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The Effect of Progressive Relaxation Training upon Empathy

Edo Weits
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THE EFFECT OF PROGRESSIVE RELAXATION
TRAINING UPON EMPATHY

by
Edo Weits

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Doctor of Education

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Edo Weits
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Western Michigan University

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TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td></td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Background of the Study</td>
<td>1</td>
</tr>
<tr>
<td>Theoretical Assumptions</td>
<td>7</td>
</tr>
<tr>
<td>Importance of the Study</td>
<td>10</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>12</td>
</tr>
<tr>
<td>Research Hypotheses</td>
<td>14</td>
</tr>
<tr>
<td>Review of the Literature</td>
<td>15</td>
</tr>
<tr>
<td>Progressive Relaxation Training</td>
<td>15</td>
</tr>
<tr>
<td>Counselor/Therapist and Empathy Training Programs</td>
<td>25</td>
</tr>
<tr>
<td>Kagan Affective Sensitivity Scale</td>
<td>28</td>
</tr>
<tr>
<td>State-Trait Anxiety Inventory</td>
<td>30</td>
</tr>
<tr>
<td>Summary</td>
<td>34</td>
</tr>
<tr>
<td>II</td>
<td></td>
</tr>
<tr>
<td>METHODOLOGY</td>
<td>36</td>
</tr>
<tr>
<td>Research Design</td>
<td>36</td>
</tr>
<tr>
<td>Population</td>
<td>37</td>
</tr>
<tr>
<td>Variables</td>
<td>37</td>
</tr>
<tr>
<td>Treatment Method</td>
<td>39</td>
</tr>
<tr>
<td>Laboratory Procedure</td>
<td>40</td>
</tr>
<tr>
<td>Test Instruments</td>
<td>45</td>
</tr>
<tr>
<td>Statistical Analyses</td>
<td>47</td>
</tr>
<tr>
<td>Summary</td>
<td>48</td>
</tr>
</tbody>
</table>

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## LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>Means, Standard Deviation, and Results of Correlated $t$ Test for Experimental Group Between Pre- and Post-Tests on Electromyograph</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Means, Standard Deviation, Bartlett's Test Statistic, and Exact $t$ Test for Experimental and Control Groups for Pretesting on Kagan Affective Sensitivity Scale</td>
<td>51</td>
</tr>
<tr>
<td>2.</td>
<td>Means, Standard Deviation, and Correlated $t$ Test for Experimental Group Between Pretest and Post-Test #1 on Kagan Affective Sensitivity Scale</td>
<td>53</td>
</tr>
<tr>
<td>3.</td>
<td>Means, Standard Deviation, and Correlated $t$ Test for Experimental Group Between Post-Tests #1 and #2 on Kagan Affective Sensitivity Scale</td>
<td>54</td>
</tr>
<tr>
<td>4.</td>
<td>Means, Standard Deviation, and Correlated $t$ Test for Experimental Group Between Post-Tests #1 and #2 on Kagan Affective Sensitivity Scale</td>
<td>54</td>
</tr>
<tr>
<td>5.</td>
<td>Means, Standard Deviation, Bartlett's Test Statistic, and Exact $t$ Test for Experimental and Control Groups Between Post-Testings on Kagan Affective Sensitivity Scale</td>
<td>55</td>
</tr>
<tr>
<td>6.</td>
<td>Means, Standard Deviation, Bartlett's Test Statistic, and Approximate $t$ Test for Experimental and Control Groups Between Pre- and Post-Testings on Kagan Affective Sensitivity Scale</td>
<td>57</td>
</tr>
<tr>
<td>7.</td>
<td>Means, Standard Deviation, Bartlett's Test Statistic, and Exact $t$ Test for Pretest Mean Differences Between Experimental and Control Groups on State Anxiety</td>
<td>57</td>
</tr>
<tr>
<td>8.</td>
<td>Means, Standard Deviation, and Correlated $t$ Test for Experimental Group Between Pretest and Post-Test #1 on State Anxiety</td>
<td>58</td>
</tr>
<tr>
<td>9.</td>
<td>Means, Standard Deviation, and Correlated $t$ Test for Experimental Group Between Post-Tests #1 and #2 on State Anxiety</td>
<td>59</td>
</tr>
<tr>
<td>10.</td>
<td>Means, Standard Deviation, Bartlett's Test Statistic, and Approximate $t$ Test for Experimental and Control Groups Between Post-Testings on State Anxiety</td>
<td>59</td>
</tr>
</tbody>
</table>

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11. Means, Standard Deviations, Bartlett's Test Statistic, and Approximate \( t \) Test for Experimental and Control Groups Between Pre- and Post-Testings on State Anxiety ........................................ 60

12. Means, Standard Deviations, Bartlett's Test Statistic, and Exact \( t \) Test for Pretest Mean Differences Between Experimental and Control Groups on Trait Anxiety ........................................ 61

13. Means, Standard Deviation, and Correlated \( t \) Test for Experimental Group Mean Differences Between Pretest and Post-Test #1 on Trait Anxiety .......... 62

14. Means, Standard Deviation, and Correlated \( t \) Test for Experimental Group Mean Differences Between Post-Tests #1 and #2 on Trait Anxiety .......... 62

15. Means, Standard Deviations, Bartlett's Test Statistic, and Approximate \( t \) Test for Experimental and Control Groups Between Post-Testings on Trait Anxiety ........................................ 63

16. Means, Standard Deviations, Bartlett's Test Statistic, and Exact \( t \) Test to Determine Experimental and Control Group Mean Change Score Differences Between Pre- and Post-Testings on Trait Anxiety .......... 64
CHAPTER I

INTRODUCTION

Background of the Study

The field of psychotherapy and counseling is saturated with numerous philosophies, theories and treatment approaches. New theories and procedures emerge while older ones change or pass away. Each of these schools or systems claims a different if not unique contribution to the practice of the art of understanding human behavior. Some claim their particular treatment approach to be the more effective and/or efficient one in operation (Corsini, 1973; Ford & Urbin, 1963; Hall & Lindzey, 1957; Harper, 1959; Lande, 1976; Patterson, 1966).

While it may be true that each of these systems has something unusual and perhaps useful to contribute to the field of psychology, upon closer scrutiny there appears to be considerable overlap between approaches and systems (Raimy, 1975). Much restatement of traditional concepts into newer and often more esoteric terminology is apparent. Students of psychology are often baffled concerning within which particular theory and/or treatment approach they should specialize. Likewise, clients seeking psychotherapy are even more confused unless they are totally unaware of the vast and diverse market of treatment approaches available to them.

Within the last few decades, many theorists and researchers have
attempted and succeeded in identifying several of the major ingredients or "core elements" conducive to effective psychotherapeutic process and outcome (Arbuckle, 1975; Carkhuff, 1969; Carkhuff & Berenson, 1967; Egan, 1975; Patterson, 1974; Rogers, 1951, 1957, 1961; Truax & Carkhuff, 1966; Truax & Mitchell, 1971). These essential ingredients are represented by seven interpersonal communication skills displayed by the therapist to the client within a therapeutic relationship; these skills are empathy, respect, genuineness, concreteness, confrontation, self-disclosure, and immediacy.

The first four of these interpersonal communication skills—empathy, respect, genuineness, and concreteness—were initially and still are the focus of considerable writing and research (Carkhuff & Berenson, 1967; Rogers, 1957, 1961; Truax & Carkhuff, 1967) and are part of the "responsive phase" in the therapy/counseling process (Carkhuff, 1969; Carkhuff & Berenson, 1967). The latter three interpersonal communication skills, confrontation, self-disclosure, and immediacy, make up the "action or initiative phase" of psychotherapy and counseling (Carkhuff, 1969; Carkhuff & Berenson, 1967).

While some theorists and researchers (Arbuckle, 1975; Carkhuff, 1969; Carkhuff & Berenson, 1967; Egan, 1975; Patterson, 1974; Rogers, 1951, 1957, 1961; Truax & Carkhuff, 1966; Truax & Mitchell, 1971) have stated that these seven interpersonal communication skills are the "necessary and sufficient conditions" for effective therapeutic process and outcome, others (Gladstein, 1977; Ellis, 1973; Goldstein, 1973) have indicated that they may be desirable and perhaps necessary but certainly not sufficient. The same researchers of the
former persuasion have also indicated that when the person who is designated to be the therapist (or helper) displays a consistent level of these interpersonal communication skills with clients, the therapist will be effective with most clients (given that they are at least minimally motivated and receptive to help) no matter which particular psychological theory or psychotherapeutic approach he/she adheres to and operates from.

In addition, these interpersonal communication skills are even more important and more positively correlated with therapy and counseling effectiveness than the personality characteristics of the therapist (Rowe, Murphy & DeCspikes, 1975). Thus, it is not necessarily what the therapist is as a person but how he/she can perform on a consistent basis which produces an effective helper. Moreover, these skills are not just inherent qualities of some particular persons, but these skills can be taught, learned and/or enhanced for anyone with adequate motivation through a systematic training program.

The interpersonal skill of empathy has probably received more attention in the literature than all the other skills combined. The nature of empathy has been variously defined and described by many writers. For example, Rogers (1957) defined empathy as follows:

To sense the client's private world as if it were your own, but without ever losing the as if quality--this is empathy, and this seems essential to therapy. (p. 99)

Feshbach (1975) defined empathy as "a match between the affective response of a perceiver and that of a stimulus person" (p. 26).

Moreover, Mitchell (1971) defined empathy as:

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Accurate empathic understanding involves the ability to perceive and communicate accurately and with sensitivity both the feelings and experiences of another person and their meaning and significance. (p. 317)

Keefe (1976) devised a model of empathy based upon physiological and psychological research. His model of empathy delineates this complex interpersonal communication skill into several more specific behavioral skills. The component parts of empathy are summarized as follows:

1. Perception of verbal and nonverbal communications from the client.
2. Accurate understanding of the meanings of the client's communications with identification of any incongruence.
3. Experiencing directly one's own physical and emotional responses to the various communications of the client while holding complex cognitive processes (such as psychological theory and diagnosis) in temporary abeyance.
4. Consciously separating one's feelings shared with the client from those held alone.
5. Accurate communication of reactive feelings back to the client.

An empathic relationship is thought to be the first component of an ideal therapeutic which is necessary for effective therapy and subsequent client response and behavior change (Fiedler, 1950). Empathy both facilitates communication between the therapist and the client and provides the motivation for growth and change within the client (Rogers, 1975). Empathy has repeatedly been identified...
as one of the critical variables affecting the outcome of the therapeutic process (Carkhuff & Berenson, 1967; Truax & Mitchell, 1971).

Because empathy has been evaluated as an important component of counseling and psychotherapy, considerable efforts have been expended to discover how best to help beginning therapists/counselors to become more empathic. It was the purpose of this study to assess and compare the effects of progressive relaxation training as an adjunctive experience to a supervised practicum in the development and enhancement of empathy within counselor trainees in a master's degree program in counselor education at Western Michigan University, Kalamazoo, Michigan. For the purpose of this study, empathy was operationally defined as subjects' responses to the Kagan Affective Sensitivity Scale (Campbell, Kagan & Krathwohl, 1971).

The practicum course (C-P 628 Counseling Practicum) is a 4 semester hour credit course, meeting once a week for 4 hours throughout a 15-week semester. Course enrollment is usually limited to eight graduate students. From four to six sections of this course are conducted during any one semester. The course is composed of a laboratory experience and a professional field placement experience. The practicum usually occurs in the last session of the master's degree candidate's graduate program as a culminating experience before graduation. Typically, a practicum consist of a combination of didactic instruction, supervised individual counseling, seminar work, and a supervised field placement experience. The general objectives of the practicum course are: (1) the development
and enhancement of basic counseling skills within counselor trainees to enable them to function independently as beginning counselors, and (2) the integration of counseling and psychological theories into actual practice. (A more detailed description of the practicum course is provided in Appendix A.)

The practicum course is not specifically designed to train students in empathy since they have already had exposure to empathy training, among other experiences, in an earlier course entitled Counseling Techniques (C-P 618). However, students are required to demonstrate accurate empathy in their individual counseling sessions within the laboratory and field placement settings. The department's staff consider empathy to be a fundamental counseling skill, and students are expected to progress in their proficiency in mastering this particular skill while enrolled in the practicum. Whereas students learned earlier to develop and practice empathic communication, they now have ample opportunity in the practicum to demonstrate and enhance their usage of it in supervised individual counseling sessions.

A structured and standardized progressive relaxation training experience described by Bernstein and Borkovec (1973) was the independent variable studied in this research (see Appendix B). Progressive relaxation training is a systematic method of alternately tensing and releasing various muscle groups throughout the body and learning to attend to and discriminate between the resulting sensations of tension and relaxation. A person may thereby almost
completely eliminate muscle contractions and by doing so experience a feeling of deep relaxation. For the purpose of this study, relaxation was defined as the absence or reduction of muscle contractions and tensions.

Procedures to train for progressive relaxation take from 20-30 minutes and can be administered by either an experienced trainer, a recorded audio, video or film version of the procedure or, most importantly, can be self-administered. The training procedure has its greatest potential beneficial effects when administered by an experienced trainer that the subject trusts on an individual basis (Paul & Trimble, 1970).

Theoretical Assumptions

In the behavioral description of empathy by Keefe (1976), the important factors in perceiving empathically include an ability to (1) perceive the other person accurately; (2) hold cognitive processes in temporary abeyance; and (3) consciously attend to one's own feelings, which are often subtle and complex. The counselor/therapist has to be initially successful in these three steps before effectively communicating back to the client what has been perceived. Thus, a counselor/therapist with more facility in these three behaviors has taken the critical first steps in becoming more empathic.

It was hypothesized that progressive relaxation training would specifically develop and enhance these three behaviors or skills.
within the trainee. Justification for this assumption appeared in
the literature even though a comprehensive review did not identify
any specific studies linking or comparing progressive relaxation
training with the development and/or enhancement of empathy. Re­
lated relaxation-inducing techniques such as biofeedback training
and Zen meditation have had significant effects upon increases on
several empathy measurement scales (Keefe, 1973, 1975a, 1975b;

For example, Keefe (1975a) defined Zen meditation as follows:

Meditation in the Zen sense is a task of focusing one's
total concentration and attention fully upon an internal
point. The meditator finds this task extremely difficult
as he encounters a series of barriers to the seemingly
easy task. One finds the act of concentrating disrupted
by preoccupation with one's concept of one's roles and
by various sensory inputs, thoughts, and feelings.
Finally, the mind quiets, and attention to the task is
easier. Sensory input continues; indeed, it is amplified.
Thoughts continue but are not clung to. In essence, one
acquires the behaviors conducive to a Zen attitude. The
behaviors transfer to other situations, and the quiet
one-pointedness of mind can be put to any task requiring
selfless participation, acute attention, and awareness
of both internal and external events and experience. (p. 143)

Keefe (1975a) further explained the impact of Zen meditation
upon empathy as follows:

The ability to be open to the reality of the client, the
ability to hold one's cognitive framework in temporary
abeyance, the facility to allow one's self a spontaneous
emotional reaction, the capacity for attunement to one's
internal response, and the spontaneous encoding and
sharing of one's response are the ingredients of empathy
enhanced through Zen meditation. Essentially, the empathy
process is enhanced through a transfer of behaviors
acquired in the meditation approach to Zen. (p. 144)

Since Zen meditation and biofeedback training have been suc­
essful in increasing empathic regard, there was reason to believe
that progressive relaxation training would in fact also yield similar results since its effects are quite similar to those produced by Zen meditation and biofeedback training.

In the training of progressive relaxation, the trainee is asked to focus attention specifically on each separate muscle group and on the resulting physical sensations and feelings as the muscles are purposely being alternately contracted and relaxed. This activity is performed at the exclusion of all other distractions such as any thoughts, feelings, and/or other bodily sensations. Over a number of practice trials, the trainee becomes quite adept at focusing and, consequently the ability to concentrate is greatly enhanced. Theoretically, an increased ability to focus and concentrate has a direct and positive effect upon one's ability to perceive accurately since these two skills are important components of interpersonal perception.

The reduction of experienced anxiety because of a decrease in one's muscular tension (Jacobson, 1938, 1957, 1964) enhances one's interpersonal perception since it reduces the interference and distortion of consciously (or unconsciously) felt anxiety. In practica situations, counselor/therapist trainees are typically quite self-conscious, are easily distracted, and experience a great degree of anxiety as they attempt to counsel with clients under direct observation and supervision. Practica surroundings usually include one-way vision screened rooms and audio or video taping capabilities. It is hypothesized that a training procedure directing the
trainee's attention to a self-initiated muscular relaxation of physical sensations and feelings enhances the trainee's sensitivity or proprioceptive capabilities. This heightened sensitivity may then be used in a counseling-therapy situation to improve empathic regard, an essential aspect of the responsive phase of counseling and psychotherapy.

Importance of the Study

The need for effective therapeutic interventions appears to be growing. Increases in social, economic, cultural, and political stresses in the last three decades have contributed to the alarmingly high incidence of "mental illness" in the United States (Benson & Klipper, 1975; Leighton, 1956; Srole et al., 1962; Toffler, 1970). Concomitantly, there is a growing public and political trend demanding higher levels of competence from experts in care-giving institutions and professions, accompanied by determined probing into the economics and politics of care and a strong demand for accountability (Chu & Trotter, 1974; Illich, 1976; Szasz, 1970). The present accountability trend will not likely diminish in the near future but, rather, will increase in its intensity and scope. It would therefore appear to be quite important for counselor/therapist trainees to receive the best possible instruction and training, using innovative methods that have a greater probability of success. Research, such as this study, into teaching methods capable of enhancing the development of empathy would add a dimension not now available in traditional programs.
There are several potential benefits resulting from this study for counselor and therapist educators as well as others in the helping professions. If a time-limited, structured program in progressive relaxation training has a significant effect upon an increase in empathy, then this technique could easily be incorporated in such training and professional programs as an adjunctive training technique. Progressive relaxation training may well have positive effects upon the other essential "core elements" of successful interpersonal relating and communication. Moreover, any training or practice of counseling and therapy would most likely be much more effective with a relaxed mind and body than with one which experiences stress, anxiety, tension, and/or "burn-out."

There are many other physiological and psychological benefits from progressive relaxation training. Besides stress and anxiety reduction, research studies have indicated reductions in pulse rate, blood pressure, respiration rate, body temperature, and skin conductance; reductions in muscle contractions and tension; amelioration of various psychosomatic disorders; and reduction and even termination of all mental activity for brief periods of time (Benson & Klipper, 1975; Bernstein & Borkovec, 1973; Jacobson, 1938, 1957, 1964; Lazarus, 1971; Paul, 1969; White & Fadiman, 1976; Wolpe, 1973). These benefits are of obvious importance for counselor/therapist trainees, helping professionals and clients alike.

The relaxation-inducing technique is very easy to teach, learn, and administer to oneself without the need for a highly trained
hypnotist, the expensive and complex machines of biofeedback, and
the often complex and esoteric teachings of the various forms of
meditation presently available in our society. Thus, this valuable
relaxation technique has a potentially broad usage with minimal
expense, training, and supervision.

Limitations of the Study

There were several limitations in this study that need to be
mentioned here. First, the nature of empathy is quite complex and
has been defined in various ways by different writers and re-
searchers. The theoretical definition of empathy used in this
study was the behavioral model of empathy defined by Keefe (1976)
previously. As he and others have realized, the empathic process
consists of two separate but interrelated stages. The two stages
are: (1) empathic perception and (2) empathic communication of
that perception back to the client or respondee. As Bullmer (1975)
indicated, "No matter how well phrased or how sensitive a response
may seem, a true state of empathy between individuals cannot exist
unless the responses are based on accurate percepts" (p. vi). In
this study, however, the operational definition of empathy (which
was also one of the criterion measures) was the subjects' responses
to the Kagan Affective Sensitivity Scale (KASS). The KASS measures
or assesses a subject's accuracy of perception (or "sensitivity")
to a client's affective state as the client is being observed on
video-tape. Thus, the scale actually measured only the first stage
of the empathic process, that of empathic perception and not
empathic communication.

The second limitation was that the empathic perception of counselor trainees in this study was not assessed during actual counseling sessions with clients, but through observation of videotaped counseling scenes. Thus, this was actually an indirect measurement of empathic perception since the trainees were one step removed from direct mental and emotional involvement with clients in real-life counseling situations.

Third, the treatment group of progressive relaxation training received the training on a group basis rather than on an individual basis as prescribed by Bernstein and Borkovec (1973) in their procedural format and as used in many research studies (Paul, 1969a, 1969b, 1969c; Paul & Trimble, 1970; Stoudenmire, 1972; Stronghan & Dufort, 1969). An advantage of providing this treatment on an individual basis is that subjects may progress at their own pace and ensure that each muscle group is sufficiently relaxed before moving on to another adjacent group. This procedure is somewhat difficult to ensure within a group setting since each subject will relax at different rates and levels. However, in an extensive review of the literature concerning group desensitization, Heaps and Seamons (1972) provided evidence that the relaxation-inducing technique of progressive relaxation was used quite successfully when presented in groups for systematic desensitization. The progressive relaxation instructions were presented on a group basis as a more economical method than the individual approach and to provide a group training model for other counselor/therapist trainees.
who may want to incorporate this method in their training pro-
grams.

Finally, the correct and consistent implementation of daily relaxation training sessions at home was difficult to monitor since it was based primarily on subjects' subjective self-report. Electromyographic (EMG) pre and post measures provided adequate objective physiological information concerning each subject's degree of progress in muscle relaxation. Pre- and post-testing of the State-Trait Anxiety Inventory (STAI) ascertained a valid report concerning any changes in experienced anxiety. Subjects were also instructed to record their subjective experiences in written form immediately upon termination of each daily practice trial of progressive relaxation.

Research Hypotheses

The following hypotheses have been stated in null form:

1. Subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant reductions in muscular tension between pre- and post-testings.

2. Subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant increases in empathic ability over time and treatment than subjects receiving only practicum training.

3. Subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant decreases in state anxiety over time and treatment than subjects receiving only practicum training.
4. Subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant decreases in trait anxiety over time and treatment than subjects receiving only practicum training.

Review of the Literature

The review of the literature will be divided into four parts: (1) progressive relaxation training, (2) counselor/therapist and empathy training programs, (3) the Kagan Affective Sensitivity Scale, and (4) the State-Trait Anxiety Inventory.

Progressive Relaxation Training

Jacobson (1938) began his pioneering work on progressive relaxation training in 1908 at Harvard University while investigating the phenomenon of the "involuntary start," i.e., involuntary muscular jerks and contractions elicited by an unexpected stimulus. These studies led to the development of a physiological method called progressive relaxation used to treat muscle tension and subjectively experienced anxiety. The development of this innovative method and subsequent research findings were published in 1929 in a book entitled Progressive Relaxation. Since then, Jacobson has conducted and published numerous other research studies related to the physiological and psychological effects of progressive relaxation training.

Jacobson's early investigations led him to conclude that tension involved the effort which is manifested in the shortening or contraction of the muscle fibers. This tension occurred
whenever a person reported anxiety, and such anxiety could be removed by eliminating the muscle tension. Anxiety was defined by Jacobson (1964) as follows:

Anxiety is excitation of the cerebrospinal as well as the autonomic nervous system when a menace is recognized or imagined and efforts are made to meet or avoid it. Smooth and striated muscle tension pattern with heightened action-potential levels mark the emotional reaction in which virtually the whole organism participates. This is anxiety tension, the universal experience. (p. viii)

Jacobson found that complete relaxation of the muscle fibers, and therefore the complete absence of all contractions, was the direct physiological opposite of tension, of being nervously excited or disturbed. Therefore, a systematic method for inducing relaxation—progressive relaxation—was thought to be the most logical form of treatment for overly tense or anxious persons. Jacobson (1957) stated: "It is physically impossible to be nervous in any part of your body, if in that part you are completely relaxed" (p. 85).

Progressive relaxation is here defined as a systematic method of alternately tensing and releasing various muscle groups throughout the body, and by learning to attend to and discriminate between the resulting sensations and feelings, a person may almost completely eliminate muscle contractions and tensions and thereby experience a feeling of deep relaxation. Jacobson (1957) described the progressive relaxation process and its beneficial effects as follows:

As the individual relaxes past the stage of residual tension, his breathing loses the slight irregularities, the pulse rate may decline to normal, the temperature and blood pressure fall, the knee-jerk diminishes or
disappears along with the throat and bending reflexes and the nervous start, the esophagus (assuming that the three instances studied are characteristic) relaxes in all its parts, and mental and emotional activity dwindle or disappear for brief periods. He then lies quietly with flaccid limbs and no trace of stiffness anywhere visible and with no reflex swallowing, while for the first time his eyelids become quite motionless and attain a peculiar toneless appearance. Tremor, if previously present, is diminished or absent, and slight shifts of the trunk or a limb or even a finger now cease to take place. Subjects independently agree in reporting that this resulting condition is pleasant and restful. If persistent, it becomes the most restful form of natural sleep. No university subject and no patient ever considered it a suggested or hypnoidal or trance state or anything but a perfectly natural condition. It is only the person who has merely read a description who might question this point. (pp. 89-90)

This "perfectly natural condition" of relaxation that Jacobson referred to is assumed to be the natural "relaxation response" of the human organism that Benson and his associates have studied and written about so extensively (Benson, Beary, & Carol, 1974; Benson & Klipper, 1975). This relaxation response is incompatible or antagonistic to the flight and fight response, all three of which are controlled and evoked by the hypothalamus portion of the brain. After being either internally or externally stimulated, the hypothalamus elicits a response from the sympathetic nervous system, which is part of the autonomic or involuntary nervous system. The sympathetic nervous system acts by secreting certain hormones (epinephrine and its related substances) which then in turn produce the physiological changes of increased or decreased blood pressure, heart rate, pulse rate, respiration rate, amount of oxygen consumption, skin conductance, body metabolism, etc., and the almost instantaneously experienced emotional feelings of anxiety, aggression.
and/or relaxation. This inherent relaxation response can be activated by various stimuli and activities such as transcendental or zen meditation, yoga, karate, autogenic training, biofeedback training, sentic cycles, massage, hypnosis, long-distance running, and other activities besides progressive relaxation training (Benson & Klipper, 1975; Blanchard & Young, 1975; Bloomfield et al., 1975; Budzynski, Stoyva, & Adler, 1970; Glasser, 1976; Green et al., 1969; Miller, 1974; White & Fadiman, 1976).

This systematic method of progressive relaxation training is called "progressive" in three respects: (1) the subject relaxes a certain muscle group further and further each minute during training; (2) he/she learns to consecutively relax the principal muscle groups throughout the entire body; and (3) as he/she practices from day to day, he/she progresses toward a habit of relaxation. A trainee may eventually learn to "differentially relax" his/her muscles throughout the work day, i.e., he/she may learn to decrease the unnecessary levels of tension in the muscles employed for certain activities while other muscles not needed remain fairly relaxed and flaccid.

Jacobson had indicated several benefits from consistent progressive relaxation training which specifically relate to the main assumption of this study that relaxation of mind and body positively affects one's empathic ability. While discussing the results of self-administered progressive relaxation ("self-operations control"), Jacobson (1964) indicated the following three benefits:
1. The patients gain a better understanding of themselves and others, and this is found to be satisfying and enjoyable as well as practical.

2. They learn to recognize and locate undue tensions and to relax them toward moderation during moments of stress.

3. Generally, attention and concentration tend to improve. (p. 4)

Progressive relaxation training was successfully utilized by Jacobson to treat a great number of mental and emotional disorders. For example, he treated patients with tension and anxiety syndromes, colitis, excessive sweating, barbiturate habituation, ulcers, post-coronary infarction, insomnia, essential hypertension, abdominal pains, spastic colon, phobias, compulsions, disabling fears and thoughts, and many other syndromes. Under his direction and supervision, patients typically practiced progressive relaxation from 1/2 to 1 hour per training session for at least three to four times a week at his Laboratory for Clinical Physiology in Chicago. In addition, his patients were required to practice daily for 1-2 hours or more. The total treatment duration typically lasted for several months to a year and sometimes even more. Jacobson took extensive pre- and post-physiological and psychological tests on each patient so treated. He utilized the integrating neurovoltmeter to measure action potentials in microvolts in the muscles in order to precisely determine the degree of muscular tension present. Researchers presently are often using the electromyograph (EMG) instrument to assess degree of muscle tension. This same instrument is being used on subjects in EMG-feedback training to induce muscle...
relaxation (Blanchard & Young, 1975; Budzynski et al., 1970; Green et al., 1969; Hampstead, 1977; Khan, 1978). This instrument was used in this study to assess the degree of muscle tension and/or relaxation in subjects (see Chapter II).

Jacobson's research and training procedures have been criticized by various writers (Bernstein & Borkovec, 1973; White & Fadiman, 1976; Wolpe, 1958). He has been criticized for not utilizing adequate control groups in his research since most of his studies were single case studies with a simple pre-post-test design. Also, the lengthy training sessions and total treatment time were found to be too inefficient, uneconomical, and too time-consuming for most patients to faithfully carry out.

Wolpe (1958) eventually shortened the progressive relaxation training time period to six 20-minute sessions while using this form of relaxation induction in his counter-conditioning and systematic desensitization research studies. He found the shortened time version to be quite successful, efficient and economical in his studies. His treatment emphasis also departed from Jacobson in that the circumstances surrounding the occurrence of anxiety was focused on instead of the anxiety response itself which Jacobson dealt with extensively. Most researchers and practitioners today appear to use a version of Wolpe's abbreviated treatment and may vary the focus of treatment as well as the actual procedural instructions.

This latter variation on procedures has been a source of criticism by Bernstein and Borkovec (1973). They find it difficult to assess and compare research results from study to study on
progressive relaxation without adequate standardization of procedures. In their book, they present and recommend a standard training procedure for future research studies. It is this training procedure which was used in the present study (see Appendix B).

In reviewing the literature, the writer found very little experimental research conducted on the exclusive application of progressive relaxation training to various target behaviors. Many studies investigated the role of progressive relaxation as a component of other treatment approaches such as systematic desensitization while other relevant studies utilized instructional procedures more similar to hypnotic suggestion techniques than Jacobson's originally prescribed procedures.

Besides the separate usage of progressive relaxation training, it is currently being employed in the following treatment approaches:


4. In conditioned relaxation training which enables one to achieve relaxation and reduction of tension and anxiety by a self-produced conditioned cue or stimulus (Bernstein & Borkovec, 1973; Paul, 1966).

A brief review of some of the current research studies on, or related to, progressive relaxation will now be presented. There
first will be several studies on progressive relaxation which utilize the original instructional procedure. Then there will be several studies investigating the role of progressive relaxation in systematic desensitization and, finally, some studies using a combination of progressive relaxation instructions and hypnotic suggestion.

Paul (1969a) compared the physiological and psychological effects of progressive relaxation with direct hypnotic suggestion and a control group in which members were simply told to relax. Sixty female college students were randomly assigned to the above three groups. They were exposed to two 1/2-hour experimental sessions identical in procedure and held 1 week apart. Dependent measures included pre- and post-testing of self-reported anxiety (the Anxiety Differential) and several physiological measures: muscle tension via EMG, heart rate, skin conductance and respiration rate. The results from both sessions were as follows: (1) progressive relaxation training resulted in significantly greater relaxation by all measures than did the control group; and (2) the progressive relaxation training also produced significantly greater heart rate and muscle tension decreases than did the hypnotic group. Paul concluded that, overall, progressive relaxation training was superior to hypnotically induced or self-induced (non-PRT) relaxation. These results were quite relevant in differentiating progressive relaxation from hypnosis.

In a follow-up study utilizing the same experimental subjects
as above, Paul (1969c) attempted to evaluate and compare the use of progressive relaxation training with the hypnotic group and self-relaxation control group in decreasing physiological response to stressful imagery. Stressful imagery data were collected on all subjects and composite physiological responses to the stress scenes visualized were assessed before and after training. The dependent variables were: (1) the Fear Survey Schedule (FSS), (2) the Anxiety Differential, (3) heart rate, (4) respiratory rate, (5) skin conductance, and (5) muscle tension via EMG. The progressive relaxation and hypnotic groups demonstrated significantly lower physiological responses to stressful imagery than the control group. The progressive relaxation group produced greater reductions in responses than the hypnotic group, but the differences in measures were not statistically significant. Paul concluded that progressive relaxation and hypnotically induced relaxation did produce inhibitors of physiological response to stressful visualizations.

The role of progressive relaxation in systematic desensitization has been investigated by many researchers (Cooke, 1968; Folkins, Lawson, Option, & Lazarus, 1965; Johnson & Sechrest, 1968; Lomont & Edwards, 1967; Rachman, 1965, 1968; Sue, 1972; Taxer & Walker, 1970; Zeisset, 1968). For example, Rachman (1965) investigated the separate effects of relaxation and desensitization. Four small groups of spider-phobic, normal subjects were administered the following four treatments: (1) desensitization with relaxation, (2) desensitization without relaxation, (3) relaxation only, and (4) no treatment controls. The effects of treatment were assessed
by subjective reports, behavioral avoidance tests and fear estimates. Only the desensitization with relaxation treatment group produced significant reductions in fear on the three dependent variables. It was concluded that the combined effects of relaxation and desensitization were greater than their separate effects since neither relaxation nor desensitization were effective in their own right.

Rachman found that the results of this study confirmed Wolpe's (1958) reciprocal inhibition theory underlying the counterconditioning technique of systematic desensitization.

In a later study on the role of relaxation in systematic desensitization, however, Sue (1972) found that progressive relaxation was not essential as the necessary antagonistic response to anxiety in the desensitization of snake-phobic subjects. This was so concluded since desensitization plus muscle tension produced similar results and, on one fear measure, even significantly greater results than desensitization with muscle relaxation. These two studies as well as many others have variously questioned the role of progressive relaxation in systematic desensitization.

Several studies which used a combination of progressive relaxation and hypnotic suggestion were, for example: a study by Straughan & Dufort (1969), who investigated the effects of progressive relaxation on recall abilities; the application of relaxation procedures to acting-out psychotic children (Graziano & Kean, 1968); and several research studies on the application of progressive relaxation to insomnia (Borkovec & Fowles, 1973; Steinmark & Borkovec, 1973).
Counselor/Therapist and Empathy Training Programs

This subsection will cover just some of the many training programs currently available for the training of counselors and therapists. The focus here will be on those programs which emphasize in their training the development and enhancement of those seven essential interpersonal relating and communication skills (as discussed in the section on the Background of the Study) required for successful counseling/therapeutic process and outcome. Special emphasis will be on the development and enhancement of empathy.

A number of research studies have been conducted by Truax and Carkhuff (1966) and their colleagues which indicated that in a relatively short period of time, training programs with a strong experiential emphasis and with a focus upon the trainee's own personal constructive change can produce effective counselors as measured by the Carkhuff-Truax Scale. This was considered to be a competency-based training program which produced substantial increases in counselor effectiveness just after a 25-hour training program. This was true for prospective undergraduate dormitory counselors (Berenson, Carkhuff, & Myrus, 1966) and experienced guidance counselors (Martin & Carkhuff, 1967).

Golan and Magoon (1966) described a study from which they determined that effective counseling services can be provided in a school setting by carefully selected and trained individuals who do not necessarily need professional degrees. Carkhuff (1966) concluded that there was abundant evidence available suggesting that
the primary conditions for effective counseling and therapy (the seven essential skills of effective interpersonal relating and communication) were conditions which minimally trained non-professional persons could provide. Patterson (1969) went even so far as to suggest that psychologists may abandon the practice of counseling and psychotherapy altogether since it is below the professional dignity of psychologists to engage in something which can be performed by someone with a bachelor's degree or perhaps even less.

Another effective counselor/therapist training program reported in the literature was (and still is) the "microcounseling" program of Ivey (1971) which succeeded in identifying and breaking down those treatment methods which formerly were considered to be complex behaviors into more discrete and identifiable behaviors available for training. Ivey singled out several important interpersonal relating and communication skills: (1) attending behavior, (2) open invitation to talk, (3) minimal encouragement to talk, (4) listening skills, (5) paraphrasing, (6) summarizing and (7) various combinations of these. He considered "attending behavior" as the most important one of these interpersonal skills. Ivey concluded that in order to establish an effective relationship with a client, the counselor/therapist should be aware of, and be responsive to, the communications of the client and should communicate that attentiveness deliberately to the client. This and the other skills were taught through modeling, traditional instruction, by analyzing films of effective and non-effective counseling.
sessions and by other means as well.

Finally, Kagan and his associates (Kagan, 1976; Kagan et al., 1967; Kagan, Krathwohl, & Farquhar, 1965) developed the "interpersonal process recall" (IPR) method of counselor/therapist training which attempted to accelerate, focus, and improve counselor/therapist training by videotaping and subsequently critiquing interview sessions. "It occurred to us that the likelihood of complete reliving of the counseling experience would be increased if as much of the original experience as possible were presented to the subject" (Kagan et al., 1965, p. 1-3).

As soon as a counseling session was completed, the counselor trainee would leave the room and an "interrogator" or "recall worker" would take his/her place. The client and the interrogator would then view and discuss the videotaped session together. The ongoing recall session could be viewed by the counselor trainee through a one-way mirror and could also be videotaped for further use later. This technique was found to be most useful in counselor training supervision:

We used the technique in counselor training supervision because the description a client gives of his feelings is a far more accurate interpretation of the client's reaction to the counselor than the most advanced interpretation of the counselor-supervisor. When the client says, "he missed me there, he didn't understand at all what I'm saying," this has a kind of finality and impact which the supervisor's hypothesized "I don't think you understood him at that point" cannot have. (Kagan et al., 1965, p. 1-10)

The IPR method could be considered a training process for the development and enhancement of empathy. Kagan and his associates
developed the Kagan Affective Sensitivity Scale to measure that
cOMPONENT OF empathy dealing with the interpersonal perception of
another person's affective state (Campbell, 1967, 1971; Danish &
instrument will be presented in the next subsection.

This, then, was a brief review of some of the effective and
still current programs in counselor and therapist training. The
advanced practicum course in agency/school counseling (C-P 628) at
Western Michigan University consists of similar didactic, exper­
iential and supervisory components as the several programs discussed
above. A more detailed description of this practicum will be
presented in Appendix A.

Kagan Affective Sensitivity Scale

There are currently many empathy assessment scales available.
The particular one used depends upon how one defines the nature of
empathy and how it best can be utilized to achieve the sought-after
objectives of one's research and/or training program. Gladstein
(1977) provided an excellent review of the various types of empathy-
measuring scales, their particular strengths and weaknesses, and
their relationship to counseling outcome. Some of these scales,
for example, are: Truax's (1967) Accurate Empathy Scale, Truax's
(1967) Relationship Inventory, Barrett-Lennard's (1962) Relation­
ship Inventory Scales, Carkhuff's (1969) Empathic Understanding
Interaction Scale, Hogan's (1969, 1975) Empathy Scale and, finally,
Kagan et al.'s (1967) Affective Sensitivity Scale. It is this latter scale, the main criterion of this study, which will be used in this study to assess empathy.

The Kagan Affective Sensitivity Scale was developed as part of the project on Studies in Human Interaction—Interpersonal Process Recall conducted by Kagan and his associates (1967) at Michigan State University in East Lansing. This scale was developed to assess a subject's accuracy of perception of affective sensitivity or empathy. Form C of this scale consists of 66 multiple-choice questions based on the viewing of 33 brief videotaped scenes of actual counseling and psychotherapy. The nature of the questions is divided into two types: one type deals with the affective state of the client, and the second type reflects the client's feelings toward the counselor/therapist. The subject's task is to select, from among 3 alternatives for each of the 66 items of the response sheet, the phrase which most accurately reflects the feelings of the particular client being observed. This scale thus provides as close a situation as possible to observing and experiencing an actual ongoing counseling/therapy session in a controlled and standardized manner (Campbell, 1967; Campbell, Kagan, & Krathwohl, 1971; Davish & Kagan, 1971; Kagan et al., 1967).

The test-retest reliability of the instrument was .75 for the items over a 2-week no-treatment period. The internal consistency coefficient ranged from .58 to .77 (Campbell et al., 1971; Danish & Kagan, 1971; Grzegorek & Kagan, n.d.). The scale has fair validity statistics including .35-.65 coefficient of correlation.
with group therapists' ratings of group members (Kurtz & Grummon, 1972). Pretest-posttest mean score change with a 1-week interval was -0.12 (Campbell et al., 1971). This scale was determined as effective in measuring an important therapist skill (empathy) and scale scores increase as a result of training (Kurtz & Grummon, 1972). It has been used in a number of research studies to measure outcomes with pretest-posttest designs (Danish & Kagan, 1971; Greenberg, Bowes, & Kagan, 1970; Kurtz & Grummon, 1972; Sendy, 1970).

**State-Trait Anxiety Inventory**

Anxiety, like empathy, is a very complex concept which has been defined variably depending upon how it is conceptualized. Jacobson (1964) defined anxiety as "excitation of the cerebrospinal as well as the autonomic nervous system when a menace is recognized or imagined and efforts are made to meet or avoid it" (p. viii).

Beck and Rush (1975) made a distinction between anxiety and fear. They noted:

*Fear* is a particular kind of ideation, whereas *anxiety* is an emotion. Fear is an anticipation of "the possibility that something dreaded or unwanted may occur." Anxiety is "an unpleasant emotional state." Fear may be regarded as a predisposition to perceive a specific set of conditions as a threat and to react with anxiety when exposed to those conditions. (p. 74)

Spielberger (1975) conceived of anxiety as a process:

... a complex sequence of cognition, affect, and behavioral events that is evoked by some form of stress. This process may be initiated by stressful external stimulation or by internal cues that are perceived or interpreted as threatening. An anxiety state is at the core of the anxiety process. (p. 137f)
The nature of anxiety, then, appears to have both psychological and physiological components. More specifically, it has various cognitive, emotional and behavioral elements which closely interact with each other. Also, anxiety may be elicited by either an external stimulus and/or an internal one. It has both subjective and objective descriptional components.

Spielberger, Gorsuch, and Lushene (1970) further differentiated the concept of anxiety into two separate but interrelated components. These two components are state anxiety (A-State) and trait anxiety (A-Trait), which represent the two anxiety scales of the State-Trait Anxiety Inventory (STAI). The state anxiety (A-State) is conceptualized as:

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

The trait anxiety (A-Trait) is conceptualized as:

...relatively stable individual differences in anxiety proneness, that is, to differentiate between people in the tendency to respond to situations perceived as threatening with elevations in A-State intensity. (p. 3)

The State-Trait Anxiety Inventory will be used in this study to assess subjects' state and trait anxiety. Each scale has 20 statements. The A-State scale statements ask adult subjects "how they feel at this moment" while the A-Trait scale statements ask them to indicate "how they generally feel." This is a paper-and-pencil type inventory which can easily be self-administered. The STAI A-State and A-Trait scales are printed on opposite sides of a
single test page form and are identified to subjects as a "Self-
Evaluation Questionnaire." The A-State scale is designated as
STAI Form X-1 and the A-Trait is designated as STAI Form X-2
(Spielberger et al., 1970, p. 4). (See Appendix C.)

The STAI has been standardized and has normative data for
large samples of college freshmen students, undergraduate college
students, high school students, male psychiatric patients, general
medical and surgical patients and young prisoners. The test-retest
reliability on male and female undergraduate college students on
the A-Trait scale ranged from .73 to .86, while those of the A-State
scale were relatively low, ranging from .16 to .54. The low test-
retest reliability of the A-State scale was anticipated since a
valid measure of state anxiety should reflect the influence of
various situational factors existing at the time of testing. Alpha
coefficients for the A-State scale ranged from .83 to .92 and
ranged from .86 to .92 on the A-Trait scale. Thus, the two scales
appear to have a high degree of internal consistency. Concurrent
validity of the A-Trait scale is also quite good. The correlation
between the A-Trait scale and the Taylor Manifest Anxiety Scale
(TMAS) was .80; between it and the IPAT Anxiety Scale was .75 and
.52 with the Zuckerman Affect Adjective Checklist. It can be
reasonable to conclude that the three comparison scales can be
considered alternative measures of the A-Trait. The construct
validity of the A-State scale is also quite good. Alpha reliabil-
ities for the A-State scale under stressful and nonstressful
conditions ranged from .83 to .94 for both male and female subjects.
Correlation between the A-State and A-Trait scales will vary depending upon the type and amount of stress present when the A-State scale is administered. Under standard conditions, correlation between the two scales ranged from .44 to .67 for male and female subjects and from .11 to .67 under more stressful experimental conditions (Spielberger et al., 1970, pp. 9-12).

Various research studies have employed the STAI for the assessment of state and trait anxiety. Several studies have investigated the impact of progressive relaxation training upon state and trait anxiety. Effects of progressive relaxation training and the passage of time on several self-report and physiological measures of anxiety were investigated by Johnson and Spielberger (1968). State anxiety measures were systolic blood pressure, heart rate and the Zuckerman Affect Adjective Checklist. All state anxiety measures decreased significantly with just two brief periods of progressive relaxation training held between 6-10 days apart. The trait anxiety measures of the Taylor Manifest Anxiety Scale and the General Form of the Affect Adjective Checklist were impervious to the progressive relaxation training and passage of time. This latter result indicated the stability of trait anxiety as compared to state anxiety and are thus two separate and distinct anxiety constructs.

In a similar study by Stoudenmire (1972), three sessions of progressive relaxation training produced significant state anxiety decreases for introverted subjects but not for extroverted subjects. The progressive relaxation training produced no significant
decreases in any of the three trait anxiety measures. Current research studies with the STAI, as summarized by Spielberger et al. (1970, pp. 15-17), have indicated that the A-Trait scale is highly correlated with other measures of trait anxiety and that the A-State scale is useful in situations that require measurements of state anxiety. The STAI has been effective with normal adolescents, adults, and with various patient populations. The STAI was mainly used in this present study to determine, first of all, whether or not the progressive relaxation training had any effect on the selected subjects and, secondly, to investigate the relationship between changes in anxiety and empathic ability as measured by the Kagan Affective Sensitivity Scale.

Summary

The background of the study cited many theoretical and research studies indicating the importance of the interpersonal perceiving and communication skill of empathy in successful counseling and psychotherapy. An adjunctive method or training procedure enhancing this skill within counselor/therapist training programs would certainly be regarded as advantageous to such training programs.

It was assumed and theorized that a systematic and standardized program in progressive relaxation training would indeed enhance the learning and utilization of empathy. Several related research studies were reported supporting this basic research hypothesis to be investigated in the present study. The theoretical assumptions, importance, limitations, and research hypotheses of this
study were indicated and discussed.

The literature review focused on four main areas pertinent to this study: (1) progressive relaxation training, (2) counselor/therapist and empathy training programs, (3) the Kagan Affective Sensitivity Scale, and (4) the State-Trait Anxiety Inventory. The review noted a paucity of research studies on the exclusive utilization of progressive relaxation training. There were, however, many studies identified which incorporated this relaxation method as part of other treatment approaches. It was also noted that there were great variations in procedural instructions, focus of treatment, and duration of training. No studies were identified comparing or assessing the effect of progressive relaxation training on empathy. Various counselor/therapist training programs were briefly reviewed with a special focus on the development and enhancement of empathy. Several criterion measures were presented with a brief discussion concerning their function in several research studies and their intended function in the present study. Reliability and validity data were indicated.
CHAPTER II

METHODOLOGY

This chapter summarizes the methods and procedures used in collecting and analyzing the data.

Research Design

The design of this study was intended to facilitate reporting measurement of change resulting from the progressive relaxation training (PRT) on the criterion variable, empathy. In order to achieve this objective, a straightforward pre-post design was used with two groups: (1) an experimental group which consisted of the combined effect of PRT and a counseling practicum course and (2) the counseling practicum course by itself which served as the control group. All subjects were randomly assigned to the experimental and control group. The experimental group contained 13 subjects whereas the control group contained 16 subjects.

The experimental group received three weeks of PRT in addition to the 15 weeks of the counseling practicum. The control group received only the practicum experience. Both groups were pre- and post-tested on empathy, state anxiety and trait anxiety. The experimental group received an additional pre- and post-testing of electromyographic (EMG) levels to determine the extent of the progressive relaxation training effect over the three week treatment period. The experimental group received an additional intermediate
post-testing of the original three dependent variables at the termination of the three week treatment period to determine the immediate treatment effect on said variables. Figure 1 presents the research design in schematic form.

Population

Subjects for this study were 29 male and female graduate students (males, N = 11; females, N = 18) with ages ranging from 23 years to 48 years with a median age of 28.3 years who were enrolled in the master's degree program in Counseling and Personnel at Western Michigan University. These subjects comprised the Winter 1979 section of the counseling practicum course (C-P 628). They were randomly assigned from the final registration list one day before the commencement of the Winter semester to the experimental and control groups.

It was assumed as a necessary condition for this research that the subjects' personal characteristics were randomly distributed across both experimental and control groups. It was also assumed that variations in class structure and instructor skill was randomly distributed between experimental and control groups, and thus, would have little significant influence on the study's outcome.

Variables

The dependent variables of this study included the following:

(1) the empathic ability demonstrated by all subjects, as measured by the KASS scores, prior to pre- and post-test administrations;
Group II
Control
1) Empathy
2) State anxiety
3) Trait anxiety
(Pretest)

Group II
Control
1) Empathy
2) State anxiety
3) Trait anxiety
(Post-test)

Counseling Practicum Course (CP 628)
(13 weeks)

Results
1) No significant difference
2) Some difference
3) Significant difference

Use of t-tests

Group I
Experimental
1) Empathy
2) State anxiety
3) Trait anxiety
4) EMG
(Pretest)

Group I
Experimental
1) Empathy
2) State anxiety
3) Trait anxiety
4) EMG
(Post-test #1)

Group I
Experimental
1) Empathy
2) State anxiety
3) Trait anxiety
(Pretest #2)

Counseling Practicum
& PRT
(3 weeks)

Figure 1. Research design
(2) the anxiety levels (state and trait anxiety) in all subjects, as measured with the STAI, prior to pre- and post-test administrations;

(3) the muscle tension, EMG scores, in all subjects of the experimental group only prior to pre- and post-test No. 1 administration.

The independent variables in this study were two different types of training programs:

(1) the combined effect of progressive relaxation training and the counseling practicum course (C-P 628), called the experimental group; and

(2) the counseling practicum course (C-P 628), called the control group.

Treatment Method

Both the experimental and control groups received 13 weeks of the counseling practicum course (C-P 628) between pre- and post-testings during the 1979 Winter Semester. All subjects registered in and attended one of five sections of this practicum. Exact course instruction and methods of operation varied somewhat between each of the instructors for each of the five sections.

The experimental group received an additional treatment effect of three weeks of progressive relaxation training which was held concurrently with the practicum course. Progressive relaxation training was, therefore, the only variable differentiating the treatment procedure of the experimental group from the control group. The progressive relaxation training started 10 days after the 1979 Winter Semester classes started. The training consisted of three formal administrations of progressive relaxation by an
experienced trainer. All but three individuals received these formal training sessions on a group basis. The three individuals who were unable to attend the group sessions received three formal training sessions on an individual basis from this researcher.

Progressive relaxation training sessions were conducted one week apart. In between these three formal training sessions, subjects were instructed to perform daily practice sessions at home for the duration of the three week treatment period. All subjects were encouraged to continue their daily practice sessions beyond the experimental treatment period to ensure maximum benefit from the treatment throughout the remainder of the semester.

Laboratory Procedure

This subsection presents in detail the testing and treatment procedures used in this study. The research time schedule is presented schematically in Figure 2.

The experimental and control groups received pre- and post-testings on empathy, state anxiety, and trait anxiety. Pre-testing was conducted during the first 10 days of the Winter semester whereas post-testing was completed during the 14th week of the semester. All subjects within both experimental and control groups were randomly distributed among the five sections offered of the counseling practicum course (C-P 628). Course instructors and students gave their written consent (see Appendix D) to participate in both pre- and post-testings during class time. Pre- and post-testings were conducted in each of the five class sections which
### Time (in weeks)

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### Control Group

- **Pretest**: KASS
- **No PRT Treatment**: KASS
- **Posttest**: STAI

### Experimental Group

- **Pretest**: KASS
- **PRT #1**: KASS
- **PRT #2**: KASS
- **PRT #3**: KASS
- **Posttest**: STAI

- **Spring Break**: EMG

### Counseling Practicum Course (CP 628) Winter Semester, 1979

- (15 weeks)

---

**Figure 2. Research time schedule**
were being held on different days and times in regular classroom type settings at the University. Standard test instructions were presented to all subjects prior to all test administrations. The State-Trait Anxiety Inventory (STAI) was first administered followed by the Kagan Affective Sensitivity Scale (KASS). Total testing time did not exceed 90 minutes for each of the pre/post-test administrations. The experimental group received an additional intermediate post-testing on the same three dependent variables at the completion of the three week treatment period to determine the immediate treatment effect on these variables.

The experimental group was also pre- and post-tested on muscle tension using an electromyographic (EMG) instrument. This separate evaluation for experimental group subjects was conducted in order to determine the effect of the progressive relaxation training on levels of muscle tension over the three week treatment period. The EMG evaluation provided objective and reliable physiological data needed to ensure that the treatment had in fact taken effect as hypothesized. The control group was not so tested since it did not receive the treatment and would not, therefore, be expected to change significantly in degree of muscle tension over the same time period. All experimental subjects were pre-tested during the first 10 days of the semester and post-tested upon termination of the three week treatment period.

The EMG pre- and post-testings were conducted by this investigator in a small office room reserved for that purpose at the University. Subjects were given individual appointments lasting
approximately 45 minutes for each of the two testing sessions. Subjects were accompanied to the testing office and were asked to lie on a comfortable couch located in the room. Temperature within the room was maintained at a comfortable level. Indirect lighting was provided by a desk lamp with a 40 watt soft light bulb.

Prior to each testing session, subjects were oriented to the function of the EMG feedback equipment while the electrodes were being attached to their foreheads. Any specific questions asked by subjects regarding the equipment and the testing session were answered at that time. Subjects were instructed to relax as much as possible without going asleep using any method ordinarily used by them. The EMG scores (muscle tension levels) were recorded every 30 seconds for 35 minutes. The first five minutes were a habituation period used by subjects to adapt to the electrodes and the testing situation. Results for that time period were not included in the study.

Procedures for the progressive relaxation training were as follows: The treatment program consisted of three formal training sessions held one week apart at the University and 21 daily home practice sessions. Subjects were instructed to record their personal reactions to each training session in a journal issued to them. This journal provided an extra incentive to ensure compliance to the treatment program as well as offer important information to this investigator concerning their progress and experiences.

The formal progressive relaxation training sessions were conducted by an experienced trainer on a group basis in a large and
comfortable faculty lounge room reserved at the University. The room had wall to wall carpeting, soft lighting, and various comfortable reclining lounge chairs. At the beginning of the first training session, subjects were instructed by this investigator concerning the purpose of the treatment program and method of implementation. A written form detailing this information was issued to each subject at this time (see Appendix E). All subjects gave their written consent to participate in this treatment program (see Appendix D). The exact procedure and sequence of the progressive relaxation training was reviewed at this time by the investigator (see Appendix B). Any questions concerning any part of the treatment program were answered at this time. The facilitation of the actual training was then turned over to the designated trainer.

Subjects were instructed to either sit comfortably on the lounge chairs or lie prone on the floor on their backs using pillows for headrests. Lights in the room were turned off with the exception of one soft table lamp. Subjects were requested to sit or lie as comfortably as possible, to close their eyes, to stop all talking, and to listen carefully to the relaxation instructions of the trainer. Subjects were encouraged not to fall asleep. The actual training for each of the three sessions was completed between 25-35 minutes. After each training session, the trainer processed subjects' individual reactions to the training experience and answered any questions at that time. Similar discussions were held at the beginning of the last two training sessions to process the daily homework experiences. Total training
and discussion time averaged approximately one hour per session.

All but three of the experimental group subjects attended these three group training sessions. The three members who were unable to attend the group sessions received the same three formal training sessions on an individual basis from the investigator. These training sessions followed the exact same format used for the group sessions with the exception of a different location. The training was conducted in the same room used for the EMG feedback evaluations.

After the three week treatment period, subjects were encouraged to continue their daily progressive relaxation training sessions at home and in stressful situations such as the counseling practicum course. Subjects were requested to record in their journals on a weekly basis the number of times they practiced progressive relaxation for the remainder of the semester. The journals were returned to the investigator at the end of the semester.

Test Instruments

This subsection describes in greater detail the testing instruments used in this study. The Kagan Affective Sensitivity Scale (KASS) is a videotape composed of 33 scenes of actual client-counselor sessions. Subjects viewed this 45-minutes tape and answered 66 multiple choice statements concerning the observed counseling sessions. There were one to three separate statements per individual scene. Statements were given for subjects to identify the correct choice among a given three, the accurate feelings of the client, and the feelings of the client toward the counselor at
termination of each video scene.

The State-Trait Anxiety Inventory is composed of two separate self-report scales used to measure two distinct anxiety concepts: (1) state anxiety (A-State), and (2) trait anxiety (A-Trait). The STAI A-State scale consists of 20 statements which ask adults how they feel at this particular moment. The STAI A-Trait scale consists also of 20 statements which ask adults how they feel generally. The STAI A-State and A-Trait scales are printed on opposite sides of a single page test form and are identified to subjects as a "Self-Evaluation Questionnaire." The A-State is designated as Form X-1 and the A-Trait is designated as Form X-2 (see Appendix C).

The internally connected M55/LGS-150 EMG feedback score-keeping system, manufactured by T & T Enterprise, Roluske, Washington, was utilized to detect and monitor EMG activity (muscle tension) during pre- and post-testing sessions. Data from the pre- and post-testings were accumulated by the LGS-150 over 30 minute segments of time and were automatically averaged and displayed in digital form on a 3.5-inch display, accurate to two decimal places (Hampstead, 1976).

Differential surface EMG recordings (muscle tension) were obtained from three silver/silver chloride electrodes provided with the equipment. The two active electrodes were placed approximately one inch above and centered over the eye. The ground electrodes were placed equidistant from either active electrode and centered on the middle of the forehead. All electrodes were held in place.
by individual adhesive discs. Frontalis muscle skin sites were prepared by wiping of the area with a pad soaked in a 70% alcohol solution, gently wiping the area with an abrasive pad, and recleaning it with a new alcohol pad. Redux paste was used as an electrode interface. After positioning, reference to active electrode resistance was checked on each preparation and was maintained between 3K and 5K ohms (Hampstead, 1977).

Statistical Analyses

It was determined from the results of pre- and post-test comparisons of scores, derived from the Kagan Affective Sensitivity Scale (KASS) for the two sample research groups, whether the experimental group did or did not increase significantly their empathic ability through induction of a relaxed state from training in progressive relaxation.

The null hypotheses tested were noted in Chapter I. They are restated here as follows:

1. Subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant reductions in muscular tension between pre- and post-testings.

2. Subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant increases in empathic ability over time and treatment than subjects receiving only practicum training.

3. Subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant decreases in state anxiety over time and treatment than subjects receiving only practicum training.

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4. Subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant decreases in trait anxiety over time and treatment than subjects receiving only practicum training.

EMG frontalis readings were recorded for each experimental subject during pre- and post-testings. Individual and group means were computed for each testing session. The Correlated Sample $t$ test was used to determine significant differences between testings (Glass & Stanley, 1970).

Experimental and control group means were computed on all pre- and post-testings of the KASS and STAI. Exact $t$ tests were used to determine significant differences, if any, within and between the two groups. The Bartlett's Test Statistic was used to determine homogeneity of variance between experimental and control groups on all pre- post-testing sessions. When group variances were found not to be homogeneous, Approximate $t$ tests were used instead of the Exact $t$ tests (Winer, 1971).

The directional, one-tailed test with a .05 level of significance was chosen for all statistical analyses to determine the acceptance or rejection of all null hypotheses investigated in this study. The one-tailed test was chosen to increase the power of the hypothesis testing and to avoid committing a type II error; i.e., the error of accepting a false null hypothesis when, in fact, the research hypothesis is true (Glass & Stanley, 1970).

Summary

Chapter II presented the method and procedures used in this...
research study. It included information on research design, population, variables, treatment method, laboratory procedures, test instruments, and statistical analyses. The results of the statistical analyses will be presented in Chapter III.
CHAPTER III

RESULTS

In this chapter, results of testing the null hypotheses as well as data on measures of empathy and anxiety are presented for both experimental and control groups. In addition, outcome data on frontalis electromyograph (EMG) measures are presented for the experimental group.

Electromyograph Measurement

The planned treatment effect, progressive relaxation training, consisted of 3 formal training sessions conducted at the University and 21 self-administered daily practice sessions for an anticipated treatment effect of 24 sessions. All experimental group members completed the 3 formal training sessions, but averaged only 17 daily practice sessions instead of the 21 scheduled sessions as anticipated. A reduction of four practice sessions from the prescribed treatment effect appeared in the self-administered portion of the program. Self-reports from experimental group members indicated they averaged one practice session per week for the remainder of the semester.

Raw scores and mean scores for the experimental group on pre- and post-testing of muscle tension levels (EMG) are presented in Table A of Appendix F. No EMG testing was completed on the control group. The pretest group mean was 2.559 and the post-test group
mean was 1.967, indicating a decrease of .592 EMG microvolt units between pre- and post-testing sessions.

As is evidenced in Table 1, there was a significant difference between pre- and post-test means for the experimental group on EMG at the .05 level, using a one-tailed test. Null hypothesis 1 (subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant reductions in muscular tension between pre- and post-testings) was rejected. Thus, it was concluded that the treatment effect desired, i.e., ability to relax muscles, was learned by the experimental group.

Table 1

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
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<th>SD</th>
<th>df</th>
<th>t</th>
</tr>
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<td>Pretest</td>
<td>13</td>
<td>2.559</td>
<td>.995</td>
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<td>-2.145*</td>
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<td>Post-test</td>
<td>13</td>
<td>1.967</td>
<td>.995</td>
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<td></td>
</tr>
</tbody>
</table>

*p < .05.

Empathy

The experimental and control group pretest mean scores on the Kagan Affective Sensitivity Scale (KASS) were 38 and 42, respectively. Since the Bartlett test for homogeneity of variance was not significant at the .05 level, an Exact t test to determine
pretest mean differences between the experimental and control groups on the KASS was used as shown in Table 2.

Table 2

<table>
<thead>
<tr>
<th>Source</th>
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<th>df</th>
<th>t</th>
<th>p</th>
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<tbody>
<tr>
<td>Experimental</td>
<td>13</td>
<td>38.00</td>
<td>6.298</td>
<td>27</td>
<td>-1.925</td>
<td>.033*</td>
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<tr>
<td>Control</td>
<td>16</td>
<td>42.00</td>
<td>4.899</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bartlett's test statistic = .818.
df = 1.
p = .183**
*p < .05.
**p > .05.

The Exact t test was significant at the .05 level. Raw scores and mean scores for both experimental and control groups on pre- and post-testings of the KASS are presented in Table B of Appendix F. It was concluded that pretest differences on empathy as measured by the KASS were significant and, thus, the control group had an experimental advantage over the experimental group with a greater pretest score on empathy.

Experimental group means on the pretest and post-test #1 (intermediate post-test) on the KASS were 38.00 and 40.923, respectively. Inspection of data in Table 3 reveals that there was a difference between pretest and post-test #1 means for the
experimental group on the KASS at the .05 level of significance using the Correlated Sample \( t \) test. Therefore, over time and treatment, the experimental group significantly increased empathic ability as measured by the KASS scores.

Table 3

<table>
<thead>
<tr>
<th>Source</th>
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<th>SD</th>
<th>df</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>13</td>
<td>38.000</td>
<td>4.991</td>
<td>12</td>
<td>2.112*</td>
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<tr>
<td>Post-test #1</td>
<td>13</td>
<td>40.923</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

*\( p < .05 \).

Experimental group means on post-tests #1 and #2 were 40.923 and 43.384, respectively. As evidenced in Table 4, there is no significant difference between post-tests #1 and #2 means on the KASS at the .05 level using the Correlated \( t \) test. Therefore, the experimental group did not significantly increase empathic ability between post tests #1 and #2 as measured by the KASS scores.

As is indicated in Table 5, the experimental and control group post-test mean scores on the KASS were 43.385 and 43.938, respectively. The Bartlett test for homogeneity of variance was not significant at the .05 level. An Exact \( t \) test was used to determine post-test mean differences between the experimental and control groups on the KASS, and it was also not significant at the .05 level.
Table 4
Means, Standard Deviation, and Correlated t Test for Experimental Group Between Post-Tests #1 and #2 on Kagan Affective Sensitivity Scale

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-test #1</td>
<td>13</td>
<td>40.923</td>
<td>4.991</td>
<td>12</td>
<td>1.551*</td>
</tr>
<tr>
<td>Post-test #2</td>
<td>13</td>
<td>43.384</td>
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<td></td>
</tr>
</tbody>
</table>

*p > .05.

Therefore, it was concluded that no significant differences in empathic ability were apparent at the termination of the experiment as measured by the KASS scores.

Table 5
Means, Standard Deviations, Bartlett's Test Statistic, and Exact t Test for Experimental and Control Groups Between Post-Testings on Kagan Affective Sensitivity Scale

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>13</td>
<td>43.385</td>
<td>6.239</td>
<td>27</td>
<td>-0.233</td>
<td>.41*</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>43.938</td>
<td>6.444</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bartlett's test statistic = .013.
df = 1.
p = .454*

*p > .05.
The Bartlett test for homogeneity of variance between pre- and post-testing on the KASS for experimental and control groups was significant at the .05 level. For this reason, the Approximate $t$ test was used to measure the pre- and post-test mean differences between the experimental and control groups on the KASS. Results of the Approximate $t$ test indicate that there is no significant difference at the .05 level between the two groups between pre- and post-testings on the KASS (see Table 6). Therefore, the null hypothesis 2 was accepted that subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant increases in empathic ability over time and treatment than subjects receiving only practicum training.

**Table 6**

Means, Standard Deviations, Bartlett's Test Statistic, and Approximate $t$ Test for Experimental and Control Groups Between Pre- and Post-Testings on Kagan Affective Sensitivity Scale

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>13</td>
<td>5.385</td>
<td>6.995</td>
<td></td>
<td>1.613</td>
<td>.063*</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>1.938</td>
<td>3.586</td>
<td>17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bartlett's test statistic = 5.605.

$df = 1$.

$p = .009^{**}$

* $p > .05$.

** $p < .05$.

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Anxiety

The State-Trait Anxiety Inventory (STAI) was used to assess subjects' self-reported state anxiety (A-State) and trait anxiety (A-Trait); Forms X-1 and X-2 on the STAI were used (see Appendix C). Results obtained for state anxiety will be discussed first, followed by results obtained for trait anxiety. Raw scores and mean scores for the experimental and control groups for pre- and post-testings on A-State and A-Trait are presented in Tables C and D of Appendix F.

State Anxiety

The experimental and control group pretest mean scores on A-State were 32.769 and 33.938, respectively. The Bartlett test for homogeneity of variance was not significant at the .05 level. The Exact $t$ test was used to determine pretest mean differences between the experimental and control groups on A-State. The Exact $t$ test was not significant at the .05 level (see Table 7). A non-significant $t$ between experimental and control group means prior to treatment was interpreted as neither group having a pre-treatment advantage in state anxiety.

The experimental group mean scores on the pretest and post-test #1 (intermediate post-test) on A-State were 32.769 and 30.846, respectively. Inspection of the data presented in Table 8 reveals that there is no significant difference between pre- and post-test #1 means for the experimental group on A-State at the .05 level.
Table 7

Means, Standard Deviations, Bartlett's Test Statistic, and Exact t Test for Pretest Mean Differences Between Experimental and Control Groups on State Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
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<th>df</th>
<th>t</th>
<th>p</th>
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<tr>
<td>Experimental</td>
<td>13</td>
<td>32.769</td>
<td>6.845</td>
<td>27</td>
<td>-0.408</td>
<td>.343*</td>
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<tr>
<td>Control</td>
<td>16</td>
<td>33.938</td>
<td>8.258</td>
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</tr>
</tbody>
</table>

Bartlett's test statistic = .444.
df = 1.
p = .253*
*p > .05.

using the Correlated Sample t test. Therefore, over time and treatment, the experimental group did not significantly decrease in state anxiety as measured by the A-State scores.

Table 8

Means, Standard Deviation, and Correlated t Test for Experimental Group Between Pretest and Post-Test #1 on State Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t</th>
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</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>13</td>
<td>32.769</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-test #1</td>
<td>13</td>
<td>30.846</td>
<td>11.722</td>
<td>12</td>
<td>-0.592*</td>
</tr>
</tbody>
</table>

*p > .05.
The experimental group means on post-tests #1 and #2 were 30.846 and 31.000, respectively. As is indicated in Table 9, there was no significant difference between post-test #1 and #2 means for the experimental group on A-State at the .05 level, using the Correlated Sample \( t \) test. Therefore, over time and treatment, the experimental group did not significantly decrease in state anxiety as measured by the A-State scores.

Table 9

Means, Standard Deviation, and Correlated \( t \) Test for Experimental Group Between Post-Tests #1 and #2 on State Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-test #1</td>
<td>13</td>
<td>30.846</td>
<td>9.625</td>
<td>12</td>
<td>.057*</td>
</tr>
<tr>
<td>Post-test #2</td>
<td>13</td>
<td>31.000</td>
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</table>

*\( p > .05 \). The experimental and control group post-test mean scores on A-State were 31.000 and 36.000, respectively. Since the Bartlett test for homogeneity of variance was significant at the .05 level, the Approximate \( t \) test was used to determine post-test mean differences between the experimental and control groups on A-State. The Approximate \( t \) test was not significant at the .05 level (see Table 10). Therefore, it was concluded that no significant differences in state anxiety were apparent at the termination of the experiment as measured by A-State scores.
Table 10
Means, Standard Deviations, Bartlett's Test Statistic, and Approximate t Test for Experimental and Control Groups Between Post-Testings on State Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
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<th>SD</th>
<th>df</th>
<th>t</th>
<th>p</th>
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<tbody>
<tr>
<td>Experimental</td>
<td>13</td>
<td>31.000</td>
<td>3.536</td>
<td>18</td>
<td>-1.556</td>
<td>.069*</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>36.000</td>
<td>12.242</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bartlett's test statistic = 15.113.

df = 1.

p = .000**

*p > .05.

**p < .05.

As evidenced in Table 11, the Bartlett test for homogeneity of variance between pre- and post-testing on A-State between the experimental and control groups was significant at the .05 level. For this reason, the Approximate t test was used to measure the pre- and post-test mean change score differences between the experimental and control groups on A-State. The results of the Approximate t test indicated that there was no significant difference at the .05 level between the two groups for mean change between pre- and post-testings on A-State. Therefore, the null hypothesis 3 was accepted that subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant decreases in state anxiety over time and treatment than subjects receiving only practicum training.
Table 11

Means, Standard Deviations, Bartlett's Test Statistic, and Approximate t Test for Experimental and Control Groups Between Pre- and Post-Testings on State Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
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<tr>
<td>Experimental</td>
<td>13</td>
<td>-1.769</td>
<td>7.507</td>
<td>23</td>
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<tr>
<td>Control</td>
<td>16</td>
<td>2.063</td>
<td>14.116</td>
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</tbody>
</table>

Bartlett's test statistic = 4.618.
df = 1.
P = .016**
*p > .05.
**p < .05.

Trait Anxiety

The experimental and control group pretest mean scores on A-Trait were 34.769 and 31.813, respectively. The Bartlett's test for homogeneity of variance was not significant at the .05 level. The Exact t test was used to determine pretest mean differences between experimental and control groups on A-Trait. The Exact t test was also not significant at the .05 level (see Table 12). A non-significant t between experimental and control group means prior to treatment was interpreted as neither group having a pre-treatment advantage in trait anxiety.
Table 12
Means, Standard Deviations, Bartlett's Test Statistic, and Exact t Test for Pretest Mean Differences Between Experimental and Control Groups on Trait Anxiety

<table>
<thead>
<tr>
<th>Source</th>
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<th>P</th>
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<tbody>
<tr>
<td>Experimental</td>
<td>13</td>
<td>34.769</td>
<td>4.475</td>
<td>27</td>
<td>1.357</td>
<td>.093*</td>
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<tr>
<td>Control</td>
<td>16</td>
<td>31.813</td>
<td>6.725</td>
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Bartlett's test statistic = 2.017.

df = 1.
P = .078*

*P > .05.

The experimental group mean scores on the pretest and post-test #1 (intermediate post-test) on A-Trait were 34.769 and 33.154, respectively. As is indicated in Table 13, there is no significant difference between pretest and post-test #1 mean scores for the experimental group on A-Trait at the .05 level using the Correlated Sample t test. Therefore, over time and treatment, the experimental group did not significantly decrease in trait anxiety as measured by the A-Trait scores.

The experimental group mean scores on post-tests #1 and #2 were 33.154 and 31.538, respectively. As is indicated in Table 14 there was no significant difference between post-test #1 and post-test #2 means for the experimental group on A-Trait at the .05 level, using the Correlated Sample t test. Therefore, over time and treatment,
Table 13
Means, Standard Deviation, and Correlated $t$ Test for Experimental Group Mean Differences Between Pretest and Post-Test #1 on Trait Anxiety

<table>
<thead>
<tr>
<th>Source</th>
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<tbody>
<tr>
<td>Pretest</td>
<td>13</td>
<td>34.769</td>
<td>4.840</td>
<td>12</td>
<td>-1.203*</td>
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<td>Post-test #1</td>
<td>13</td>
<td>33.154</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*$p > .05$.

The experimental group did not significantly decrease in trait anxiety as measured by the A-Trait scores.

Table 14
Means, Standard Deviation, and Correlated $t$ Test for Experimental Group Mean Differences Between Post-Tests #1 and #2 on Trait Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-test #1</td>
<td>13</td>
<td>33.154</td>
<td>5.810</td>
<td>12</td>
<td>-1.002*</td>
</tr>
<tr>
<td>Post-test #2</td>
<td>13</td>
<td>31.538</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*$p > .05$.

The experimental and control group post-test mean scores on A-Trait were 31.538 and 32.375, respectively. Since the Bartlett's test for homogeneity of variance was significant at the .05 level, the Approximate $t$ test was used to determine post-test mean...
differences between experimental and control groups on A-Trait. The Approximate \( t \) test was not significant at the .05 level (see Table 15). Thus, it was concluded that no significant differences in trait anxiety were apparent at the termination of the experiment as measured by A-Trait scores.

Table 15

Means, Standard Deviations, Bartlett's Test Statistic, and Approximate \( t \) Test for Experimental and Control Groups Between Post-Testings on Trait Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>( t )</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>13</td>
<td>31.538</td>
<td>4.196</td>
<td>20</td>
<td>-0.289</td>
<td>.338*</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>32.375</td>
<td>10.582</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bartlett's test statistic = 9.186.

df = 1.
p = .001**

*\( p > .05 \).

**\( p < .05 \).

Inspection of the data in Table 16 indicates that the Bartlett's test for homogeneity of variance between pre- and post-testing on A-Trait between the experimental and control groups was not significant at the .05 level. Therefore, the Exact \( t \) test was used to determine the pre- and post-test mean change score difference between the experimental and control groups on A-Trait.
Table 16

Means, Standard Deviations, Bartlett's Test Statistic, and Exact t Test to Determine Experimental and Control Group Mean Change Score Differences Between Pre- and Post-Testings on Trait Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>13</td>
<td>-3.231</td>
<td>4.304</td>
<td>27</td>
<td>-1.821</td>
<td>.040*</td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>.563</td>
<td>6.418</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bartlett's test statistic = 1.944.

df = 1.

p = .082**

*p < .05.

**p > .05.

The results of the Exact t test indicated that there was a significant difference at the .05 level between the two groups for mean score change between pre- and post-testings on A-Trait. Thus, the null hypothesis 4 was rejected that subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant decreases in trait anxiety over time and treatment than subjects receiving only practicum training.

Qualitative Data

All experimental group subjects enjoyed learning and being trained in the technique of progressive relaxation. Of the 13
subjects, 10 experienced some subjective decrease in bodily and mental tension and anxiety during the 3-week treatment period. Two subjects experienced no overall changes, while one experienced an actual increase in tension and anxiety due to several stress-producing events which occurred in his life at that time.

All subjects found it easier to relax when the progressive relaxation training sessions were conducted by the designated trainer rather than by themselves. They agreed unanimously that giving oneself the mental relaxation instructions during their daily home practice sessions often interfered with their ability to yield passively and fully to the relaxation-inducing exercises, thoughts, images, and sensations, thereby preventing a deeper state of relaxation to be experienced.

In order to standardize the treatment for all experimental subjects, no audio-/video-taped sessions of progressive relaxation training used by this investigator or someone else were permitted during the 3-week treatment period. However, all subjects were encouraged to utilize any taped versions of the progressive relaxation instructions after completion of treatment for the remainder of the semester. Three subjects utilized several such taped training sessions. All subjects at times experienced personal resistance to completing the required daily home practice sessions and found it difficult to fully relax during such occasions.
Summary

Chapter III presented the results of the research conducted and the statistical interpretations thereof. All independent, control, and dependent variables were examined in this chapter. Frontalis muscle tension was found to decline significantly after the 3-week treatment period of training in progressive relaxation for experimental subjects, as indicated by the Correlated $t$ test using a one-tailed test. Thus, the first null hypothesis was rejected.

The empathic ability did increase significantly for experimental subjects over the 3-week treatment period between the pretest and post-test #1 (intermediate post-test), but not between post-test #1 and post-test #2 for the remaining part of the semester, as indicated by the Correlated $t$ test using a one-tailed test. Neither the experimental nor control group showed a significant increase in empathic ability between pre- and final post-testing sessions, as indicated by the Approximate $t$ test, thereby requiring acceptance of the second null hypothesis.

State anxiety (A-State) did not significantly decrease, during the treatment phase nor thereafter, for either the experimental or control group as indicated by both the Correlated $t$ test and Approximate $t$ test, thereby requiring acceptance of the third null hypothesis.

Trait anxiety (A-Trait) did not decrease significantly for the experimental group between the pretest and post-test #1 (intermediate
post-test) nor between post-test #1 and post-test #2, as determined by the Correlated $t$ test. However, the experimental group did indicate a significant decrease in trait anxiety over time and treatment between pre- and final post-testing sessions, as compared to the control group indicated by the Exact $t$ test using a one-tailed test, thereby requiring rejection of the fourth null hypothesis.

The majority of the experimental subjects experienced, subjectively, a decrease in physical and mental tension and anxiety during the 3-week treatment period and at completion of training in progressive relaxation. They all experienced a deeper level of relaxation when the instructions were administered by the designated trainer rather than being self-administered.
CHAPTER IV

DISCUSSION

This chapter briefly summarizes the entire research study. The finding in Chapter III are also discussed with respect to their limitations and the conclusions drawn; recommendations for further research are offered.

Summary

An analysis of the current available literature yielded many theoretical and research studies indicating the importance of empathy in successful counseling and psychotherapy. Therefore, the analysis suggested that an adjunctive method or training procedure enhancing the learning and use of empathy within counselor/therapist training programs would be regarded as advantageous to such training programs.

It was assumed and theorized that a systematic and standardized program in progressive relaxation training would indeed enhance the learning and use of empathy within counselor/therapist trainees. Progressive relaxation training is a systematic method of alternately tensing and releasing various muscle groups throughout the body and learning to attend to and discriminate between the resulting sensations of tension and relaxation. With adequate practice, a person may almost completely eliminate muscle contractions and associated mental anxiety, and thereby experience a feeling of
deep relaxation. Along with muscular-tension and mental-anxiety reductions, a person consistently practicing progressive relaxation may develop greater focusing and concentration skills and become highly more sensitive to internal bodily sensations and feelings. These important beneficial results of training in progressive relaxation were assumed to be essential to effective interpersonal perception and communication, that is, empathy. Several related research studies were cited supporting the assumptions made in the present study.

A review of the literature noted a paucity of research studies on the exclusive use of progressive relaxation training. There were, however, many studies noted which incorporated this particular relaxation method as part of other treatment approaches. It was also noted that there were great variations in procedural instructions, focus of treatment, and duration of training. No studies were identified comparing or assessing the effect of progressive relaxation training upon empathy, the major focus of the present study. Various counselor/therapist training programs were briefly reviewed with special attention to the development and enhancement of empathy. It was concluded that a research study investigating the effect of a systematic program in progressive relaxation training upon empathy would make a worthy contribution to the research and practice of empathy training within counselor/therapist training programs.

A straightforward pre-post-test design was used to assess the effect of progressive relaxation training upon empathy and upon self-reported state and trait anxiety. Twenty-nine master's degree
candidates of the Counseling and Personnel Department at Western Michigan University enrolled in a counseling practicum (C-P 628) were randomly assigned to either an experimental or a control group during the Winter semester of 1979.

All subjects were pre- and post-tested on empathy, state anxiety, and trait anxiety, using the Kagan Affective Sensitivity Scale (KASS) and the State-Trait Anxiety Inventory (STAI), respectively. The experimental group received an additional intermediate post-test on these same measures upon completion of the treatment period. Additionally, the experimental group received pre- and post-electromyographic (EMG) measurements to determine the effect of progressive relaxation training upon the body.

The treatment phase consisted of three weeks of training in progressive relaxation at the beginning of the semester. All subjects received three formal training sessions conducted by a trainer skilled in teaching progressive relaxation. Additionally, subjects were asked to perform daily home practice sessions for three weeks. The treatment of progressive relaxation was the only independent variable which distinguished the experimental group from the control group.

The results of this research study, as reported in Chapter III, were interpreted by several statistical manipulations including the Bartlett's Test Statistic to determine homogeneity of variance within and between groups, and the Correlated, Exact, and Approximate t tests to determine mean score differences and changes within
and between groups. The level of statistical significance was selected at the .05 level for one-tailed tests.

Frontalis muscle tension was found to decline significantly for experimental group subjects after the 3-week treatment period of training in progressive relaxation as indicated by the Correlated $t$ test. The major research hypothesis stated in null form and the major focus of the study—that subjects exposed to the combined treatment effect of progressive relaxation training and the counseling practicum do not demonstrate significant increases in empathic ability over time and treatment than subjects receiving only the practicum training—was accepted as indicated by the Approximate $t$ test.

State anxiety (A-State) did not significantly decrease, during the treatment phase nor thereafter, for either the experimental or control group as indicated by both the Correlated $t$ test and Approximate $t$ test, thereby requiring acceptance of the third null hypothesis.

Trait anxiety (A-Trait) did not decrease significantly for the experimental group between the pretest and post-test #1 (intermediate post-test) nor between post-test #1 and post-test #2, as determined by the Correlated $t$ test. However, the experimental group did indicate a significant decrease in trait anxiety over time and treatment between pre- and final post-testing sessions, as compared to the control group indicated by the Exact $t$ test using a one-tailed test, thereby requiring rejection of the fourth null hypothesis.
The majority of the experimental subjects experienced, subjectively, a decrease in physical and mental tension and anxiety during the 3-week treatment period and at completion of training in progressive relaxation. They all experienced a deeper level of relaxation when the instructions were administered by the designated trainer rather than being self-administered.

Limitations

A number of limitations in the present study have been noted, including the following:

(1) Since the control group received just two testings (pre- and post-) on empathy, state anxiety, and trait anxiety as compared to three testings for the experimental group (pre-, post- #1, and post- #2), the experimental group therefore had more exposure to the testing instruments than did the control group. A valid question may be raised here concerning whether or not an extra exposure to the test materials had any favorable effect upon the outcome for the experimental group in the direction of the research hypotheses.

(2) There was too much unanticipated variability in subjects' responses within both experimental and control groups. This lack of homogeneity of variance therefore diminished possible treatment effects within and between the two groups.

(3) Many of the research participants in the study (15 of 29) had prior exposure (2-3 times) to the KASS, which may have caused a decrease in motivation and an increase in resistance to taking this test, as subjectively observed by the investigator. This may
be another reason contributing to the lack of homogeneity of variance.

(4) Subjects within the experimental group averaged only one practice session of progressive relaxation training per week for the remainder of the semester after the completion of the treatment period. This amount of training may not be sufficient enough to maintain a high level of consistent, positive effects of training in progressive relaxation gained during the 3-week treatment period.

(5) The major limitation of this study appeared to be the deep level of relaxation already exhibited by experimental subjects at the time of pretesting as assessed by EMG measurement. The experimental group mean on the EMG during pretesting was 2.559 microvolts. According to the literature, this level of muscle tension indicates an already fairly deep state of relaxation, improvement upon which would therefore be quite minimal. Since subjects were randomly assigned to either the control or experimental group, it may be assumed that subjects within the control group had the same ability to relax as those within the experimental group. Therefore, even though the treatment variable of progressive relaxation training had some effect upon muscle tension reduction within the experimental group (post-test EMG = 1.967 microvolts), the overall effect was a minimal reduction of .592 EMG-microvolt units. This finding leads the investigator to the realization that the selected research subjects used in this study were perhaps atypical of the normal population who, without any type of relaxation training, would average between 3-8 EMG-microvolt units at the time of baseline.

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testing (Basmajian, 1979; Blanchard & Young, 1975; Budzynski, Stoyva, & Adler, 1970; Gaarder & Montgomery, 1977; Green et al., 1969; Sullivan, 1978). This may be another reason for the lack of homogeneity of variance within and between the two groups.

Conclusions

On the basis of the results presented in Chapter III, and taking into account the limitations discussed above, a number of conclusions may now be drawn.

A significant reduction in EMG measures of frontalis muscle tension was observed for the experimental group as indicated by the Correlated t test using a one-tailed test. Despite the lack of a comparative measure for the control group, it is easier to argue, as supported by the literature, that the significant decrease of muscle tension was due to the 3-week treatment period of progressive relaxation training rather than to chance or to contamination by some other influence such as the counseling practicum. Thus, null hypothesis 1 (subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant reductions in muscular tension between pre- and post-testing) is rejected, and it is assumed that training in progressive relaxation can be taught to subjects with a minimal amount of effort and time.

Empathic ability did increase significantly for the experimental group over time and treatment between pretest and post-test #1 (intermediate post-test) as indicated by the Correlated t test.
There was no significant increase in empathy for the remainder of the semester between post-test #1 and post-test #2. Since there was no comparative measure for the control group between the pretest and post-test #1, it cannot be assumed necessarily that the experimental group gained significantly in empathic ability due to training in progressive relaxation. This change may instead be due to exposure to the counseling practicum since this independent variable was not controlled for in the research design between the pre- and post-test #1 time period.

Neither the experimental nor control group showed a significant increase in empathic ability between the pretest and final post-test at the end of the semester as indicated by the Approximate $t$ test. Therefore, null hypothesis 2 (subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant increases in empathic ability over time and treatment than subjects receiving only practicum training) is accepted. Although the experimental group made a greater mean score change increase on KASS (38.000 → 43.385) between testing sessions than the control group (42.000 → 43.938), thereby indicating possible directionality, this change was not significant.

The experimental group did not significantly decrease in state anxiety (A-State) during the treatment period as indicated by the Correlated $t$ test. Neither the experimental nor control group showed any significant decrease in state anxiety between
the pretest and final post-test as indicated by the Approximate \( t \) test. Thus, null hypothesis 3 (subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant decreases in state anxiety over time and treatment than subjects receiving only practicum training) is accepted.

Since state anxiety is a very transitory emotional state (analogous to pulse rate) which may vary in its intensity and fluctuate over time and circumstance, the lack of a significant decrease in state anxiety confirmed similar findings reported in the literature (Spielberger, 1966, 1975; Spielberger & Gorsuch, 1970). In addition, Bartlett's Test Statistic indicated lack of homogeneity of variance within and between the two groups, thereby further contaminating any directionality observed in the experimental group as compared to the control group.

The experimental group did not indicate any significant decrease in trait anxiety (A-Trait) between the pretest and post-test #1, nor between post-test #1 and post-test #2 as determined by the Correlated \( t \) test. However, the experimental group did show a significant decrease in trait anxiety over time and treatment between the pretest and final post-test as compared to the control group, as indicated by the Exact \( t \) test using a one-tailed test. Thus, null hypothesis 4 (subjects exposed to the combined treatment effect of progressive relaxation training and the practicum do not demonstrate significant
decreases in trait anxiety over time and treatment than subjects receiving only practicum training) is rejected.

This is a very significant finding since trait anxiety, a personality characteristic, is a relatively more stable measure of anxiety (analogous to blood pressure) than state anxiety and would therefore not be expected to vary much over time unless it was affected by a significant treatment variable (Spielberger, 1966, 1975; Spielberger & Gorsuch, 1970). Therefore, it may safely be assumed that the 3-week treatment period of progressive relaxation training and weekly sessions thereafter for the remainder of the semester did have a significant long-term effect upon the experimental group's trait anxiety as compared to the control group which did not receive such treatment.

The counseling practicum training by itself, as indicated by the control group's results, did not have a significant effect upon empathy, state anxiety, nor trait anxiety. This result is not surprising since the practicum is quite global in its content and training and was not organized to focus specifically on the study's dependent variables of empathy, state anxiety, and trait anxiety.

The majority of experimental subjects (10 of 13) subjectively reported a decrease in physical tension and mental anxiety during, and at completion of, the 3-week treatment period of training in progressive relaxation. They all experienced a deeper state of
relaxation when the relaxation instructions were administered by the designated trainer rather than when being self-administered during daily home practice sessions.

Recommendations

As a result of the limitations and conclusions stated above, the following recommendations are made:

(1) That the control group receive the same number of post-tests on empathy, state anxiety, and trait anxiety as the experimental group in order to make appropriate comparisons and to avoid a possible favorable bias effect for the experimental group through an extra exposure to these testing instruments.

(2) That EMG data be also collected for the control group in order to make appropriate comparisons with the experimental group concerning the actual effect of training in progressive relaxation over time and treatment.

(3) That several intermediate EMG post-tests be taken for both research groups during the treatment period to ensure reliability and directionality of EMG results since frontalis muscle tension may fluctuate due to varying life circumstances for subjects at time of the testing sessions. This could be completed at the end of the week of training or a total of three post-tests.

With repeated EMG evaluations, Pearson product moment correlation coefficients could be computed for each research subject, to assess any individual changes and their relationship to the treatment variable. Additionally, a one-way analysis of variance could
be completed on both research groups to determine any group mean changes from week to week during the treatment period. These extra statistical interpretations could provide more precise and additional data.

(4) That research subjects in a similar study be required to have had no previous exposure to the KASS, to avoid any possible contamination of results.

(5) That subjects within the experimental group receive audi-taped versions of the progressive relaxation training instructions for practice use at home in addition to administering the training to themselves. This added component could possibly enhance the learning of relaxation during the treatment period.

(6) That a different research population be selected for investigation since the experimental group was found to be atypical of the normal population in their great ability to relax before any treatment intervention was made. They would therefore not be expected to show great changes in levels of relaxation due to training in progressive relaxation. A more "normal" experimental group would perhaps achieve a greater treatment gain in relaxation, and this would perhaps generalize to having a significantly greater and more favorable effect upon the dependent variables of empathy, state anxiety, and trait anxiety within those subjects so selected.

(7) That progressive relaxation training be offered within counselor/therapist training programs as an adjunctive training component, to assist trainees in reducing their physical tension and mental anxiety and to further assist them in the development
and enhancement of their empathic ability.

Summary

In summary, despite the deep level of relaxation initially scored by experimental group subjects on the EMG, they were still able to significantly reduce their scores with three weeks of practice and training in progressive relaxation and therefore, it is concluded that it could be a valuable technique for counselor trainees to learn. The anticipated relationship between reduced muscular tension and empathy was not established and it remains a question yet to be answered. Methodological considerations were powerful enough to obscure the necessary changes to reach a definite conclusion. With respect to anxiety, no relationship between relaxation, muscular tension, and state anxiety was evident. The finding that trait anxiety significantly decreased over time and treatment for the experimental group led to the conclusion that practice in progressive relaxation over an extended period of time may affect the way one reacts to anxiety provoking situations. It is recommended by this investigator that a similar research study be conducted which would include the recommendations (1-6) as stated above.
APPENDIX A

The Professional Field Experience
THE PROFESSIONAL FIELD EXPERIENCE

The Department of Counseling and Personnel requires its graduate students who are counselor candidates to complete successfully a professional field placement. This experience is considered to be one of the most important aspects of the Counseling and Personnel program. The professional field placement is a part of C-P 628, Counseling Practice, and usually occurs in the last session of the candidates' graduate program as a culminating experience.

The student's pre-practicum coursework has usually included the following: communication skills; organization of pupil personnel services or introduction to agency counseling or introduction to student personnel work; career development; tests, measurement and appraisal; counseling theory; counseling techniques; group procedures; educational research; plus elective courses in education and allied fields, e.g., psychology, sociology.

During C-P 628, candidates are given supervised instruction in individual counseling in the Department's lab and they have a job sampling experience in the field placement, which is supervised and which occurs in a setting appropriate to the candidates' professional objectives. For successful completion of C-P 628, Counseling Practice, the Department requires that students demonstrate minimum individual counseling competencies including skills in communications, attending, structuring, case conceptualization, problem development, goal setting, use of counseling-related materials, referral procedures, termination, and counseling outcomes assessment. In addition, students must complete successfully interview reports and case presentations. Students must also satisfactorily complete the Professional Field Placement.

Counselor candidates are expected to spend about sixty (60) clock hours in the professional field experience. For the Fall and Winter semesters of 15 weeks, the candidates usually spend a minimum of a half-day per week at the Field Placement site. For the 7 1/2 week Spring and Summer sessions, candidates usually spend a minimum of two half days per week at the placement site.

Placement of the candidates in a professional field setting depends on several factors, including: (1) the availability of field settings appropriate for the candidate; (2) the willingness and availability of personnel in the field setting to accept and supervise a candidate; (3) the professional objectives of the candidate. The Department attempts to assist the candidate in arranging the most appropriate field placement while taking these factors into consideration.

During their professional field placements, candidates experience as many aspects of the work of the practicing counselor as possible. Hopefully, candidates will be able to participate in staff meetings, planning sessions, outreach and educative programs, case conferences, record-keeping and other responsibilities of counselors. It would be desirable for the candidate to engage in individual counseling during the field placement which would be supervised by personnel in the setting; however, the Department recognizes that such arrangements may not be appropriate for masters level counselor candidates in some settings. The professional field placement is not considered to be an internship or a "field practicum" in individual counseling.

When field placement arrangements have been made, candidates are assigned to a "contact" person in the field setting who is responsible for the candidates' activities in the field setting. In addition, candidates are assigned to an "on-site" supervisor for direct supervision of the candidates' work in the setting. The same person may be the contact person and the on-site supervisor.

The objectives of the professional field experience are to:
1. expose the candidate to the realities of the work of the practicing counselor,
2. expose the candidate to the realities of the organizational setting in which counselors work,
3. enable candidates to assess their own potentials in light of the duties and responsibilities of working counselors,
4. suggest alternative employment possibilities to the candidates,
5. assist candidates in learning by experience the interrelated aspects of counseling in educational and community agency settings.

Persons participating in the Department's professional field experience program who have questions or concerns, should directly contact Dr. Robert Betz or Dr. Robert Oswald, who serve as program coordinators, or the Department Chairman, Dr. Edward Trembley.
APPENDIX B

Progressive Relaxation Training: Instructions and Procedure Outline
I The Basic Procedures

After the client has understood and accepted the rationale underlying progressive relaxation training and after the therapist is assured that all of the client's questions have been satisfactorily answered, the actual relaxation training can begin. This training should follow the sequence outlined to the client during rationale presentation; that is, the sixteen muscle groups discussed and practiced with the client during the rationale should be covered in the initial training session itself. The sequence should be identical to the sequence used during rationale presentation, and the muscle tension procedures agreed upon with the client should be employed throughout. For example, if an alternative tensing procedure for the biceps was determined, then that same procedure should be employed in the training itself.

A. The Basic Procedure

Recall that the order in which the muscle groups are dealt with is as follows:

1. Dominant hand and forearm
2. Dominant biceps
3. Nondominant hand and forearm
4. Nondominant biceps
5. Forehead
6. Upper cheeks and nose
7. Lower cheeks and jaws
8. Neck and throat
9. Chest, shoulders, and upper back
10. Abdominal or stomach region
11. Dominant thigh
12. Dominant calf
13. Dominant foot
14. Nondominant thigh
15. Nondominant calf
16. Nondominant foot

In teaching relaxation to a client, there is a succession of events which must occur with respect to each muscle group. The sequence is as follows:

1. The client's attention should be focused on the muscle group.
2. At a predetermined signal from the therapist, the muscle group is tensed.
3. Tension is maintained for a period of 5-7 seconds (this duration is shorter in the case of the feet).
4. At a predetermined cue, the muscle group is released.
5. The client's attention is maintained upon the muscle group as it relaxes.

B. Directing the Procedure

The therapist can easily direct this sequence of events by employing a relatively standard set of directional statements. (Most of the following material is illustrated on the record which accompanies this manual.) In order to accomplish the first step in the sequence outlined above, the therapist should say, for example, "O.K., now I'd like you to focus all of your attention on the muscles of your right hand and lower arm."

Once the first step is accomplished, the therapist can direct precise onset of the tension cycle by saying, for example, "Alright, by making a tight fist I'd like you to tense the muscles in the right hand and lower arm, now." Notice that the tensing statement includes an instruction as to how to achieve tension and a reminder of which group the client is to focus on. The client should not actually begin tensing until the therapist says "Now," and thus the client should be made aware of the fact that the word "Now" is the tension cue. Having a specific tension signal is important because the therapist needs to accurately time the exact length of tension; the client should not be allowed to begin tensing randomly.

The third step in the sequence consists simply of having the client hold the tension for 5-7 seconds. During this interval the therapist should be aiding the client in focusing on the feelings associated with tension by making statements like "Feel the muscles pull; notice what it's like to feel tension in these muscles as they pull and remain hard and tight." The therapist should restrict the amount of this verbal behavior so that it coincides with the length of the tensing period and not, in the interest of making three or four statements during the tension period, extend the period beyond about 7 seconds. It is important that the therapist keep the client's attention focused upon the feeling associated with tension.

The therapist should terminate the tension period with a standard statement like "O.K., relax." At this point the muscle group is released, and the therapist must keep the client's attention focused on the feelings in the muscle group as it relaxes. To achieve this, the therapist would, for 30-40 seconds, make statements to the client designed
to focus attention on the relaxation process as it is occurring. These statements should be such that the therapist merely points out to the client what is happening. Thus, the client should be made a passive and careful observer of these processes.

The statements made by the therapist should therefore be suggestive, not prescriptive. For example, immediately after the word "Relax," the therapist could say, "Just let these muscles go, noticing the difference between tension and relaxation, focusing on the feeling in this muscle group as it becomes more and more relaxed." (A full presentation of the kinds of statements which can be made at this point in the procedure is available in Appendix B.)

The therapist should at all times avoid making direct suggestions or prescriptive statements such as "Relax these muscles more and more," or "These muscles are becoming more and more relaxed now." There are two reasons for this word of caution. First, the use of direct suggestion may result in the production of hypnosis-like phenomena in the session. This is to be avoided for reasons discussed in Chapter 11. Secondly, direct suggestions may very well be at variance with what is going on from the client's point of view. Thus, if a given muscle group is not relaxed and the therapist is making statements like "These muscles are deeply and completely relaxed," the client will either fear that his/her own performance was inadequate or believe that the therapist is incompetent. While we would prefer our clients not to think of us as incompetent therapists, even that is preferable to a client feeling incompetent or inadequate. This anxiety would disrupt the state of relaxation which the therapist is attempting to initiate. Thus the verbal behavior on the part of the therapist during the relaxation periods should consist of indirect statements designed to encourage the client to focus attention on the muscle group being relaxed.

After the 30-40 seconds of relaxation "patter," the tension-release sequence is repeated; that is, the therapist says, for example, "O.K., again I'd like you to tense the muscles in the right hand and lower arm, now." After 5-7 seconds of tension, the client is instructed to relax and again hears indirect statements about relaxation and giving attention to relaxation, this time for 45-60 seconds. As relaxation training with a given client progresses, it is often true that the second tension-release cycle is unnecessary to achieve the desired degree of relaxation. However, it is usually a good idea to repeat the cycle since the result will generally be even further reduction of tension in that muscle group. Also, the client may not
know what deep relaxation feels like and might think that a group is completely relaxed when actually it is not as deeply relaxed as it will be after a second tension-release cycle.

C. Summary and Assessment

After the client has signaled relaxation for all sixteen muscle groups, the therapist is ready to make a final assessment of the client's state of relaxation. The therapist should give a report of the muscles which have been relaxed and an instruction to allow them to continue relaxing. This is accomplished by saying, for example, "O.K., now, we've relaxed the muscles in the arms and hands; just allow them to continue relaxing. We've relaxed the muscles in the face and neck; go on allowing them to remain deeply relaxed. We've relaxed the muscles of the chest, the shoulders, the upper back, the abdomen; allow these muscles now to become even more deeply relaxed. We've relaxed the muscles of the legs and feet; just allow these muscles now to remain deeply and completely relaxed."

When the summary has been completed, the therapist can easily assess the client's state of relaxation by asking as follows: "Now I would like you to signal if you feel the slightest bit of tension in any muscle group anywhere in the body." If the client does not signal, this is an indication that he/she is completely relaxed all through the body. At this point the therapist may want to make certain that the client has heard the question by asking a supplementary question such as, "O.K., I'd like you to signal if you feel completely relaxed all through the body." If the client signals at this point, the therapist has confirmation of the client's state of relaxation and can terminate the session according to the procedures outlined below.

If the client does not indicate complete relaxation at this point, the therapist is faced with the task of locating any remaining tension and eliminating it. This can be done relatively easily by informing the client that the sixteen muscle groups of the body will be named and that he/she should signal at the mention of a muscle group which has not achieved complete relaxation. At this point, the therapist should begin to slowly list the muscle groups. Whenever the client signals, indicating that tension is present in the muscle group, the therapist should take note of this and then ask the client to signal if there is tension in any other muscle group in the body. If there is a signal at this point, the therapist must continue
until any tension still present in the body has been specified; otherwise, the only tension present has already been detected.

Once the trouble has been localized, the corrective procedures are exactly those outlined previously; that is, the group can be tensed and relaxed once again. This usually will eliminate any residual tension which has built up over the course of the session. (The presence of tension does not always mean that the group was never relaxed. Clients will often report the return of some tension in a muscle group that had been relaxed at one point.) The therapist should direct two more standard tension-release cycles before attempting an alternative tensing strategy.

The therapist should obtain a signal from the client that the group is indeed now completely relaxed, then repeat the original assessment question; that is, "I'd like a signal now if you feel any tension anywhere throughout the body."

When the therapist is assured that no residual tension exists anywhere in the body, the session can be terminated. Prior to termination, however, it is advisable to allow the client a minute or two to enjoy this state of complete relaxation. During this period the therapist may either remain silent or make, at 15-20 second intervals, indirect suggestions designed to keep the client's attention focused upon the very pleasant state of relaxation. These suggestions should remind the client to pay attention to what it feels like to be completely and deeply relaxed.

D. Terminating Relaxation

After this "enjoyment period" the therapist is ready to terminate the session. The client should be informed that the therapist will count backward from 4 to 1 and that on the count of 4 the client should begin to move legs and feet, on the count of 3 move arms and hands, on the count of 2 move head and neck, and on the count of 1 the client should open his/her eyes. The therapist should include in this information some suggestion of the feeling of well-being and relaxation, for example, "Then on the count of 1 I'll ask you to open your eyes, feeling quite calm and relaxed, very pleasantly relaxed, just as if you'd had a brief nap." This remark about a brief nap is very helpful in the sense that many clients "awake" after an initial session feeling somewhat dizzy and disoriented since they have never before experienced the depth of relaxation achieved in this first session. Arousal from deep relaxation is similar to waking up, and therefore this statement at the end of the termination instruction can help to allay
any concerns that the client might have about these feelings.

E. Post-Relaxation Questioning

At this point the therapist should ask a very important group of post-session questions. These should be asked in a somewhat structured fashion, and the therapist should give careful attention to the answers. The therapist should first ask an open-ended question like "How do you feel?" or "Well, how was that?" or "How did you like that?" The client's answer to this question should be an overall reaction to the procedure itself and may contain a variety of general statements. At this point the therapist should begin collecting more detailed information by asking specific questions about any problems that occurred during the session, for example, "What was the trouble in getting the neck muscles relaxed?"

In this way, the therapist can explore with the client any areas in which relaxation was not routine. If the entire procedure was relatively routine, then the therapist can ask a more general question such as "I'd like you to think back over this session and tell me if you at any time had any problems getting the various muscle groups relaxed." The client is then likely to mention some problems or questions that he/she might have had that did not get communicated to the therapist during the session.

Whether problems are brought up by the client spontaneously or uncovered by the therapist in this questioning, it is important that some resolution of the problems is agreed upon. If an alternative tensing strategy is required, this should be determined; if there is a point that the therapist did not communicate adequately to the client, this should be clarified. The point of delineating these concerns is to provide a list of problems to be eliminated so that the relaxation procedure can become routine and trouble-free. (We have tried to include in Chapter 9 all of the problems which have arisen in our past experience, but there is no guarantee that an unusual problem will not be encountered by the reader; the therapist must create a unique and original solution to such a problem.)

During this problem resolution period, the therapist should at all times maintain an air of confidence. Problems should be dealt with in a very routine fashion. The therapist should indicate that these kinds of difficulties have occurred before and that there are corrective procedures available. He/she should then assure the client that the problems will in all probability disappear as the client practices the new procedures.
After any problems which arose during the session have been discussed and resolved, the therapist can ask the client to describe, in his/her own words, what relaxation feels like. This account is quite important because it helps the therapist to understand the kinds of sensations being experienced by this particular client and can aid the therapist in adapting the "patter" to that client. For example, if in describing how relaxation feels, the client says that his/her limbs felt lighter or that he/she began to feel somewhat warmer or cooler, the therapist should note this information and include it in later sessions as part of the indirect suggestions. In the case of a client who experiences a warm feeling and heaviness in the limbs, the therapist could in subsequent sessions say, "Noticing the warm, heavy feelings of relaxation flowing into these muscles now as they become more relaxed." The therapist can thus avoid making statements or indirect suggestions which are in fact not appropriate for a given client. Such information should be recorded carefully and referred to during subsequent sessions.

The therapist should also ask at this point if anything that was said during the initial session made it more difficult for the client to relax. If the client mentions any such statements, they should of course be eliminated from future sessions. A therapist should also ask if there were any statements made which facilitated the client's relaxation, and these should be emphasized in subsequent sessions.

F. The Therapist's Voice

In progressive relaxation training, how the therapist says what he/she says is just as important as what is actually said. Subtle features of volume and inflection are of vital importance in the adequate presentation of these procedures to the client and it is for this reason that the record which accompanies this manual has been produced.

The therapist should begin the first relaxation session in a conversational tone, i.e., at the same level of volume used in the rationale presentation. Over the course of this first session, however, the therapist's voice should show a progressive reduction in volume consistent with the progressive increase in relaxation in the client. However, at no time should the therapist speak so softly that the client would have difficulty in hearing the instructions given. The therapist should be careful not to introduce hypnotic or seductive components into the voice quality; rather, the tone should be smooth and quiet, perhaps even monotonous, but not purposely hypnotic. In addition to speaking more softly as the session progresses, the pace
of speech should be reduced so that the therapist is speaking considerably more slowly by the time the relaxation session is one-half to two-thirds completed. The changes in speed, tone, and inflection are very subtle and are best illustrated by the accompanying record.

1. The Tension-Release Voice Cycle

Within the overall reduction of volume and speed in the therapist's voice, there should be a cyclical aspect based on the content of the speech. That is, the therapist's voice should sound quite different during instructions to tense muscle groups than during indirect suggestions of relaxation and attention focusing. As the therapist gives the signal to tense a muscle group, his/her voice should increase in volume, speed, and tension. This should be clearly perceptible to the client and is best achieved by the therapist's actually tensing a muscle group in his/her own body (perhaps the most convenient group for this purpose would be the dominant hand and lower arm). This tension should be reflected in voice quality. At the point of giving the cue to relax, the therapist's voice should again change. He/she should release the tension in the muscle group and in the voice and perhaps even exhale in coincidence with the relaxation cue. That is, exhaling occurs at the cue word "Relax." There should be a very sharp division between the end of the tension period and the beginning of the relaxation period, not only in terms of the instructions but in terms of the sound of the therapist's voice. The difference aids the client in distinguishing between relaxation and tension.

2. Some Words of Warning

At no time during the session should the therapist's voice take on overly dramatic or theatrical qualities. Rather, it should be used as an instrument for facilitating the relaxation process. The client's reaction to both voice quality and the content of the therapist's speech should be discussed during the post-session question period. The therapist should take some precautions to insure that there was nothing in the quality of his/her voice which was disruptive to the client; the therapist should not be satisfied with the assurance that the content was adequate.

In Chapter 5 the reader was cautioned not to memorize a speech to be used during rationale presentation. The same caution is offered here; while we hope that the
record accompanying this manual will be of considerable illustrative benefit, we do not feel that it is appropriate for the reader to attempt to precisely imitate the verbal behavior of the therapist on the record. Thus, while we do feel that it is helpful to follow the general rules and procedures associated with voice quality, speed, etc., this must be done within the context of the reader's own style of speaking. The important thing is that the therapist sound natural, confident, competent. It is not important that the therapist sound precisely like the demonstration record.

II Content Outline for Rationale Presentation

A. Introduction

1. The procedures to be used are called progressive relaxation training.

2. Progressive relaxation training consists of learning to tense and release various muscle groups throughout the body.

3. An essential part of learning how to relax involves learning to pay close attention to the feelings of tension and relaxation in your body.

4. Learning relaxation skills is like learning other motor skills. (I will not be doing anything to you; you will simply be learning a technique.)

5. We employ tension in order to ultimately produce relaxation.

   (a) Strong tension is noticeable and you will learn to attend to these feelings.

   (b) The initial production of tension gives us some "momentum" so that when we release the tension deep relaxation is the result.

6. Questions and comments

B. Tensing Instructions

1. We will be dealing with sixteen muscle groups which are tensed and released. As skill develops, the number of groups will be reduced.
2. Tensing Instructions for Arms and Hands
   (determine which side is dominant)
   (a) Instructions for dominant hand and lower arm
       (make a tight fist)
   (b) Instructions for dominant biceps (push elbow down against chair)
   (c) Instructions for nondominant hand and lower arm
   (d) Instructions for nondominant biceps

3. Tensing Instructions for Face and Neck
   (model face-making to put client at ease)
   (a) Instructions for forehead (lift eyebrows as high as possible)
   (b) Instructions for central section (squint and wrinkle nose)
   (c) Instructions for lower face and jaw (bite hard and pull back corners of mouth)
   (d) Instructions for neck (pull chin toward chest and keep it from touching chest)

4. Tensing Instructions for Chest and Abdomen
   (a) Instructions for chest, shoulders, and upper back
       (pull shoulder blades together)
   (b) Instructions for abdomen (make stomach hard)

5. Tensing Instructions for Legs and Feet
   (a) Instructions for dominant upper leg (counterpose top and bottom muscles)
   (b) Instructions for dominant calf (pull toes toward head)
   (c) Instructions for dominant foot (point and curl toes, turning foot inward)
   (d) Instructions for nondominant upper leg
   (e) Instructions for nondominant calf
   (f) Instructions for nondominant foot

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6. Questions and comments (be sure alternative tensing strategies are determined where needed)

C. Additional Instructions

1. Various muscle groups are going to be compared with one another in terms of depth of relaxation.

2. Release tension immediately upon cue rather than gradually.

3. Once a group of muscles is relaxed, do not move it unnecessarily (except to make yourself comfortable).

4. Do not talk to me during this session. When I ask for a signal, please lift the little finger of the hand closest to me.

5. Notification of length of session and invitation to visit rest room.

6. Removal of constraining items such as watches, rings, eyeglasses, contact lenses, and shoes

7. Questions and comments

8. Client reclines in chair

9. Explanation of dimming of lights

III Relaxation Patter

The material which follows is suggested for use after the therapist has said the word "Relax." Do not attempt to use all of these statements after each tension-release cycle, since this would violate timing rules. Rather, a sampling of them in nearly any combination may be employed after any given cycle such that the therapist's behavior does not become routine and predictable.

"... and relax, letting all the tension go, focusing on these muscles as they just relax completely, noticing what it feels like as the muscles become more and more relaxed, focusing all your attention on the feelings associated with relaxation flowing into these muscles, just enjoying the pleasant feelings of relaxation, as the muscles go on relaxing more and more deeply, more and more completely. There's nothing for you to do but focus your attention on the very pleasant feelings of relaxation flowing into this area. Just noticing what it's like as the muscles become more and more deeply
relaxed; just enjoying the feelings in the muscles as they loosen up, smooth out, unwind, and relax more and more deeply. Just experiencing the sensations of deep, complete relaxation flowing into these muscles; more and more deeply and completely relaxed. Just letting them go, thinking about nothing but the very pleasant feelings of relaxation. Just let those muscles go and notice how they feel now as compared to before. Notice how those muscles feel when so completely relaxed. Pay attention only to the sensations of relaxation as the relaxation process takes place. Calm, peaceful and relaxed."

*Note: The Progressive Relaxation Training and Procedures Outline is taken directly from Bernstein and Borkovec (1973, pp. 25-32 and 61-63).
APPENDIX C

Self-Evaluation Questionnaire:
STAI Forms X-1 and X-2
**SELF-EVALUATION QUESTIONNAIRE**

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

**STAI FORM X-1**

**NAME** ____________________________________________ **DATE**

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

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at All</th>
<th>Somewhat</th>
<th>Moderately</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel calm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I feel secure</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3. I am tense</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4. I am regretful</td>
<td></td>
<td></td>
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<tr>
<td>5. I feel at ease</td>
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<tr>
<td>6. I feel upset</td>
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<td></td>
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<tr>
<td>7. I am presently worrying over possible misfortunes</td>
<td></td>
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<td></td>
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<tr>
<td>8. I feel rested</td>
<td></td>
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<tr>
<td>9. I feel anxious</td>
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<tr>
<td>10. I feel comfortable</td>
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<tr>
<td>11. I feel self-confident</td>
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<tr>
<td>12. I feel nervous</td>
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<tr>
<td>13. I am jittery</td>
<td></td>
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<tr>
<td>14. I feel “high strung”</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15. I am relaxed</td>
<td></td>
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<tr>
<td>16. I feel content</td>
<td></td>
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<tr>
<td>17. I am worried</td>
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<td></td>
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<tr>
<td>18. I feel over-excited and “rattled”</td>
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<td></td>
<td></td>
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<tr>
<td>19. I feel joyful</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. I feel pleasant</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

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SELF-EVALUATION QUESTIONNAIRE
STAI FORM X-2

NAME _________________________________________________________ DATE ____________________

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

21. I feel pleasant ............................................................................................ © ® © ©
22. I tire quickly ............................................................................................ © ® © ©
23. I feel like crying ........................................................................................ © ® © ©
24. I wish I could be as happy as others seem to be .................................. © ® © ©
25. I am losing out on things because I can’t make up my mind soon enough .... © ® © ©
26. I feel rested ................................................................................................ © ® © ©
27. I am “calm, cool, and collected” .............................................................. © ® © ©
28. I feel that difficulties are piling up so that I cannot overcome them .......... © ® © ©
29. I worry too much over something that really doesn’t matter .................... © ® © ©
30. I am happy ................................................................................................ © ® © ©
31. I am inclined to take things hard ............................................................. © ® © ©
32. I lack self-confidence ............................................................................. © ® © ©
33. I feel secure .............................................................................................. © ® © ©
34. I try to avoid facing a crisis or difficulty .................................................... © ® © ©
35. I feel blue .................................................................................................. © ® © ©
36. I am content .............................................................................................. © ® © ©
37. Some unimportant thought runs through my mind and bothers me .......... © ® © ©
38. I take disappointments so keenly that I can’t put them out of my mind .... © ® © ©
39. I am a steady person ................................................................................ © ® © ©
40. I get in a state of tension or turmoil as I think over my recent concerns and interests ........................................................................................© ® © ©
APPENDIX D

Instructor and Student Consent Forms
November 20, 1978

TO: Mr. Edo Weits, Ed.D. - Candidate

FROM: Dr.

SUBJECT: Issuance of Consent for Assistance in Doctoral Dissertation Research

Dear Mr. Weits,

In reference to our recent verbal agreement, I, Dr. _______________ hereby give you written permission to conduct pre- and posttestings as part of your doctoral dissertation research in my 1979 Winter Semester, C-P 628 class. Total class time for testings will not exceed three (3) hours: 90 minutes for pretesting and 90 minutes for posttesting. Pre- and posttestings will consist of the (1) State-Trait Anxiety Inventory (STAI - 10-15 minutes) and (2) the Kagan Affective Sensitivity Scale (KASS - 60-75 minutes). Upon my request, I understand you will share both the rationale and results of the pre- and posttestings with our class during the last week of the semester. Pretesting will occur on _______________ from _______________ to _______________. Posttesting will occur on _______________ from _______________ to _______________.

Sincerely,

______________________________

Witness: ________________________
DOCTORAL DISSERTATION RESEARCH
PARTICIPATION CONSENT FORM

I voluntarily choose to participate in the doctoral dissertation re­search project of Mr. Edo Weits between 11 December, 1978 and 21 April, 1979. I volunteer to undergo three weeks of daily progres­sive relaxation training between 13 January, 1979 and 3 February, 1979 as part of the experimental treatment. I fully understand the nature of this training since it has been thoroughly explained to me. I understand and give permission to participate in pre­ and posttestings which will consist of several psychological and physio­logical measures. I understand that the result of these testings will be kept confidential and not to be shared with anyone without my permission.

(Signed)__________________________

(Date)____________________________
DOCTORAL DISSERTATION RESEARCH
PARTICIPATION CONSENT FORM

I voluntarily choose to participate in the doctoral dissertation re­
search project of Mr. Edo Weits between 11 December, 1978 and
21 April, 1979. I understand and give permission to participate
in pre- and posttests which will consist of several psychological
and physiological measures. I understand that the result of these
testings will be kept confidential and not to be shared with anyone
without my permission.

(Signed)__________________________

(Date)__________________________

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APPENDIX E

Progressive Relaxation Training Scenario
for Experimental Subjects
My name is Edo Weits and I am a doctoral student in the Counseling and Personnel Department at Western Michigan University. I'm in the process of conducting my doctoral dissertation research in our department. All of you present here have been randomly selected to participate voluntarily in this research investigation. This research project has been approved by my dissertation committee, the Department Chairman, Dr. Edward T. Trembley, and the professors assigned to each of the five (5) sections of C-P 628 during the 1979 Winter Semester. Your active and consistent participation in this research project will certainly be appreciated, and I am sure you will derive many benefits from this.

Progressive relaxation training is a method for inducing deep relaxation which was first developed by Dr. Edmund Jacobson at the University of Chicago in 1929. A modified version of his training procedures developed by Bernstein and Borkovec (1973) will be presented to you during the three formal training sessions. You will probably learn to relax more deeply than you have ever before without actually sleeping. This relaxation technique is quite easy to learn and perform and takes just twenty (20) minutes of your time. You may use this technique to reduce any anxiety or tension that you may experience in the future.

The training procedures will be described as follows. You will need to systematically focus your attention on the various major
muscle groups throughout your body. You will first tense each muscle group for a few seconds, holding the tension long enough in order for you to exactly locate the tension and to experience what it feels like. Then, when I say "Relax," I want you to immediately let go—to stop all tensing—and just focus your attention on that particular muscle group to experience what it feels like to allow those muscles to relax. By purposely first tensing your muscles, the level of tension will increase over your present level, such that when you release the muscles, the level of tension will drop below the point where you started. Each time you tense and release the various muscle groups throughout your body, the resulting level of tension will become progressively lower and lower until you will experience almost no tension at all. At this point you will experience a feeling of deep relaxation. With adequate practice as you learn to focus your attention on this tension-release process as it takes place, you can eventually reach the point when just thinking or recalling the experience of release is sufficient to bring about relaxation itself.

It's important for you to remember to focus your attention on only the specific muscle group we are working on at any given time. Try to gently and passively ignore—not actively resist—any distractions which you may experience in way of thoughts, images, sounds, and/or sensations and feelings other than those in the muscles we are working on. It will also be important for you to master this technique since I will be asking you to practice this at home, once daily for twenty-one (21) days during the experimental training.
period. Once you have mastered this technique, you can use it for yourself at any time to help you relax and reduce your tensions and anxiety. This technique can help you to sleep better, to quiet your mind and/or energize your body and mind when wanting to be alert to increase your level of concentration. This technique is not a form of hypnosis since you will be consciously and voluntarily relaxing your own muscles at your own chosen rate.

You will be asked at the beginning and during the training sessions to sit or lie down in as comfortable a position as possible. Your eyes will be closed and all verbal discussion will cease with the exception of the trainer's instructions in order to avoid any unnecessary visual and auditory distractions. I will first demonstrate with you a digest version of the training procedures and to entertain any questions my may have at that time. Thereafter, the designated trainer will start our first training session and not be interrupted until completion, or some twenty minutes later.

You will need to consistently complete each daily homework practice session—15 to 20 minutes—at your own convenience during each day to ensure validation of this research design. You will be asked to write a short paragraph concerning your relaxation training experiences after each daily practice session in a journal which will be issued to you. This subjective information will assist the researcher to assess the progress and nature of your relaxation experiences. You will also be issued a copy of the actual progressive relaxation training instructions and procedures to assist you in your daily practice sessions.
Upon completion of the three week experimental training period, you are strongly encouraged to continue the progressive relaxation training on a voluntary basis during your C-P 628, 1979 Winter Semester practicum. The continued use of this training can benefit you in many ways. You may use a condensed version of the progressive relaxation procedures before and during actual counseling sessions, before and during supervisory sessions and class time, and throughout your field placement experience. The exact timing, reason and method of application will be at your own choosing. The relaxation benefits will be greater the more often the technique is utilized by you. You will be asked to record only the number of daily practice sessions completed each week in the same journal as mentioned above. I may occasionally make contact with you by telephone during the Winter Semester to monitor your relaxation training experiences. If there are no further questions, the designated trainer, Dr. Donald Fitzgerald, will commence the formal training at this time. Thank you for your participation. A summary of this research will be issued to you upon its completion if you so desire.

Edo Weits
APPENDIX F

Research Data for Experimental and Control Groups
Table A
Electromyograph Measures for Experimental Group

<table>
<thead>
<tr>
<th>Subject Number</th>
<th>Raw Scores&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Means&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Post-Test</td>
</tr>
<tr>
<td>01</td>
<td>145.400</td>
<td>97.770</td>
</tr>
<tr>
<td>02</td>
<td>86.180</td>
<td>89.220</td>
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<td>03</td>
<td>187.510</td>
<td>106.200</td>
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<td>04</td>
<td>191.190</td>
<td>85.761</td>
</tr>
<tr>
<td>05</td>
<td>194.520</td>
<td>156.400</td>
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<tr>
<td>06</td>
<td>160.830</td>
<td>268.910</td>
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<tr>
<td>07</td>
<td>108.150</td>
<td>107.410</td>
</tr>
<tr>
<td>08</td>
<td>60.650</td>
<td>57.910</td>
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<tr>
<td>09</td>
<td>221.880</td>
<td>137.010</td>
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<tr>
<td>10</td>
<td>114.870</td>
<td>90.630</td>
</tr>
<tr>
<td>11</td>
<td>157.950</td>
<td>158.930</td>
</tr>
<tr>
<td>12</td>
<td>160.200</td>
<td>75.640</td>
</tr>
<tr>
<td>13</td>
<td>207.000</td>
<td>101.420</td>
</tr>
<tr>
<td>Total</td>
<td>1996.329</td>
<td>1533.871</td>
</tr>
<tr>
<td>Group Mean</td>
<td>153.564</td>
<td>177.990</td>
</tr>
</tbody>
</table>

<sup>a</sup>Total raw scores for 30-minute testing sessions.

<sup>b</sup>Means for 30-second trials over 60 trials.
Table B
Kagan Affective Sensitivity Scale Measures for Experimental and Control Groups

<table>
<thead>
<tr>
<th>Subject Number</th>
<th>Experimental Group</th>
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<tbody>
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<td></td>
<td>Pre</td>
<td>Post #1</td>
</tr>
<tr>
<td>01</td>
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<td>02</td>
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<td>16</td>
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<tr>
<td><strong>Total</strong></td>
<td>494</td>
<td>532</td>
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<tr>
<td><strong>Group Mean</strong></td>
<td>38.000</td>
<td>40.923</td>
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*Sample size: experimental group, N = 13; control group, N = 16.*

*The experimental group received an additional post-test (intermediate post-test #1) after treatment ended; the control group did not receive an intermediate post-test.*

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Table C

State Anxiety Measures for Experimental and Control Groups

<table>
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<td>Total</td>
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<td>Group Mean</td>
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<td>30.846</td>
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</table>

Sample size: experimental group, N = 13; control group, N = 16.

The experimental group received an additional post-test (intermediate post-test #1) after treatment ended; the control group did not receive an intermediate post-test.
Table D

Trait Anxiety Measures for Experimental and Control Groups

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<tr>
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<td>33.154</td>
</tr>
</tbody>
</table>

\( ^a \) Sample size: experimental group, N = 13; control group, N = 16.

\( ^b \) The experimental group received an additional post-test (intermediate post-test #1) after treatment ended; the control group did not receive an intermediate post-test.
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Sue, D. The role of relaxation in systematic desensitization. Behaviour Research and Therapy, 1972, 10, 153-158.


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