggression, which Freud called the death instinct.

According to Freud (1933) newborn infants are born with one psychological structure, the "id". The "id" is viewed as a storehouse for instinctual energy. As infants grow and become able to attach energy to things and persons, they develop two additional psychological structures, the "ego" and the "superego". The inevitable conflict among "id", "ego", and "superego" lead to major sources of distress and tension. Freud called this "anxiety".

Greenacre (1941) stated that certain intra-uterine experiences, as well as premature birth, seem to play an important role in increasing the intensity of the anxiety reaction at birth (Deutsch, 1944 ; Squier and Dunbar, 1946; Dunbar, 1954). There is also evidence which suggests that infants who respond with an intense reaction to the birth process are later characterized by hypersensitivity and low frustration tolerances (Bergman and Escalana, 1949).

Spielberger (1966) defined anxiety as an emotional state characterized by subjectively perceived feelings of apprehension, and nervousness. Endler (1975) stated that anxiety is a response to many different situations,

including "ego" threat.

Kimmel (1975) wrote that anxiety is based physically on instrumental and classic conditioning of the autonomic nervous system. Anticipatory anxiety can be acquired by direct association with unconditioned stimuli. Both the anticipation (expectations) and the automatic emotional responses represent components of the mediational mechanism in the anxiety process (Kimmel, 1975). Physiological response systems that characterize anxiety are very similar to those that characterize stress (Hamberger and Lohr, 1984).

The concept of anxiety is often used in conjunction with or as synonymous with stress (Appley and Trumbull, 1967). In the present study, however, anxiety will be considered a stress reaction.

In this paper, the term "anxiety" was used to indicate an excitation of the psychological energy in the three components of the psychological structure, this is, the "id", "ego", and "superego" (Freud, 1926). Within this context, this researcher studied the effect of relaxation training on anxiety and on other related variables, i.e., academic performance and absenteeism in first, second and third grade children.

One conceptual framework specific to anxiety and complex learning is provided by the Spence-Taylor Drive Theory (Taylor, 1951; Spence, 1958). In this framework, complex learning was described as consisting of the three

highest categories of learning, as later clarified by Gagne and Briggs (1974). These are concept learning, rule learning, and problem solving, or in other words, the learning of higher order rules.

Drive theory (Taylor, 1951; Spence, 1958), has served as an appropriate conceptual framework in a majority of the experimental research projects focused on anxiety and learning (Krohne and Laux, 1982). Spence and Taylor proposed that the strength of a given response, "R" in any learning situation, is a multiplicative function of habit strength, "H", and the total effective drive state, "D". This relationship may be expressed as $R = f(H \times D)$, where "f" represents the function. Habit (H) represents the strength of the tendency to respond to a specific stimulus (correspondence). Drive (D) refers to the various need states of an individual, for example, hunger, thirst, sex etc., that determine the level of motivation at a particular time. Individual drive levels are traditionally inferred from self-report measures of anxiety, such as the Taylor (1953) Manifest Anxiety Scale (MAS).

The following predictions can be derived from Drive Theory: (1) high-anxious subjects will perform better in simple or easy learning tasks than low-anxious subjects, (2) high-anxious subjects will not perform as well in difficult tasks as low-anxious subjects, and (3) high-anxious subjects perform poorly in tasks of intermediate difficulty. The impact of anxiety on learning

for subjects who differ in ability will depend upon the complexity of a learning task and the stage of learning.

In this study, it is proposed that students who reveal lower anxiety levels on the Child Anxiety Scale test, as a result of relaxation training, will also perform on a superior level in overall simple, intermediate, and complex academic tasks. The use of relaxation as a means of reducing anxiety and absenteeism, and enhancing academic performance is considered a coping mechanism.

Coping

Coelho, Hamburg, and Adams (1974) and Moos (1976) studied coping and adaptation. There seems to be growing consensus among theorists about the meaning of coping. Lazarus, Averill, and Opton (1970), and Murphy (1962), and White (1974) defined coping as efforts to master conditions of harm, threat, or challenge when a routine or automatic response is not readily available. White (1974) asserted that coping refers to adaptation under relatively difficult conditions. Lazarus (1966) referred to coping as strategies for dealing with threat.

Some researchers (Mechanic, 1962; Menninger, 1963; Lazarus, 1966, 1975; Haan, 1969; Murphy, 1974) have attempted to classify the coping process. Lazarus (1975) categorized coping into two kinds, (1) direct actions and (2) palliative modes. Direct actions are behaviors, such a fight or flight, which are intended to alter one's troubled

relationship with one's social or physical environment. Palliative modes refer to the actions or thoughts whose goal is to relieve the emotional impact of stress. Examples of palliative modes are the use of the defense mechanisms, deployment of attention from the stressful situations, or a somatic orientation, i.e. using tranquilizers, biofeedback or relaxation techniques. The conditions determining one's coping methods are likely to depend upon the conditions being faced, the options available, and one's personality (Monat and Lazarus, 1977). In speaking about coping, Lazarus (1966) identified two aspects of the phenomena as follows: (1) stress reactions are reflections of the coping process intended to reduce the threat; and (2) coping processes depend on cognitive activity. In other words, a person's coping activity is mobilized depending on his or her cognition of threat in one's own life, in areas of health, wealth, or social relationships.

Murphy (1962) and Gunnar (1987) studied coping mechanisms in children. Murphy described coping in terms of children meeting some of the demands and crises in their lives, including efforts at mastery, such as responding positively to new situations or problems. She stated that the most important situations requiring coping include crises in the life of the child, and situations that would fall within the definition of threat, such as a bodily injury due to accident. Murphy uses the term "mastery" to refer to the aim of coping. Mastery is a concept whose

characteristic is an achievement, while coping refers to a process, that is, efforts to meet a threat (Lazarus, 1966).

Coping involves mental and/or physical action. Murphy and Moriarty (1976) conducted a longitudinal study involving middle-class children in Topeka, Kansas. They found that as early as four weeks after birth, the infants had developed habitual ways of responding to new experiences. The patterns of coping, established by the children were modified but not basically changed as they grew to the toddler stage. While maintaining innate patterns, the youngsters learned additional coping modes from parents, peers, teachers, and relatives. Their coping abilities developed over time.

For the most part, children are not conscious of their thoughts when they are under stress. Brenner (1984) proposed that helping professionals use three approaches in their work with children under stress. They might try to (1) remove at least one stressor, (2) teach new coping strategies, and (3) transfer previously learned coping strategies to other life situations.

In the present study, coping has been defined as a positive way of dealing with stimuli which the children perceived as physical or psychological threats. Relaxation training is a potential coping technique which allows for coping with stress as it is being used. It may also be beneficial because the children may generalize what they have learned during the training period to daily stresses.

Relaxation Training

There are two general kinds of relaxation training: relaxation as an active-coping skill and relaxation as passive, reciprocal inhibition. Jacobson (1938) first proposed the use of relaxation as an active-coping skill. Relaxation training, as an active coping skill, involves training the patient to actively use sensations of arousal as cues for relaxation in a wide variety of situations (Goldfried, 1971). Instructions for reciprocal inhibition, i.e passive training, typically focus on assurances to the subjects that the relaxation automatically will replace the anxiety response, without any apparent effort on the part of the subjects (Hamberger and Lohr, 1984).

The main differences between relaxation as an active-coping skill and relaxation as passive, reciprocal inhibition are the instructional, rational and training procedures (Denney and Rupert, 1977). In relaxation training as an active-coping skill, prior to training, subjects are provided with the rationale that they will be learning this technique voluntarily. The subjects then learn to actively discriminate between reality and the techniques used to promote relaxation, for example, imagining a safe comfortable place. The subjects are also taught to use additional techniques, such as actively tensing and relaxing muscle groups, in an organized manner. It is expected that by learning these procedures the subjects will be able to utilize them as cues signaling

them to actively relax and reduce tension in every day situations. In contrast to active-coping skills, the passive, reciprocal inhibition technique involves giving reassurance to subjects that relaxation will take away their anxiety. In this method, the subjects do not seem to exert an effort to achieve relaxation.

Goldfried and Trier (1974) tested the relative efficacy of relaxation as an active coping versus a passive, reciprocal inhibition technique, involving 27 speech-anxious college students. The effectiveness of treatment was assessed at three points in time: pretest, posttest, and follow-up at six weeks after termination. The pretest and posttest assessments involved three classes of measures: (a) behavioral measure of anxiety during an actual public-speaking situation, (b) subjective indicators of anxiety immediately prior to public speaking, and (c) a paper-and-pencil questionnaire battery. The follow-up assessment was comprised of the questionnaire battery, together with various open-ended questions and rating scales. No significant treatment differences were observed at the end of training, but at a six-week follow-up, subjects in the active-coping training reported lower overall anxiety levels than subjects who received passive, reciprocal inhibition training. The reliability of the pretest was 0.63, and the posttest was 0.83.

Relaxation training has been used as an adjunctive procedure for anxiety management (Wolpe, 1969; Charlesworth

and Nathan, 1984). Relaxation training has also been used as one of the several components in anxiety measurement training (Suinn and Richardson, 1971). Goldfried (1971) proposed training the patient to utilize sensations of arousal for example, smelling, visualizing, listening, and feeling while the subjects were listening to fantasy stories. In this way, cues for relaxation in a wide variety of situations would result in general arousal-reducing effects.

The effectiveness of relaxation in general has been examined as a coping strategy to help children reduce their anxiety and to reduce physical symptoms coming from stress and anxiety. Kuttner (1987) found that psychological techniques i.e. hypnotic imaginative involvement techniques were effective among six to ten years old chronically ill children and their parents in reducing anxiety and distress. They were measured by self-report of anxiety. Monaco (1982) studied third grade children. He used a three-group, pretest-posttest design to investigate the effects of (a) relaxation/imagery training, (b) reading control (reading relaxation and imagery material), and (c) a control group without training. The reliability and validity of the instrumentation was not reported. After 4 weeks of training, no significant difference was found between the relaxation/imagery training group's pretest and posttest anxiety scores. In fact, larger decreases in anxiety were found in the two control groups (reading

control and no training control). Monaco's interpretation was that the relaxation/imagery training group may have failed to decrease anxiety significantly because of the nature of the training. The children were trained in relaxation techniques, and had didactic sessions about stress, possibly creating a greater awareness of stress than would have occurred without the didactic sessions. This might suggest that the four week relaxation training period was not extended long enough for relaxation to be learned as a coping strategy to manage stress. Koeppen (1974) concluded that the degree to which children practice relaxation is correlated with the degree of relaxation attained. Also, Monaco's (1982) relaxation program was administered by an "outsider" who could have been a source of anxiety to the children. Herzog (1982) asserted that children appear more able to relax in an environment that does not include strangers. Therefore, a program in which familiar teachers administer the relaxation training to the students might yield more accurate results than is possible with strangers.

Hyperactivity in children is related to emotional disturbances (Patterson, 1964, Dreger and Dreger, 1962). Whiteside and Haizlip (1986) administered three treatments together. Experimental biofeedback, a cognitive skills program, and a relaxation training program were provided for 13 inpatient adolescents, aged 13 to 18 years. The subjects were from a state hospital adolescent treatment

unit where they also received individual therapy and academic, recreational, and occupational therapeutic interventions. The program was designed to help subjects control anger and modify behavior. The results indicated that this multimodal treatment approach appeared to be effective in both reducing the incidents of "acting out" behavior on residential units and in reaching individualized therapeutic goals. Incidents of "acting out" behavior were observed. Assessment of attainment of individualized therapeutic goals was determined by the investigator.

Rossman and Kahnweiler (1977) implemented and evaluated a complex experiential relaxation program for healthy fourth-grade and fifth-grade students that included exercises in three areas for expanding body awareness and eliciting relaxation responses. The three areas were (1) breathing and sense centering, (2) movement and deep relaxation, and (3) imagery. Although the authors concluded that the approach was highly successful, they presented little evidence to support their conclusion.

Zaichkowsky (1986) examined the feasibility of relaxation training for 6-9 years old elementary school children in developing stress responses and coping techniques. The findings indicated that children can learn to control heart rate, respiratory rate, and skin temperature responses by participating in a program that includes instruction on proper breathing, progressive

muscle relaxation, and visual imagery. However, self-reports of anxiety reduction were not reported.

Raymer and Poppen (1985) "trained" three boys, aged 9 to 11 years, who met multiple criteria of hyperactivity, to emit 10 specific relaxed behaviors by means of behavioral relaxation training (BRT). Dependent measures included data from a behavioral relaxation scale, frontalis electromyogram (EMG), parent symptom questionnaire, and self-reports. BRT was effective in producing high levels of relaxed behaviors and low EMG levels in the office setting, with some reduction of hyperactivity scores revealed by responses in the parent questionnaire. Subsequent training in each child's home by the mother was accompanied by further reduction in parent-reported symptoms and lower EMG levels. Those outcomes were maintained at a one-month follow-up.

Phillips (1978) and Cowen (1982) suggested that stress-reduction programs could be conducted in schools. The literature (Eysenck and Rachman, 1965) showed that research which has been conducted with sick children revealed that relaxation reduced pathological anxiety. The literature (Herzog, 1982; Monaco, 1982) also suggested that research conducted with "normal" children revealed positive and negative findings with respect to the effectiveness of relaxation on anxiety. For example, Herzog (1982) and Rossman and Kahnweiler (1977) reported that relaxation training reduced anxiety levels while Monaco (1982)

reported that relaxation training had little effect in reducing anxiety levels in children. There is little in the literature to show the relationship between the anxiety levels of children and the degree of effectiveness of relaxation training in reducing anxiety in children.

Lamontagne, Mason and Hepworth (1985) studied the effects of relaxation on anxiety in 44 second grade children. These researchers considered relaxation training a means of coping with stress. They used a pre-and post-test experimental design, and after collecting the post-test data, they provided additional relaxation training to both groups of subjects. The main hypothesis was not supported but an analysis of data collected after the second treatment period "showed a significant treatment effect" (p.289) at a 0.02 level of significance. This study was the stimulus for the present study.

In summary, relaxation techniques have been suggested as one way to achieve deep muscle relaxation and restful mental states, thereby lowering the anxiety levels and increasing positive human responses in adults. There are few studies focused on the effect of relaxation on anxiety in normal healthy children. The results of research reported (Rossman and Kahnweiler, 1977; Monaco, 1982) were not consistent. Therefore, this investigator examined the effects of relaxation training on several possible stress reactions in children, including anxiety, absenteeism from school and academic performance in school.

SUMMARY

In summary, children feel stress when they perceive threats to their psychological well being. The physiological reaction to stress is often similar to that of anxiety, for example, rapid heart beat, sweating, and restlessness. Stress may also lead to anxiety, which may be viewed as conflict between the "Id", "Ego" and "Superego". Children need to learn how to cope with those stresses they perceive and the anxieties they may experience. They need to learn how to relax in order to be able to identify (cognitive appraisal) the stressors and deal with them in a calm manner. To accomplish this, children may benefit by learning methods of relaxation. Conceptually, the children in this study who learned relaxation procedures would be able to cope with their anxieties and stress in a more healthy way than they had previously.

CHAPTER III

METHODOLOGY

This study was a replication and extension of a study conducted by Lamontagne, Mason and Hepworth in 1985. In Lamontagne's study, 44 children in two second grade classes participated in the study, whereas, 53 children in first, second, and third grade classes participated in the present study. The same instrumentation for measuring the anxiety level, i.e., the CAS, was used in both studies. Muscular relaxation and guided imagery were used as an independent variable for a period of 4 weeks in the Lamontagne study, whereas, in this study, deep breathing, progressive muscle relaxation, and guided imagery were used for a period of 4 weeks. In the Lamontagne study, the dependant variable was the anxiety level, expressed by the CAS score, however in this study, the CAS score, absenteeism, and academic performance constituted the dependant variables, as recommended by Lamontagne. It may be assumed from the Lamontagne study (1985), and the Monaco study (1982) that children of this age are able to learn relaxation techniques and to use them appropriately. It must be noted that there are developmental differences between different age groups and among individual children in the same age group. However, the CAS was normed for children between the ages of 5-12 years (Gillis, 1979, 8-20). Also, in this study the subjects were randomly assigned to the two groups.

The present study was quasi-experimental in nature because the school chosen for the study and the subjects in the experimental and control groups were not randomly selected. The independent variable was relaxation training and the dependent variables were anxiety, expressed by the CAS score, the number of days absent from school over an 4 week period and the subjects' academic performance, expressed by the teacher's evaluation of the subjects' academic work in selected subjects, for example, reading, math. etc. Nothing was found in the review of literature to indicate how long it would take for the relaxation training to be effective. Since Monaco and his associates and Lamontagne used a four week period, a similar time frame was used in the present study.

Setting

The study was conducted in a private, mid-western, urban, church affiliated, elementary school. This facility serves approximately 170 students from multi-racial, middle-class families. There are a total of 53 students in the first (18), second (16) and third (19) grades. Permission to implement this study was sought at an interview with the School Principal. The study was carefully explained to the teachers assigned to the first, second, and third grades and their cooperation requested.

Approval was obtained from the Institutional Review Board of Loyola University of Chicago. In addition,

approval was received from the school after a review by the school Principal and the faculty members.

The teachers were approached individually. The study was described and any questions they had were answered. A research protocol was made available and explained.

Subjects

Before approaching the students, letters were sent to their parents or guardians, in which the study was described (see Appendix F). They were asked to permit their child or children to participate in the study and it was explained that personal interviews would be arranged if this seemed necessary. They were also asked to complete and return the consent form (see Appendix G). The eight children who did not obtain consent from their parents to participate in the study were allowed to play with the children in the control group. They played in their home classrooms while the relaxation training was provided in another room. These activities lasted for approximately 10 minutes every day before regular class activities, over a 4 week period.

The school and the first three classes were selected on an accidental or convenience basis. In this setting, the children in the first three grades were assigned to two homerooms. Eighteen first-graders and nine second-graders were assigned to one homeroom, and eight-second graders and eighteen third- graders were assigned to another homeroom.

In order to ensure some degree of randomization, half of the subjects in each class were randomly assigned to the experimental group and half of the subjects in each class were randomly assigned to the control group. This was achieved using the table of random numbers. A pencil was randomly placed on a "2". Thereafter every second name on an alphabetically arranged list was considered a member of the experimental group. Alternate names identified members of the control group. Separate lists were used for each class. There were 27 children in the experimental group and 26 children in the control group. The experimental group was composed of 9 first-graders, aged 6-7 years; 7 second-graders, aged 7-8 years; and 11 third-graders, aged 7-9 years. The control group was composed of 9 first-graders, aged 6-7 years, 9 second-graders, aged 7-8 years and 8 third-graders, aged 8-9 years. This is illustrated in table 1. Because of the random assignment of the children to the two groups, there is variability in the ages of the children in each group (see Table 1).

Table 1

Description of subjects

	Grades			Sex		Age			
	1st	2nd	3rd	M	F	6	7	8	9
Exp. group (n=27)	9	7	11	16	11	7	4	9	7
Control group (n=26)	9	9	8	15	11	4	10	9	3
Total	18	16	19	31	22	11	14	18	10

It should be noted that the members of the experimental group used a room specified for this purpose on the second floor and the members of the control group played in their own home classrooms during the time set aside for the experimental treatment. After the subjects had been assigned to either the experimental or the control group, the relaxation training for the subjects in the experimental group was provided, prior to the formal classroom teaching. After the relaxation training was completed, that is, after about ten minutes, the children were returned to their original classroom. During this same time period, teachers who were supervising the children in the control group agreed that the subjects would be encouraged to play among themselves. Informal teaching was not done.

Instrumentation

Relaxation training

The investigator directed the relaxation training with the subjects in the experimental group. It had been originally planned that the teachers would provide the relaxation training, however, after obtaining the children's assent to participate in the study, the teachers communicated their unwillingness to do so. The relaxation training process was conducted as follows:

(1) The deep breathing exercises originated by Yogi and refined by Benson (1975) was done. The breathing exercises are focused on diaphragmatic breathing rather than chest breathing. The subjects were instructed by the investigator to breathe slowly, hold their breath as long as possible, then breathe out slowly. This procedure was repeated for a period of 1-2 minutes (see Appendix A).

(2) The progressive relaxation training is a means of producing a muscular response which is incompatible with anxiety (see Appendix B). This involves training clients, using mental concentration to systematically tense and relax the different muscle groups of the body, which results in lowered physiological arousal and a comfortable subjective feeling of calmness (Wolpe, 1958). In this study, the investigator gave instructions on the progressive muscle relaxation of different body parts in a systematic way. The procedure was completed in 4-5 minutes.

(3) Meditation, also called guided imagery or "centering",

was the third portion of the relaxation training. The investigator read a fantasy story while the children listened, sitting in a comfortable position, their eyes closed (see Appendix C). The children were instructed to imagine and experience the situation in the fantasy story so that they would be psychologically and physically relaxed. This procedure was completed in 2-3 minutes.

Child Anxiety Scale

Gillis (1980) developed the CAS (see Appendix D) to be used to diagnose adjustment problems in children, aged 6-8 years old. The intent of the author was to prevent emotional and behavioral disorders in later life by identifying children, at an early age, who would benefit from therapeutic intervention. The tool has been used for clinical evaluations and educational and personal counseling (Sweetland and Keyser, 1983).

The CAS was tested with emotionally and physically normal children, age 5 to 12 years (Gillis, 1979), in order to obtain reliability and validity measures. Gillis and Cattell (1980) provided reliability data for the CAS from a sample of first, second, and third grade children. The reliability coefficient for the test-retest procedure was 0.85 for second-graders, and the overall coefficient for first through third-graders was 0.81. Internal consistency was supported with a Kuder-Richardson coefficient of 0.73. Using the CAS and the anxiety scale (IPAT: Inter-person Anxiety Test) developed for children by Krug, Scheier, and

Cattell (1976), construct validity was established at 0.81, ($p < 0.01$) for one sample of 192 second grade boys and girls, and 0.74, ($p < 0.05$) for another 251 second grade children.

Argulewicz and Miller (1987) investigated whether ethnicity and gender influenced anxiety scores at different developmental levels (grades one through three). Internal evidence of test bias was examined by computing internal reliability coefficients for the anxiety measures. The two anxiety scales were found to have adequate reliability coefficients for all groups studied.

In administering the CAS, the investigator used an audio-cassette tape. The students were told to put an X on the blue or red circle depending on the subjects' agreement with the questions played by the audio-cassette tape.

An example of the audio-cassette questions is "Do people think you are usually good or often bad? If people think you are often bad, put an X on the blue circle." The 20 questions (see Appendix D) can be categorized as children's thoughts and feelings.

To obtain a raw score, three procedures were completed. The investigator has to (1) align the answer key so the stars on the answer sheet are visible in the boxes, (2) count the number of the marked answers that show through the circles, and (3) record the total number in the box labeled "raw score" on the answer sheet. The scores are global, and range from a possible 1 to 19.

Lamontagne et al (1985) also used the Child Anxiety Scale (CAS) originally developed by Gillis (1980), to measure second-graders' anxiety. In the study conducted by Lamontagne and his associates (1985), second-graders were chosen as subjects for the following reasons: (1) the CAS has the highest reliability coefficient (0.85) for second grade subjects, and (2) second-graders are the youngest group who can generally read and understand the instructions and inventory questionnaires and are mature enough to understand and follow the study procedures. It was the opinion of this researcher that first-graders would not have difficulty understanding and responding to the verbal instructions as presented in the CAS because the instrument had been tested by Gillis (1980) with children of this age group. Also, it should be noted that the data were collected at the end of the first grade, after 8-9 months of formal schooling. In the present study, the CAS was administered twice, once as a pre-test before the implementation of the relaxation training and again, after the implementation of the relaxation training.

Absenteeism

The dependent variable, absenteeism, was measured by the number of days each subject was absent from school during the 4 weeks while the relaxation program was being offered. Coming late to school and missing 1/2 or more of the relaxation training period was considered an absence.

The investigator validated the students' presence

before starting the relaxation training for the experimental group. The teacher recorded school attendance. A record also was kept, identifying the reason for student absences so that in the case of a non-stressful absence, for example, a child who was taken on a week's vacation with the parents, these data would not have been included in the measurement of the variable "absenteeism." In reality, it was possible to obtain data from all the children who remained in the study.

Academic Performance

Academic performance was reflected in the students' report card. In this system, students' academic performance are usually evaluated three times during the school year, that is, in December, March and June. The evaluations prepared by the teachers in March were used as the pre-experimental measure of academic performance and the evaluations prepared in June were used as the post-experimental measure of academic performance. The relaxation training was provided for the subjects in the experimental group during the months of May and June.

The evaluations of academic performance were completed by the students' teachers (see Appendix E). A qualitative, four category instrument was used. The symbols for the categories of academic performance were: N = needs improvement, S = satisfactory, G = good (performs well), V.G. = very good (excellent). This investigator assigned a numerical value for each category as follows: N = 0, S = 1,

G = 2, and VG = 3. Also, data were obtained only from subject headings that represented academic work, i.e. English, mathematics, reading, science, social studies, and spelling.

In order to calculate a global measure for academic performance, the numerical values for the selected categories were totaled. Pre-measures, obtained from the March evaluations and post-measures, obtained from the June evaluations were used in the data analysis.

Collection of Data

Upon receipt of the parents' consent forms, each child was assigned a code number. All data collected during the study were identified by that code number.

Within the week before the initiation of the study, the investigator met with the teachers and carefully explained the purpose of, and the procedures in the study.

The relaxation training was provided for the children in the experimental group on the second floor of the church sanctuary, which is one floor up from their own classroom. The experimental process was implemented on a daily basis for a period of 20 days. It was initiated at 8:50 AM, prior to the classroom teaching and took approximately ten minutes. The subjects in the control group also arrived at school at 8:50 AM. They were asked to go to their own classroom where they played, under the supervision of their own teacher.

On the Friday morning before the study was initiated, the investigator explained the study (see Appendix H) to the children in each of the two homerooms. The investigator asked if they had any questions about the study and sought their cooperation. The children were given the freedom to participate or not. This verbal agreement was considered their assent, i. e. their willingness to participate in the study or not. They were told that they were free to withdraw at any time during the project, if they wished to do so. The investigator asked them to respond to the CAS explaining that there was no right or wrong answers and that no grade was involved. The students were told that the investigator wanted to see if there was any change in their answers over time.

After the investigator completed the explanations to the children in both classrooms, the teacher in classroom A administered the CAS test in classroom A, using a tape recorder and following the guidelines provided by this investigator. At the same time, the investigator administered the CAS in classroom B. These data constituted the pretest measures of the CAS. This investigator had taught the teacher how to administer the CAS, so that a similar approach was used by both individuals.

On the following Monday, the relaxation training was initiated with the members of the experimental group. The investigator guided the children through the relaxation

training while the children in the control group were playing in their own classrooms.

After completion of the 4 week relaxation training, the CAS was again administered in both classrooms before the beginning of regular classroom activities. The testing procedure was the same as for the pre-test procedure.

The overall methodology is described in table 2.

Table 2
Methodological Design

Group		Week					
		1	2	3	4	5	6
Experimental	Absenteeism						X
	Academic Performance	X					X
	CAS		X				X
	Relaxation Training		X	X	X	X	
Control	Absenteeism						X
	Academic Performance	X					X
	CAS		X				X
	Relaxation training						

The data for the absenteeism and academic performance variables were collected after the completion of the experimental treatment. The teachers reported the number of absences in June. They also reported the students' academic evaluations which were determined in March (pre-test) and June (post-test).

SUMMARY

In this chapter, the investigator has presented a description of the subjects, instrumentation and methodology used in this study. A review of the analysis of data will be provided in chapter IV.

CHAPTER IV

ANALYSIS OF DATA

In order to test the effectiveness of relaxation training with the students in grades one, two and three, it was necessary to obtain data related to the three dependent variables, i.e. anxiety levels, attendance and academic performance. Descriptive information about the three variables will be presented in this chapter, as well as the findings of the hypotheses testing. The raw data will be found in Appendix I.

Descriptive Data

Anxiety levels: For the pre-test CAS scores, the experimental group scores ranged from 2 to 15; the control group scores ranged from 1 to 13. The mean of the experimental group pre-test scores was 7.85 and the standard deviation was 3.16; for the control group, the mean was 6.77 and the standard deviation was 2.88 (see Table 3).

For the post-test CAS scores, the experimental group scores ranged from 2 to 14; the control group scores ranged from 2 to 16. The mean of the experimental group post-test scores was 7.59 and the standard deviation was 3.04; for the control group, the mean was 7.73 and the standard deviation was 3.62 (see Table 3).

Table 3

CAS: Anxiety Scores

	Experimental Group n = 27		Control Group n = 26	
	Pre-test	Post-test	Pre-test	Post-test
Range of Raw Score	2-15	2-14	1-13	2-16
Mean	7.85	7.59	6.77	7.73
Standard Deviation	3.21	3.04	2.88	3.62

Absenteeism: In the experimental group, 8 students were absent on one occasion. The mean for this group was 0.30 and standard deviation was 0.47 (see Table 4).

Table 4

Absenteeism during the project

	Experimental group n = 27	Control group n = 26
Number of absences	8	10
Mean	0.30	0.35
Standard deviation	0.47	0.49

In the control group, 10 students were absent on one occasion. The mean for this group was 0.35 and standard deviation was 0.49 (see Table 4).

Academic performance: For the experimental group, the pre-experimental measures ranged from 35 to 66. The mean was 56.85, and the standard deviation was 7.38. The post-experimental measures for the experimental group ranged from 41 to 66. The mean was 58.48, and the standard deviation was 6.76.

For the control group, the pre-experimental measures ranged from 26 to 66. The highest possible score is 66. The mean was 52.27 and the standard deviation was 11.86. The post-experimental measures for the control group ranged from 23 to 66. The mean was 55.19 and the standard deviation was 11.01 (see Table 5). Since there was a possibility that the two groups were not homogeneous on the pre-measures of anxiety and academic performance, an analysis of covariance technique was used to test hypothesis 1 and 3.

Table 5
Academic Performance

	Experimental group n = 27		Control group n = 26	
Period	Pre-experi- mental	Post-experi- mental	Pre-experi- mental	Post-experi- mental
Range	35-66	41-66	26-66	23-66
Mean	56.85	58.48	52.27	55.19
Standard devia- tion	7.38	6.76	11.86	11.00

Hypotheses Testing

To make an objective decision concerning the results of this study, it was necessary to test the hypotheses statistically.

H₁ There is no significant difference in the anxiety levels of children who have experienced relaxation training and children who have not experienced relaxation training.

The data were analyzed using an analysis of covariance technique. The observed F value with 1,50 df was 1.80. This did not exceed the critical value of 4.03 at the 0.05 level of significance with 1,50 df. Consequently, it is not possible to reject this hypothesis. After the relaxation training, therefore, the

anxiety scores of the children in the experimental group were not significantly different from those of the children in the control group.

H₂ There is no significant difference in absenteeism in children who have experienced relaxation training and children who have not experienced relaxation training.

The data were analyzed using a t-test technique for independent samples. The observed t value was 1.00, with 51 df. The critical t value with 51 df, at the 0.05 level of significance is 2.01. The observed t value, 1.00, does not exceed the critical value, 2.01, therefore, the investigator cannot reject this hypothesis. Consequently, it may be said that during the relaxation training, absenteeism in the experimental group was not significantly different from that of control group.

H₃ There is no significant difference in academic performance in children who have experienced relaxation training and children who have not experienced relaxation training.

The data were analyzed using an analysis of covariance technique. The observed value of F, with 1,50 df was 0.140. This value did not exceed the critical value of 4.03, with 1,50 df at the 0.05 level of significance. Therefore, the investigator could not reject this hypothesis. The academic performance of the children in the experimental group after the relaxation training was not significantly different from that of the children in the control group.

SUMMARY

In this chapter, the descriptive data and the hypotheses testing have been reported. A discussion of the findings may be found in chapter V.

In general, the findings indicated that the use of relaxation training, with this particular group of subjects, did not affect the level of anxiety experienced by first, second and third grade children. In addition, the relaxation training did not bring about any change in the absenteeism rate nor the academic performance of the children.

CHAPTER V

DISCUSSION AND CONCLUSIONS

The purpose of this study was to explore the effects of relaxation training on anxiety levels, absenteeism and academic performance in first, second and third grade children. After the data were analyzed, it was not possible to reject any of the three null hypotheses, so that, the investigator is forced to conclude that, with this sample, relaxation training did not influence any one of the three dependent variables.

Extraneous variables may have invalidated the findings; also the exploration of anxiety in children is a complex matter involving many aspects of cognition and coping. After careful thought, it seems that the problems encountered pertain to all of the hypotheses, rather than to any one hypothesis, therefore, the following comments must be considered in terms of all the three hypothesis.

H₁: There is no significant difference in the anxiety levels of children who have experienced relaxation training and children who have not experienced relaxation training.

H₂: There is no significant difference in absenteeism in children who have experienced relaxation training and children who have not experienced relaxation training.

H₃: There is no significant difference in academic performance in children who have experienced relaxation training and children who have not experienced relaxation training.

In reviewing the findings, several factors may be considered. First, the subjects may have been too young to understand the need for and/or the benefits of the relaxation training. Therefore, they may not have been motivated to learn the specific method of relaxation training used in this study. Five or six children seemed passive in their implementation of the instructions rather than actively participating in the activities. Mehl (1958) stated that children give spontaneous attention to that which is of direct interest to them. When they become involved in specific activities, not because of personal interest but for some other purpose, they feel compelled or forced to participate. Whenever there is forced attention, the learning situation is not at its best; attention is divided. While the children were not required to participate in this study, they may have viewed participation as a part of "going to school."

Mehl (1958) also stated that motivation is related to interest. To be motivated the child must feel a need. He must feel that to engage in a given activity will enable him to satisfy a desire. In this study, the performance of the relaxation exercises was not related with any form of reward, therefore, there were no visible concrete incentives for the children. Logan and Logan (1961) also asserted that motivators such as grades, and verbal rewards are powerful techniques in the control of performance levels. These were not incorporated in the present study

and might be considered in future similar studies.

A second consideration relates to the possibility that the period of relaxation training, 4 weeks, was not long enough to validate the effect of the relaxation training. The investigator encouraged the children in the experimental group to practice several times a day outside of the training hours. Two children stated that they practiced independently outside of the training hours. This suggests that the majority of the children in the experimental group practiced the relaxation exercises only during the treatment sessions in school.

It is significant that Koeppen (1974) and Monaco (1982) also questioned whether or not a 4 week period was adequate for third grade children, although there was insufficient data to allow for a substantive conclusion. In the present study, a longer time frame was proposed but uncontrollable circumstances at the school made it impossible to extend the time beyond four weeks.

A third factor may have been that the parents of children were not enthusiastic about the study. This has been surmised because, on eight occasions, parents did not bring their children to school on time. The relaxation training started 10 minutes before the regular school hour. Negative or neutral parental attitudes may also have influenced the children's motivation to participate actively in the relaxation training. A group meeting with the parents or individual interviews explaining the

research might have increased parental concern and interest. At the same time, such a meeting might have influenced the parents, and possibly, their children's participation.

A fourth consideration could have been that the physical environment adversely effected the relaxation training. The school Principal provided a room on the second floor of the sanctuary of the church with long church benches for seating. There was not enough room for the children to sit down on the floor. Daily, there were distractions due to the voices in the sanctuary. With these distractions and the uncomfortable environment, the children had difficulty trying to relax and participate in the experimental training. Logan and Logan (1961) also emphasized the importance of environment in children's learning with a need to seriously consider distractions. In future studies, a comfortable and familiar setting should be mandated.

The use of an early morning period was advocated by Herzog (1982) because the children are rested and energetic at this time of the day. Also, the experience of relaxation in the morning may allow the children to be more relaxed during the day than if the relaxation experience occurred later in the day.

A fifth possible explanation of the findings relate to the fact that some children may not be mature enough psychologically to deal with the relaxation training

material, especially the guided imagery. On the second day of the relaxation training, one boy's mother approached the investigator and noted that her son (7 years old) was not going to continue the relaxation training because he was very scared when he listened to the guided imagery. The child was afraid that he might be dissolved by the cool water. The boy was not able to discriminate between reality and imagery. He had not developed the ability to deal with abstract concepts, such as the reference to the cool water. It is possible that other children had similar responses but were unable to verbalize them. Pistor (1940) noted that there is a relationship between learning and maturation in concept formation, in emotional reactions, and in types of thinking. The response from this child would have impact for those who develop the exercises for guided imagery.

A sixth consideration is that the relaxation program was provided by the investigator who was an "outsider" to the subjects. This could have provided an unfamiliar stimulus or possibly a source of anxiety to the children. Herzog (1982) stated that children are more able to relax in the environment that does not include strangers, although it would seem that the children would have become acquainted with the investigator after four weeks of relaxation training. At the same time, the experimental treatment might have been more effective if it had been presented by the teachers who were known to the children.

Finally, the investigator's foreign accent could also have made it difficult for the subjects to understand new words or ideas. In general, the children seemed to participate easily and responded well, but again, they may have had difficulty communicating their lack of perception or discomfort.

SUGGESTIONS FOR FURTHER RESEARCH

After completing this research, the investigator identified numerous subsequent research projects or adjustments that might be made to the present methodology. First, a study might be planned involving a larger group of subjects, selected from multiple randomly selected schools. Inner city and suburban settings might be sampled, since the degree of anxiety experienced by children may or may not vary in different settings.

Only children who are 8 years old or older should be asked to participate in such a study because of their mental and psychological maturity. Children who are six years old, even after one or two years of school, are probably not ready for such a controlled experience. It would also be helpful if the teacher prepared the children before initiating the relaxation training, focusing on an explanation of the importance of relaxation in their everyday life. An understanding of the positive results of relaxation as a coping mechanism, as well as such "rewards" as praise or grades could have provided a greater incentive

for participation than was provided in this study. This approach is problematic because it may introduce a contaminating bias.

The length of the experimental period should be longer, probably about eight weeks, in order to know the treatment effect. In future studies, such factors as a comfortable, familiar setting and involvement of the parents might also be incorporated in the experimental plan in order to see if wholehearted involvement in the relaxation process would facilitate the reduction of anxiety. Another adaptation of the methodology used in the present study would involve a more academic exercise for the members of the control group during the period of time in which the investigator is directing the relaxation training for the members of the experimental group. This change would reduce the possibility of both groups of children experiencing a sense of relaxation.

For pediatric nurses, it would be important that this type of research be extended to involve children who experience stress in the hospital, for example, before or after surgery, to see if relaxation training could reduce their anxiety level. Also, the idea of using relaxation training for students of any age is important to psychiatric-mental health nurses in their efforts to promote good mental health.

SUMMARY

The findings in this study may convey inaccurate conclusions because of the extraneous variables. In other words, relaxation training as a coping mechanism could be very useful for young children in spite of the findings reported here. It is critical however, that the children's level of psychological and cognitive development, the motivational level of the children and the mode of measuring anxiety also be considered. In addition, cooperation of school personnel and parents are important factors.

Further research is needed in this area because learning effective coping mechanisms early in life is essential in maintaining optimum mental health. Also, while anxiety is at times viewed as a motivating force, it must be recognized that the degree of anxiety experienced by first, second, and third-graders is something that is generally only estimated by parents and teachers. It is important that stress experienced by school children, as well as ways of coping with stress, be understood with greater precision than is possible at the present time. This was the major goal in this study.

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APPENDIX A

APPENDIX A

DEEP BREATHING EXERCISE
(Benson, 1975)

Read by the investigator.

Close your eyes.

Let yourself be aware of your breathing. Notice whether you are breathing through your mouth or your nose. Notice the pace of your breathing.

Now observe your body. In your mind, inspect all the muscles groups of your body and notice where you feel tension. Do this for a minute.

Return to your breathing. Begin breathing in deeply through your nose. Then exhale through your mouth. Continue breathing in deeply through your nose and exhaling through your mouth. Breathe deeply and evenly. As you exhale, notice what your muscles do. Notice how they begin to let go. Go on breathing deeply and evenly for a minute and notice what you feel throughout your body.

Your diaphragm is here, just above your waist. Each time you inhale, your diaphragm expands and your stomach pushes out. Each time you exhale, your stomach pulls inward. (If you are having difficulty, then it may help to place one hand on your stomach so that you can feel the movements of the diaphragm. Your hand should move out as you inhale. Your hand should move in as you exhale. You may have to force yourself to use your diaphragm at first.)

Continue breathing in and out:
slowly...deeply...evenly.

As you exhale slowly, notice what you feel throughout your body. Each time you exhale, your muscles feel warm. They may begin to feel heavy or light. You may begin to feel tingly all over. Breathe deeply and evenly. Just let yourself enjoy whatever sensations you experience. Breathe deeply and evenly.

Continue to breathe deeply and evenly, and notice how energy begins to flow throughout your body. Breathe in to a count of four. Hold to a count of four. And exhale to a count of eight. Go on breathing and observing what you experience. Just let whatever happens, happen. Observe and enjoy. Continue to breathe in this way for several minutes.

Do you understand?

APPENDIX B

APPENDIX B

PROGRESSIVE RELAXATION TRAINING
(Wolpe, 1958)

Directions were read to the children by the investigator.:

Make a fist with your right hand and tense your right forearm.

Make a fist your left hand and tense your left forearm.

Tense both right and left hands and forearms.

Tense the front of your upper right arm by bending your right arm at the elbow.

Tense the front of your upper left arm by bending your left arm at elbow.

Tense your right back muscle, your upper arm by stiffening your right arm.

Tense your left back muscle, your upper arm by stiffening your right arm.

Wrinkle your forehead.

Frown and crease brows.

Close your eyelids tightly and keep them closed throughout the remaining exercises.

Rotate your eyes in clockwise circles. Return to center.

Rotate your eyes in counterclockwise circles. Return to center.

Rotate your eyes to far right.

Rotate your eyes to far left.

Rotate your eyes to top of your sockets.

Rotate your eyes to bottom of your sockets.

Wrinkle your nose and cheeks.

Press your lips together tightly (or purse them).

Clench your jaws.

Press your chin against chest.

Press your tongue against roof of your mouth.

Begin to swallow, and hold. Tense your throat.

Tense your throat and throat muscles by humming a high note without making any sounds. Then hum down the scale to a low note.

Tense your shoulder muscles by raising your shoulders as though touching your ears.

Pull your shoulders back and tighten your upper back muscles.

Arch your lower back and tighten your lower back muscles.

Pull your shoulders inward to the front and tighten your chest muscles.

Tighten your stomach muscles by pulling inward and downward.

Tighten pelvic muscles in down there. (Same as stopping urination in the middle of urinating. Known as the Kegal exercise.)

Tighten your buttocks. Pull them together.

Tighten your right upper leg.

Tighten your left upper leg.

Tense both upper legs. Pull your legs together at knees and straighten your legs.

Raise your right foot as though to touch your leg.

Raise your left foot as though to touch your leg.

Tense your right foot and toes.

Tense your left foot and toes.

APPENDIX C

APPENDIX C

MEDITATIONS

(Herzog, 1982; Charlsworth and Nathan, 1984)

The sequence that is presented here was followed. Each day, one or two meditations were given.

STAR OR CANDLE FLAME HELD IN THE CENTER OF THE FOREHEAD

Look up into the space between your eyebrows. See a star or a candle flame in that spot. Pay attention to your star or candle flame until I ring the little bell (leader counts to 10, 20, 30 or more depending on the children's age and ability to concentrate ; then rings a soft bell)

WHITE-WINGED HORSE MEDITATION

Pretend that you are a white-winged horse. Feel yourself taking off in flight. Your wings are rising. You feel the air swishing against your wings. Now you are flying up and up, higher and higher. The trees and houses look small below you. You are flying over the city and beyond the city. You are flying farther and farther, on and on, past the earth. You are flying higher now. You are up and up. You are flying past the moon and the sun, past the planets. Now you are flying way up amongst the stars.

UNDERWATER MEDITATION

See the most beautiful waterfall you have ever imagined. A large pool of clear water lies under the waterfall. You dive into the pool, feeling the cool water touch your whole body. Feel the cool fresh water relaxing your head, your neck, your arms, back, chest, stomach, legs and feet. Now you feel yourself dissolving and becoming the cool pool. You begin to spread out, cooling off the whole city. you spread even farther over the whole earth, cooling the earth. You feel totally refreshed.

PLANT MEDITATION

You are a seed in the warm earth. You feel the soil all around you. You feel warm and safe in the soil. Warm rains are falling. You feel the warm rain fall on you. You drink up the rain and you begin to grow larger and larger. You begin to wiggle in the earth. You grow roots deep, deep into the soil. Your little stem grows up slowly until it begin to pop out of the soil. Your stem grows higher and higher up out of the soil. It grows taller and taller. Your

roots grow deeper and deeper into the soil. You draw up water and food through your roots into your stem. Tiny branches begin to grow out from your stem. They spread out, growing larger and larger. Leaves begin to grow on your branches. Now your branches are covered with leaves. A flower bud begins to grow on top of your stem. It expands and grows larger and larger. Suddenly it bursts into full bloom. Now you are a beautiful flower. You reach up to the warm sun shining down on you-up and up you reach, closer and closer to the sun. You reach up farther and farther, growing towards the sun.

SUN MEDITATION

Imagine you are the sun. What does it feel like to be the sun? Feel your hotness and your fiery flames. How hot are you? Travel into your center. What is in the center of the sun? Hear the roaring sounds you make. Feel your light and energy radiating from your center outwards. Feel it radiating on the earth, warming it up, and on the planets. Feel it radiating farther and farther into space. You are shining on the other suns (stare in space). You shine on and on, farther and farther. How far can you shine? Do you like being the sun?

HEART MEDITATION (Good for Valentine's Day)

Pretend that you have a magic heart. Every time you put more love into the heart, it gets bigger and bigger. You fill your magic heart with love. It becomes so big, you fit inside it. You put more love into it and it grows yet bigger and bigger. It gets so big, the whole world is inside your heart, all the mountains, animals, oceans, plants and people are inside your heart. You put more love in it and it grows ever bigger. Now the whole universe is inside your magic heart, all the planets and stars, all of space is in your magic heart. Your magic heart is very big and filled with love.

DREAM SCENES

Imagine you fall asleep under the willow tree and begin to dream. Practice a few more scenes in your imagination as you dream. This will help you know that you can go to any relaxing place you wish to by using the power of visual imagery.

STREAM IMAGERY

See yourself standing beside a clear stream as it rushes

across the rocks with a pleasant gurgle. Feel the coolness and moistness of the spray on your forehead and cheeks as the stream splashes off the rocks, as you bend down to get a drink of the crystal-clear water.

BEACH IMAGERY

Now, see yourself walking along a warm, sunny beach at the edge of crystal-clear blue water. Hear the roar of the waves. Feel the clean sand under your feet. Smell the clean salt air. (Pause).

SLOPING HILL IMAGERY

Then see yourself moving down a long, gently sloping hill in the country, with the soft feel of the wind in your hair and on your face. As you move slowly through the green grass, you are happy, smiling, very comfortable, and deeply relaxed.

FIELD OF FLOWERS IMAGERY

From there, move to a picture of yourself sitting in a field of wildflowers on a spring day. The temperature is just right. The air smells fresh with wildflowers, and the sounds of birds and animals are very soothing. (Pause.)

FOREST IMAGERY

Then move to a view of yourself walking through a forest. You are under the cool shade of the tall trees, and the sunlight moves through the trees to the ground. See the ferns and small plants. Smell the clean freshness. Feel the gentle breeze blowing through the trees. Hear the birds, very high in the trees.

WILLOW TREE IMAGERY

Get out of the boat and take the soft blanket with you. Walk up the slightly sloping bank to a huge willow tree that hangs out the water. You feel drowsy. The gentle, rocking motion of the boat has made you very, very drowsy. The old willow tree has thick, soft grass around the base, and you find a perfect spot to spread your blanket for a comfortable bed. There are some roots above the ground, and you rest your head, as you snuggle into a restful position. The temperature is perfect, not too cool and not too hot. Everything is restful and peaceful.

CLOUD IMAGERY

You are now lying back in relaxation on the soft cloud. The warm tropical sun is shining. Your body is warm from the sun but still with the soft moist touch of coolness on your forehead and face. You are feeling very pleasant. You are helped up comfortably and securely. The little cloud begins to drift downwind, and from your safe position on the cloud, you can see the world go by below you. There is a gentle, pleasant, rocking motion as you drift along. All your cares and concerns are left behind you. The cloud is magic and can take you any place you want to go, as it silently floats along.

VALLEY IMAGERY

In the far distance, you see a delightful green valley. The valley is between some gently sloping mountains. This is a place where you can be completely at peace and totally happy. Gradually, the fluffy cloud takes you drifting down, through the sky, to this beautiful place. As you move into this valley, the cloud gently comes to the ground and stops. You get off the soft cloud in this beautiful place, and you are completely at peace and alone. Take some time to look around at the fresh, green valley. You are next to a lake. Listen to the birds. Feel the sun shining on you. The scent of spring is in the air.

FOCUSING ON BREATHING

Focus your attention fully on your breathing. Imagine your breathing is as automatic as the ocean waves, rolling in...and out...in...and out. Silently say to yourself, "Breathing, smooth and rhythmic." "Breathing, smooth and rhythmic." Become aware of the air flowing in and out of your lungs.

IN A MEADOW

You might want to imagine that you are lying in a beautiful meadow. You may know of a place such as this; if so, imagine you are there. If you don't know such a place, use your imagination to create it: a beautiful meadow with the temperature just right, not too hot, and not too cool. Try to see yourself there in the meadow. You are perfectly comfortable on a bed of very soft, green grass. Feel a beautiful and warm sense of relaxation all around your body. You have nothing to be worried about. Just let go and feel the relaxation.

Continue to stay in a peaceful, safe, imaginary meadow, and try to keep the feelings of peace and calm.

RETURN TO THE MEADOW

Return to the image of yourself lying comfortably in the pleasant meadow. The temperature is just right, and you feel very deeply relaxed. Concentrate on waves of relaxation moving through your body. Waves of relaxation flood into every part of your body, as you are lying in your meadow.

If you find any tension, any tension at all, let that part of your body relax. Try to remain mentally alert, and don't let yourself get tired or fall asleep because you need to see the scenes as clearly as possible.

BACK TO THE MEADOW

Now, in your mind return to the meadow. See yourself there, very comfortable, very much at peace. Say to yourself, "I am calm," each time you breathe out. "I am calm." "I am calm." You are alert and awake but fully at ease. Now, pay attention to your body and use the natural abilities of your mind to relax. Focus on feelings of deep, deep relaxation. You feel good. You feel refreshed. "I am at peace." Say this to yourself. "I am at peace." Feel the peace and calm throughout your body.

RELAXATION

As you breathe, imagine air moving through your body in massaging waves of relaxation. Feel the waves of relaxation. Feel the waves of relaxation moving through your chest and shoulders, down into your arms, through your back muscles, down into your hips and legs. With each wave of relaxation, feel the growing heaviness and warmth in your arms and legs.

Now, I am going to count down from ten to zero. Each time I move from a higher number to a lower number, you will feel more relaxed, even more relaxed than you feel right now. When I reach the number zero, you will feel profoundly relaxed. Ten...more and more relaxed. Nine..."I am calm." Eight...relaxing deeper and deeper. Seven...calm and peaceful. Six...peaceful and calm. Five...heavy, warm, and comfortable. Four... more and more relaxed. Three... feeling very quiet. Two...muscles like jelly. One ...deeper and deeper. Zero...profound relaxation.

ISLAND IMAGERY

Picture yourself on a mountain top, above a tropical rain forest on a small island. The morning rains have

finished, and the wind is carrying the clouds away. The sky is clear and blue, with the warm tropical sun shining down.

You can see below you the bright green trees in the rain forest. The raindrops on the leaves are reflecting the bright morning sun. Artistically scattered within the dense greenery are bright, colorful flowers: reds, yellows, and blues.

In the far distance you can see a line of coconut palms all along the sugar-white, sandy beach. Beyond that, as far as you can see, is crystal-clear, brilliantly blue water.

CLOUD IMAGERY

The sky is completely clear, except for one small, fluffy cloud that drifts alone in the gentle breeze until it is directly over you. Slowly this little cloud begins to sink down upon you.... It is a very pleasant, delightful feeling. As the small, fluffy, cloud moves down across your face, you feel the cool, moist touch of it on your forehead and on your cheeks. As it moves down your body, all tension slowly slips away, and you find yourself letting go completely.

The soft cloud moves across your shoulders, your chest and upper back, and across your arms as it gently brings with it a feeling of complete relaxation. It sinks down around your waist, your lower back, your hips, and your legs; and it moves down around you, bringing a deep feeling of relaxation. Then the little cloud sinks underneath you, and you are now floating on it. The cloud holds you up perfectly and safely. It is a pleasant feeling.

LAKE IMAGERY

The water is just barely lapping along the shore of the lake. You see a small boat tied there. You enter the boat and find some blankets in the bottom. Now, lying on the soft blankets, gently untie the boat. You are floating in the quiet, shallow lake. The boat is rocking gently from the motion of the water, as it drifts on and on. The boat drifts gently on and on, rocking and massaging.

As the boat carries you along, the lake lazily flows into a stream. Feel the warm sunlight once again. There is a soft breeze as you continue to drift. You feel relaxed, peaceful, and calm. The gentle rocking motion massages you with feelings of peace. All is well. Your state of relaxation will become more and more deep as the boat gently tosses to and fro.

You drift deeper and deeper into your feelings of relaxation. As you continue to drift, become aware of the sounds of nature: the soft breeze, the lapping water, and the birds and animals on the shore. Smell the grass and flowers as the breeze brings you their pleasant scents.

You are lazily drifting deeper and deeper into a profound feeling of peace and pleasantness until very slowly and gently, the small boat washes up against the shore. You remain in a very complete and total state of relaxation.

WATERFALL MEDITATION

A beautiful waterfall of white light is falling down on you. It splashes on your head, helping your head to relax. You feel your head relaxing. It moves down your neck and shoulders. Your neck and shoulders are relaxing. It flows down your back. Your back is letting go and relaxing. It flows over your chest and stomach, helping your chest and stomach relax. You feel your chest and stomach relax. Now it falls down over your arms. You feel your arms relaxing. It splashes down over your buttocks and abdomen. You feel them relax. It moves down over your legs and feet. You feel your legs and feet letting go and relaxing. The beautiful waterfall of white light is flowing over your whole body. You are very peaceful and relaxed.

RAINBOW MEDITATION

Feel your body becoming lighter and lighter. See all the colors of the rainbow. Feel your body becoming all of the colors of the rainbow. Feel your body becoming all the colors of light in the rainbow: red, orange, yellow, green, blue, indigo and violet. You are the rainbow, your colors streaming out in every direction. Feel yourself getting bigger and bigger, your colors steaming out farther and farther. Your colors of light are spreading farther and farther until they cover this whole room, then even farther until they cover the whole city, and still farther until they cover the whole earth. You spread out even farther and become even bigger. Now your colors of light are spreading throughout the whole universe. You are as big as the whole universe, your colors of light shining out in every direction in space and touching all of space.

METAMORPHOSIS MEDITATION

You are a tiny egg laying under a milkweed leaf. You are the size of a dew drop. You feel yourself hatching into a tiny caterpillar. You begin to crawl around on the milkweed leaf. You are hungry, so you begin to eat the leaf. You eat and eat and grow bigger and bigger. Soon you discover your skin is too tight. Your old skin bursts and you crawl out of it, wearing a brand new skin. You feel happy in your soft new skin. You crawl around eating more and more leaves growing larger and larger. Soon you don't fit in your skin again. It bursts and again you crawl out with a brand new

soft skin. You eat more and more leaves, shedding your skin two more times, each time crawling out with a brand new skin. One day you decide it is time to rest and you spin a bottom of silk on a twig. You hang downward from the twig. You have a special shell now to protect you. It is bright and gold-trimmed. You stay in it for two weeks. All this time you quietly grow and change. One day the shell splits and you come out but you now look like a butterfly. At first you are wet and weak but the warm sun quickly helps you dry off your wings. You take off on your first flight. Up into the sky you fly, higher and higher. You are now a beautiful brown butterfly.

BUTTERFLY MEDITATION

Pretend that you are a beautiful butterfly. What kind of butterfly are you? See the colors and patterns on your wings. You move your wings gently and feel yourself take off and fly. You fly to a nearby flower. You use your antennae, those two things that stick out from your head, to smell the flower. Now suck up the sweet nectar of the flower with your antennae. Fully refreshed, you are ready to fly. You fly higher and higher up to the tree tops. You dance between the leaves of the trees. Now you see another butterfly which looks just like you. You dance together in the warm sunlight. You communicate with one another with your antennae. Filled with the joy and beauty of the world around, you land gently on the flower to rest. You are thankful for the opportunity for life.

COLOR MEDITATION

Breathe in the color red. You are becoming the color red. Your whole body is red. What does it feel like to be the color red?

Breathe in the color orange. You are becoming the color orange. Your whole body is orange. What does it feel like to be the color orange?

Breathe in the color yellow. You are becoming the color yellow. Your whole body is yellow. What does it feel like to be the color yellow?

Breathe in the color green. Your whole body is green. What does it feel like to be the color green?

Breathe in the color blue. You are becoming the color blue. Your whole body is blue. What does it feel like to be the color blue?

Breathe in the color violet. You are becoming the color violet. Your whole body is violet. What does it feel like to be the color violet?

LIZARD MEDITATION

You are becoming a lizard. What does it feel like to be a lizard? What color are you? What is your body like? What kind of lizard are you? How do you move around? How do you eat? How do you communicate with other lizards? What do you do all day? What is it like to be a lizard?

MEDITATION ON CARING

On the blackboard of your mind see someone you care for. How does it feel to care for this person? Feel the feelings of caring you have in your heart for this person. How can you share this yummy feeling in your heart with more people? How can you care more for others? How can you show this caring for them? How can you care more for yourself, also? How can you show love more to yourself and to others? Send some love right now to someone who needs it. Send it to whole world.

FEATHER MEDITATION

You are becoming a feather. Feel your softness. Feel how light you are. The wind picks you up and you begin to float up and up, up to the treetops. The wind carries you higher and higher. You are now high above the tree tops rising farther and farther up. You float up into space beyond the earth, past the moon and sun-beyond the planets. You float farther and farther. You float up to the stars. You float past the stars. How far can you float? Can you find the end of the universe? Now you begin to float back down to the earth. You feel yourself floating down, down through space, closer and closer below you. You float down gently, farther and farther down until you are passing up the treetops. Now you are gently landing on the earth.

JOY MEDITATION

Imagine a feeling of joy. You feel an opening in the top of your head. You feel joy floating down through the top of your head. It fills up your head and neck. It fills your shoulders and arms. The joy floats down into your chest, stomach and back. Now it is filling your stomach and back. It floats into your legs and feet. Every part of your body is full of joy. You are so full of joy, it begins to spread out beyond your body. It spreads out onto everyone in our classroom. It reaches out beyond the classroom farther and farther until it spreads over the whole earth. It continues to spread out even further into the universe-beyond the planets, beyond the stars, farther and farther. The whole universe is filled with joy.

APPENDIX D

APPENDIX D

CAS QUESTIONNAIRE AND INSTRUCTIONS
(Gillis, 1980)

The following instructions are played to the children on a audio-cassette : Purchased commercially.

butterfly Do you do very well in most things you try, or do things often go wrong for you? If you do very well in most things you try, mark an X on the red circle or, if things often go wrong for you, mark an X on the blue circle.

spoon Do people think you are often bad, or do people think you are usually good? If people think you are often bad, put an X on the red circle. If people think you are usually good, put an X on the blue circle.

cloud Can you answer quickly, or do others seem to answer before you? If you answer quickly, put an X on the red circle or, if others seem to answer before you, put an X on the blue circle.

fish Are you lucky or unlucky? If you are lucky, put an X on the red circle. If you are unlucky, put an X on the blue circle.

apple Do you think only some people like you, or do you think everybody likes you? If you think only some people like you, put an X on the red circle or, if you think everybody likes you, put an X on the blue circle.

mushroom Do people ever say you talk too much? If people ever say you talk too much, put an X on the red circle or, if people never say you talk too much, put an X on the blue circle.

mouse Can you do things better than most boys and girls, or not as well as most boys and girls? If you can do things better than most boys and girls, put an X on the red circle or, if you cannot do things as well as most boys and girls, put an X on the blue circle.

moon Do you seem to be always having accidents, or do you never have accidents? If you seem to be always having accidents, put an X on the red circle or if you never have accidents, put an X on the blue circle.

bottle Do you feel cheerful and happy most of the time, or not much at all? If you feel cheerful and happy most of time, put an X on the red circle. If you do not feel cheerful and happy much at all, put an X on the blue circle.

kite Do things sometimes seem too hard for you, or do things never seem too hard for you? If things sometimes seem too hard for you, put an X on the red circle or, if things never seem too hard for you, put an X on the blue circle.

book Do you think you have to sit too long in school? If you think you have to sit too long in school, put an X on the red circle or, if you do not think you have to sit too long in school, put an X on the blue circle.

leaf Do you usually finish your work on time, or do you need more time? If you usually finish your work on time, put an X on the red circle. If you need more time to finish your work, put an X on the blue circle.

owl Are other children always nice to you, or do they sometimes pick on you? If other children are always nice to you, put an X on the red circle. If other children sometimes pick on you, put an X on the blue circle.

lion Can other people do things better than you, or not as well as you? If other people do things better than you, put an X on the red circle or, if other people do not do things as well as you, put an X on the blue circle.

cake Are you afraid of the dark, or are you not afraid of the dark? If you are afraid of the dark, put an X on the red circle or, if you are not afraid of the dark, put an X on the blue circle.

sun Do you have just a few problems, or do you have a lot of problems? If you have a few problems, put an X on the red circle, or, if you have a lot of problems, put an X on the blue circle.

hand Do you think people ever say bad things about you? If you think people ever say bad things about you, put an X on the red circle. If you think people never say bad things about you, put an X on the blue circle.

flag Are you pretty good at everything, or just a few things? If you are pretty good at everything, put an X on the red circle or, if you are good at a few things, put an X on the blue circle.

heart Do you always have good dreams, or do you sometimes have bad dreams? If you always have good dreams, put an X on the red circle or, if you sometimes have bad dreams, put an X on the blue circle.

umbrella When you cut yourself, do you get scared and feel sick, or do you pay no attention to it? If you get scared and feel sick when you cut yourself, put an X on the

red circle. Or, if you pay no attention to it if you cut yourself, put an X on the blue circle.

CAS-Level 1

(Developed by the Institute for Personality and Ability Testing, Inc. 1978)



CAS—Level 1

Name: First _____ Last _____ Boy Girl

Age _____ Grade _____ Teacher _____ School _____ Date _____
Years Months

Start here

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20



Raw Score
Standard Score

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The black circles represent the blue circles on the original answer sheet; the gray circles represent the red circles on the original answer sheet.

APPENDIX E

APPENDIX E

ACADEMIC PERFORMANCE

(Developed by the Pilgrim Lutheran School, Chicago, IL.)

VG-Very Good (3), G-Good (2), S-Satisfactory (1), N-Needs Improvement (0), Does Not Apply: The mathematical value applies to each sub section of each category.

		Month	9-12	1-3	4-6
ART	Has Supplies Completes Projects				
ENGLISH*	Sentence Writing Skills Basic Skills Creative Writing Completes Assignments				
HANDWRITING	Forms Letters Correctly Uses Neat Handwriting in Other Assignment Completes Assignment				
MATHMATICS*	Basic Skills Computation Problem Solving Utilization of Study Time Completes Homework/Assignments				
MUSIC	Singing to Math Pitch Identifying Musical Concepts Class Participation				
PHYSICAL EDUCATION	Has Supplies Co-operation				
READING*	Application Skills Comprehension Phonic Skills Sight Words Utilization of Study Time Completes Homework/Assignment				
RELIGION	Class Participation Memory Work Completes Homework/Assignments				
SCIENCE*	Basic Concepts Class Participation Completes Assignments				
SOCIAL STUDIES*	Basic Concepts Class Participation Completes Assignments				
SPELLING*	Phonic Skills Weekly Tests Completes Assignments				

* Identifies those categories used by the investigator as a summative measure of academic performance.

APPENDIX F

APPENDIX F

INTRODUCTORY LETTER TO PARENTS

Dear Parents of the first, second and third graders,

My name is So Jon. I am writing to ask for your cooperation in a research project which is a requirement for the Master of Science in Nursing at Loyola University, where I am studying. I would like to explore ways to help young children relax and learn how to deal with some of the little problems that may at times seem big to them.

The study may be described as follows;

1) The purpose of this study is to test whether or not relaxation training will reduce anxiety in children, reduce absenteeism, and enhance academic performance.

2) The relaxation training would extend over an 4 week period. It will take about 10 minutes every morning before class begins. It will involve a breathing exercise, progressive relaxation training (listening to a tape) and a meditation. An example of these meditations are enclosed. The relaxation training program has been approved by the administrators at Loyola University and the Pilgrim Lutheran School.

3) There are no risks of which this researcher is aware to the children who participate in this study.

4) Several benefits are possible. The children will learn a systematic method of relaxation which may be helpful to them now and in later life. In addition, nurses and teachers will learn more about how to facilitate learning in our children, even when they are very young.

5) In order to implement the study, the students will be randomly divided into two groups. One group will be asked to participate in the study and the second group will be tested but will play with each other supervised by a teacher while the first group is engaged in the relaxation classes. After the study is completed, the relaxation program will be made available to the children in the first group.

Your child (children) may withdraw from the study any-time, should you and/or your child so desire. To be very specific, these are the requests I am making:

1. Please read this letter carefully, and contact me at 561-8526 if you have any questions. Please feel free to discuss the study with the Principal or the teachers at Pilgrim Lutheran School, if you wish. If you agree to allow your child (children) to participate, please sign the

enclosed form and return it to me in the enclosed envelope.

2. Your child (children) will then be approached in school and asked if they wish to participate in the study.

3. If they agree, they will be asked to respond to 20 questions about themselves. A record of any absenteeism and of their academic performance will be kept, using code numbers for identification purposes.

4. The students in the first group will be taught the relaxation program over the four week period.

5. After five weeks, the children in both groups will again be asked to respond to the 20 questions about themselves.

Thank you for taking the time to read this letter. Your support and the children's participation in this project may contribute to better understanding with children in the future.

Sincerely yours,

So Hee Jon, RN, BSN

APPENDIX G

APPENDIX G

SAMPLE FORM FOR OBTAINING PARENT
OR GUARDIAN'S CONSENT
WHEN NO RISK IS INVOLVED

Project Title: The effects of relaxation training on anxiety levels, absenteeism, and academic performance in first, second and third grade children: Implications for coping with stress.

I, _____, the parent or
(Name of signatory)

Guardian of _____, a minor of
(Name of minor subject)

_____ years of age, hereby consent to her/his participation in a research project being conducted by So Hee Jon, B.S.N., B.A.

Description of purpose and explanation of procedure

The subjects in the experimental group will be taught a deep breathing method and a progressive muscle relaxation technique.

The students will be instructed to imagine that they are in a very comfortable and relaxing place as they listen to the stories from a tape recorder. The students will be in a very comfortable body position while they receive relaxation training.

Students will learn how to breathe properly, that is deep breathing. Deep breathing exercises are focused on diaphragmatic breathing. Deep breathing means that the lungs fill more fully and the body gets more oxygen. The relaxation response by deep breathing occurs when the students exhale. When the students exhale, their muscles tend to let go, and when the muscles are released, the children relax. The students also will learn to relax by tensing and relaxing their muscles in each body part.

The students will learn how to produce relaxing images and thoughts. These images and thoughts can be used to block out intruding and upsetting thoughts. The students can learn how to do this with imagery training. The goals of imagery training are to reduce and control mental anxiety. By using pleasant visual images, the students can enjoy a deep state of physical relaxation. Once they have developed their ability to create pleasant mental images, they will be able to visualize themselves being successful and meeting the goals to which they aspire.

The investigator is not aware of any possible

discomfort for the children who participate in the relaxation training. Therefore, the relaxation training for children may be beneficial in many ways, as described previously.

Alternatives: None participation.

I understand that no risk is involved, but that in any case I may withdraw my child from participation at any time without prejudice.

(Signature of Parent)

(Date)

APPENDIX H

APPENDIX H

EXPLANATION OF THE STUDY TO THE CHILDREN

This study is to see if we can help you to be very relaxed.

Other people have taught children how to be relaxed.

What is relaxation training? During the next few weeks, I will introduce you to three kinds of relaxation. The first kind is "Deep Breathing Exercise" in which you will learn to breathe slowly and deeply. The second kind is "Progressive Muscle Relaxation". You will hear a voice from the tape recorder telling you how to relax parts of your body. Please try to follow the instructions. The third kind of relaxation is "meditation". I would like you to keep your thoughts on one idea while you are breathing deeply and slowly. While you are breathing slowly, you will hear a relaxing story and you can imagine the things in the story.

So, do you think you want to learn how to relax? If you do, we will get together here before class each morning. I will show you how. One thing is that not everyone can learn how to relax at the same time. We will form two groups—one group will do the relaxation games each morning, while the other group plays in Mrs. Halter's room. If the relaxation game are hard or if you really don't want to do them—just tell me...OK?

Now, does anyone have any questions? Who wants to do this with me?

OK now...first please answer some questions for me. These are questions about how you feel...and all the answers are correct. Isn't that great? This is a test and you don't even have to think about a grade!

After we finish the relaxation program, we will ask you to answer the same questions again, to see if your answers are any different..OK?

Does anyone want to talk about this?

APPENDIX I

APPENDIX I

RAW DATA

Experimental Group						
Subjects Code No.	Age	CAS Raw score		Absenteeism	Academic Performance	
		Pre-Test	Post-Test		Pre-Test	Post-Test
1	7	10	11	1	52	54
2	8	12	10		35	41
3	8	8	7		56	51
4	6	8	7		45	49
5	6	2	3		54	60
6	8	12	12		63	66
7	6	3	4	1	48	47
8	6	6	5		48	56
9	6	7	10	1	48	47
10	7	5	3		61	61
11	6	9	3		55	66
12	6	8	7	1	58	63
13	8	6	5		63	63
14	8	3	7		65	65
15	9	8	2	1	66	66
16	9	9	9		58	61
17	8	2	10		57	53
18	8	15	14		51	53
19	8	9	7	1	59	60
20	7	11	9		59	64
21	9	10	9		62	59
22	9	5	10	1	64	65
23	9	10	9		66	66
24	8	10	11		60	59
25	9	6	6	1	60	60
26	9	8	7		61	64
27	7	10	8		59	61

Control Group						
Subjects Code No.	Age	CAS Raw score		Absenteeism	Academic Performance	
		Pre-Test	Post-Test		Pre-Test	Post-Test
1	7	5	5		66	66
2	7	12	16		30	36
3	7	7	13		38	47
4	6	7	6		40	52
5	7	8	5		41	40
6	7	5	9	1	63	64
7	6	2	4		50	53
8	7	6	3		64	65
9	7	3	4	1	60	66
10	6	6	6		39	41
11	8	4	6	1	26	23
12	8	11	12	1	61	62
13	8	13	12		41	56
14	8	7	8		66	66
15	7	9	10	1	59	58
16	7	9	10		54	62
17	8	8	12	1	55	53
18	8	6	4		56	57
19	9	10	11	1	66	66
20	9	1	2		66	66
21	8	8	9		63	62
22	9	5	4		51	55
23	8	6	11		56	58
24	8	8	6		44	54
25	6	5	6	1	60	63
26	7	6	7	1	44	44

APPROVAL SHEET

The thesis submitted by So-Hee Jon has been read and approved by the following committee:

Elizabeth B. Brophy, Ph. D., Director
Associate Professor, Nursing, Loyola

Linda W. Janusek, Ph. D.
Associate Professor, Nursing, Loyola

Claudette G. Varricchio, D. N. Sc.
Associate Professor, Nursing, Loyola

The final copies have been examined by the director of thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Science in Nursing.

12-8-88
Date

Elizabeth B. Brophy Ph.D.
Director's Signature