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THE USE OF IMAGERY AND BIOFEEDBACK IN THE TRAINING OF COUNSELORS AND THERAPISTS

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Ph.D. 1982
THE USE OF IMAGERY AND BIOFEEDBACK IN THE
TRAINING OF COUNSELORS AND THERAPISTS

by

Joseph Geffen

A Dissertation Submitted to the Faculty of the
DEPARTMENT OF COUNSELING AND GUIDANCE
In Partial Fulfillment of the Requirements
For the Degree of
DOCTOR OF PHILOSOPHY
In the Graduate College
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1982
THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

As members of the Final Examination Committee, we certify that we have read
the dissertation prepared by Joseph Geffen
entitled The Use of Imagery and Biofeedback in the Training
of Counselors and Therapists

and recommend that it be accepted as fulfilling the dissertation requirement
for the Degree of Doctor of Philosophy.

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Final approval and acceptance of this dissertation is contingent upon the
candidate's submission of the final copy of the dissertation to the Graduate
College.

I hereby certify that I have read this dissertation prepared under my
direction and recommend that it be accepted as fulfilling the dissertation
requirement.

Dissertation Director 4-6-82
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SIGNED: Joseph Jeffen
I would like to dedicate this dissertation to the memory of my father, Martin Geffen (1910–1959), whose own all-too-short life has always been my inspiration. His devotion to family, work, friends, and the community was a living example for me to follow that helped me reach this accomplishment.
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ABSTRACT

A problem in counselor education is the need to develop methods that would be more directly related to effective outcome in counseling. Researchers have concluded that success in counseling goals is related to clients' increased ability to monitor and modify their own behaviors and that counselor trainees whose education included an emphasis on learning self-regulation skills would be more effective in bringing about greater client self-regulation. Another need is for a theoretical formulation toward the development of more effective instructional methods. The concepts of holism and self-control, which were considered potentially useful within the theoretical system of Adler's Individual Psychology were combined with the methods of biofeedback, imagery, and self-control skills training in the synthesis of a prototypical instructional set.

The purpose of the study was to experimentally evaluate this set and the potential validity and utility of the proposed conceptual framework. The hypothesis was that four graduate counselor students would demonstrate improvement in self-regulatory attitudes and behaviors after the treatment condition, which consisted of the instructional set. Electromyographic (EMG) physiological measurements, and scores on the Adult Nowicki-Strickland Internal-External locus-of-control scale were used to assess changes in the subjects' self-regulation, using the single-subject, multiple baseline across-subjects experiment design.
Analysis of the results showed that subjects improved in control of muscle activity and in attitudinal direction of internal locus of control. The EMG physiological measurement was considered useful for this type of study, showing an adequate balance of sensitivity and stability. However, the locus-of-control measure was not considered adequate for this population because of an observed "floor" effect.

The results were interpreted as having supported the hypothesis and were considered to have established the usefulness of the theoretical framework to generate research and the potential utility of the instructional method in counselor education. Suggestions are made for improvement for the use of EMG scores in the baseline phase and for minimal requirements for an adequate attitudinal scale for further research in this area.
CHAPTER 1

INTRODUCTION

Defining the desirable counselor qualities to be developed in an ideal educational program is an issue much discussed in recent counselor education literature (Arbuckle, 1975; Bath and Calhoun, 1977; Bergin and Strupp, 1972; Blocher, 1968; Calia, 1974; Carkhuff, 1969; Carkhuff and Berenson, 1967; Hector et al., 1977; Kohlberg, 1975; Lambert, 1974; Levy, 1968; Lewis, 1978; Parker, 1968; Pierce and Schaubel, 1970; Pietrofesa, Leonard, & Van Hoose, 1971; Scheffler, 1973; Shapiro and Gust, 1973; Weiner, 1975). According to these authors, an important goal in counselor education should be to increase the effectiveness of the counselor in bringing about a successful outcome in counseling other individuals. The question arises as to what constitutes "successful outcome." Some authors have concluded that successful outcome in counseling is primarily the development of the client's capacity for self-regulation of behavior (Nye, 1973; Stimac, 1977). In terms of what would be observable in the therapy session, this involves an enhancement in the client's expressions of self-examination and verbal and nonverbal evidence of increased self-monitoring skills.

An important factor that has been identified in clinical research focused mainly on outcome of counseling and therapy is the behavioral, attitudinal, and emotional input of the counselor himself. This factor
includes what have been termed "therapist variables" (Kielser, 1973; Matarazzo, 1971; Meitzoff and Kornreich, 1970; Merrill, 1975; Strupp, 1973; Truax and Mitchell, 1971). The implication of these researchers' conclusions is the assumption that there are specific counselor behaviors and attitudes that are important influences on the development of his client's capacity for self-regulation. Another implication is that such behaviors and attitudes can, in turn, be influenced by the educational experience of the counselor.

Some authors in their evaluations of current counselor training have specifically criticized the lack of systematic integrative structuring of useful learning experiences (Bath and Calhoun, 1977; Blocher, 1968; Levy, 1968; Lewis, 1978; Parker, 1968; Truax, 1968). For example, McGreevy (1978) focused on a specific counselor role, consultation, and concluded that counselor education programs do not adequately prepare trainees to deal with most relevant issue, helping their clients cope with environmental changes. He emphasized that it is important that a trainee learn the process of coping by realistically assessing the impact between himself and his own environment. This process is found wanting in most counselor training programs.

An important need emerges from the evaluations for a coherent theoretical framework in counselor training programs within which to describe the educational process for the counselor trainee (Parker, 1968; Sprinthall, 1975; Weiner, 1975). Such a framework could make possible more systematic explicit testable hypotheses concerning the relationships between the desired trainee behaviors and attitudes to be
developed and the corresponding learning experiences to be designed in professional training programs.

**Statement of the Problem**

This study addresses two general questions: Can testable hypotheses concerning the counselor education process that are based on a theoretical framework suggested by available concepts be formulated and experimentally evaluated? If so, will the results of an exploratory study lend sufficient support to justify further work in that direction?

The study specifically addresses itself to the need in counseling education programs for systematic instructional activities for the explicit purpose of preparing a counselor trainee to effectively facilitate the self-development of his clients. Such a set of instructional activities would provide the student counselor with opportunities to learn the specific skills needed to enhance a client's ability for self-awareness and self-regulation and to accept an increasing responsibility for directing changes in his own life. An education set using these instructional activities would focus on the student counselor himself as his own "laboratory."

Procedures are needed to help a student counselor learn methods of approaching those of his own self-developmental goals that are relevant to his future interpersonal role as a counselor. The goals of such an educational experience would include an increased awareness of how the needs of a student counselor impinge on his behavior in a therapy session. Also included would be an increased awareness of his
own responses to various persons in different situations. This kind of instructional method would provide a student counselor the means by which to enhance his self-consciousness at various and subtle levels of his own reactions to the complexities of the counseling situation. This program would ultimately help a trainee develop an ability to manipulate himself as if he were manipulating an instrument with which he was well acquainted in accordance with his own clearly understood goals as a helping professional person.

**Purposes of the Study**

One purpose of the study was to develop a theoretical statement using the concepts of holism and self-control to describe an important aspect of the student counselor's education experience, that of his self-regulatory development. An instructional set based on this theoretical framework has been designed, which uses the innovative techniques of biofeedback training, imagery training, and self-control skills training. This instructional set was used to test a hypothesis derived from the theoretical framework: Training in the direction of self-regulation will increase the competency of the student counselor to facilitate his client's self-development. This test, which used a naturalistic setting, was done experimentally in a manner suitable to an early exploration of a relatively new area. The results were used to examine the validity of the theoretical concepts and the instructional methods derived from them. This analysis provided guidelines and insights for future research in this problem area.
Hypothesis

Two assumptions were basic to the study: (1) clients who are helped in counseling to become more self-directed will derive the most benefits and (2) counselors who are helped to become more self-directed through their training will more effectively help their clients toward self-directedness.

The general thesis of this study is that a successful and skillful counselor, i.e., one who will be able to increase the self-development of his clients, needs to be trained in an educational program that targets his own self-development in a direct manner and uses specific methods to promote his learning self-regulatory skills. It was part of the thesis that the manner in which this educational process is carried out needs to be based on the theoretical concepts of self-directed and holistic learning.

The specific hypothesis that was tested is that a set of instructional materials and procedures developed according to the thesis will be demonstrated to facilitate behaviors and attitudes that are believed to be required of an effective counselor and that are related to self-development and the acquisition of self-regulatory skills. The instructional set includes innovative techniques of biofeedback, imagery, and self-control skills training that are congruent with the theoretical concepts. The stated hypothesis is elaborated in Chapter 3 in terms of specific predictions using relevant dependent variables.
Definition of Terms

**Biofeedback**—A technique by which the subject is given fairly immediate and continuous information about one or more of the physiological responses in his body with the use of equipment (usually electronic) that transforms electric signals from the body into output signals from the equipment. This is usually in the form of a meter with a deflecting needle or a tone with varying pitch that corresponds to the intensity of the body's signal.

**Counselor competency**—Refers to the degree of skill and mastery that a counselor demonstrates in those activities that he performs that influence his client's perceptions, attitudes, and behaviors in the direction dictated by the goals established for the counseling. This presupposes the counselor's setting goals for himself in terms of how he is to act.

**Feedback**—A method of giving direct and clear information, in any learning situation such as in a counseling session or classroom, to the individual student or client as to how the client's behavior is perceived by others and how it affects others to provide the necessary requirement for that individual to be able to make adjustments in his behaviors if he wishes to change the way he is perceived by others or to influence them in a given direction.
Holism—A movement in philosophy and science, which aims at the understanding of seemingly disparate phenomena from a unifying conceptual point of view. It is the attempt to integrate the separate perspectives obtained through different perceptual modalities such as intellectual functions, the nonverbal sensations and images, and the physiological and psychological attributes of emotions into a unified experience. In the fields of counseling and education, certain methods and approaches considered to facilitate this process are called holistic.

Imagery training—Training in which the teacher and counselor give instructions in a specific manner, which includes a very deep state of relaxation, to encourage and reinforce the development of visual and other modes of imagery on a more sustained level than would occur spontaneously. In addition, certain kinds of instructions may lead the subject to make practical application of this imagery production to affect changes behaviorally, cognitively, and even physiologically. This training also includes development of strategies by which to use imagery in bringing about these changes.

Systems Approach—A philosophical and methodological viewpoint for working with the phenomena of human experience based on the belief that all events and experiences are interrelated in a causative manner. In attempts to make interventions, this
approach does not direct the emphasis exclusively on any single component of the system but rather formulates a comprehensive plan of action involving each of the relevant components. This process, however, does rely on identification of the major or controlling factors. For example, in the Piagetian view of a child's learning, the activities of the teacher and the organization of materials in the classroom are considered important but the major controlling factors is the biological and psychological readiness of the child to attend to what is presented to him and assimilate it.

**Therapist variables**—In the counseling and therapy situations, factors attributable to the counselor or therapist and unique to him that have been demonstrated to strongly influence the client to bring about changes in behaviors.
CHAPTER 2

SELECTIVE REVIEW OF LITERATURE

The literature reviewed was designed to bring together several areas in the literature into a meaningful synthesis. The first section documents the perceived problem in counselor education, of relating the student counselor's training experience to the specific skills needed by him to achieve effective outcomes as a future counselor. The second section reviews the available literature on concepts of self-directed learning, holistic education, and the issue of control as it applies to the fields of counseling and learning.

The next section deals with innovative methods derived from concepts of biofeedback and imagery and self-control skills training that are reported to be currently used in the fields of education and counseling. Another area selected for the literature review is that of what is the appropriate methodological approach to the type of research proposed in this study. Related to this question is the section that follows, which raises the issue of finding a general psychological theory within which the proposed concepts best fit.

A Problem in Counselor Education

An important goal for the counselor has been stated as that of providing the client a realistic interpersonal experience in a way that will elicit the self-exploratory and willful use of the integrative forces within himself (Carkhuff and Berenson, 1967). An example of this in
the specific context of career counseling points out that self-directed exploration by the client not only leads to desired increased feelings of self-worth but more practically to a strengthening of the type of skills needed by him in the everyday interactions involved in career planning and job seeking (Stimac, 1977). Several authors have concluded that the outcome in the effort to help the client develop self-exploration is strongly influenced by the therapist's reinforcement of this activity (Carkhuff and Berenson, 1967; May, 1967; McMullin, 1972; Truax, 1968a). Strupp (1970) and Hale (1976) declared the challenge for the therapist: he has the same need for self-mastery as his client.

Researchers have observed that lack of awareness by a counselor trainee of the effect of his own responses on the affect of his client has tended to limit accurate perception of the client (Borgers, Thomas, and Vanloon, 1980; Turock, 1980). Rogers (1975) believed that increased empathic skills in the counselor significantly correlate with resultant self-exploration in the client, and Merrill (1975) and Lewis (1978) reported a correlation between the counselor's own self-exploration and his empathic skills. Other researchers have concluded that teaching didactic theory and techniques are relatively less important than facilitating continuing development of the basic skills of coping and communicating and personal growth (Bernier, 1980; Lazarus, 1977; Strupp, 1973). Thus, Combs and Soper (1963) and McClain (1969) concluded that effective counseling is a result of the counselor's utilizing himself as an instrument in the helping relationship. This analogy of the counselor as an "instrument" implies the involvement of an element of control over himself.
Carr (1977) pointed out that even considering the importance of learning specific skills and techniques, the preferred method is for the counselor trainee to use himself as a "laboratory" so that he can know first-hand what is involved in learning various methods such as relaxation procedures and other self-help techniques. Such self-help skills are currently considered the avenue by which most clients can be most effectively helped (Schwartz and Shapiro, 1976; Stuart, 1977; Thoresen and Mahoney, 1974). This suggests the need for more concentration on these methods in counseling education programs.

Self-control and Holism

An underlying theme in the critical literature emerges as the need in counseling education to examine more carefully the developing self-directive and active control roles of the student himself in the training process. This theme is related to the more general theoretical issue in the literature, that of self-control in human behavior. This concept is of increasing interest in the current literature in education, counseling, and psychotherapy (Baker, 1979; Brownell, 1978; Deaton, 1978; Easterbrook, 1978; Epstein and Blanchard, 1977; Gaarder, 1971; Henney, 1978; Kanfer, 1977; Lewis, 1978; Mahoney, 1977a, 1977b; Meichenbaum, 1976, 1977; Ornstein, 1972; Phares, 1973; Rachlin, 1974; Rotter, 1966; Schwartz and Shapiro, 1976; Stern and Berrenberg, 1977; Stoyva, 1980; Stuart, 1977; Thoresen and Mahoney, 1974; Weiner, 1975; and Zivin, 1979).

The concepts of self-control and locus of control, which arose largely out of the literature of cognitive psychology, are defined in
terms of the ability of the individual to direct and determine his own behavior through manipulation of his own mental operations (Epstein and Blanchard, 1977; Zivin, 1979). Considering the implication of this idea for the helping professions, it is noteworthy that there is currently an emphasis on dealing with the client's experience of an almost total lack of control, also termed "helplessness," as one of the strongest negative forces that need to be overcome in counseling and therapy (Seligman, 1975; Sweeney et al., 1970).

Probably the single experience that is most obviously held in common by clients and counselor trainees is that of helplessness and the feeling of anxiety that accompanies it, both in its diffuse form and when it is related to specific events such as performance. Barrow (1979) discussed the value of self-control strategies for the university student in dealing with school-related anxiety. This implies that the student counselor could benefit in his educational program from studying his own anxiety, not only for personal comfort and lack of stress but also to develop tools in preparation for his professional role. Cole and Sarnoff (1980), who saw the unique contribution of counseling as the facilitation of the creative process, considered the role of the counselor as that of helping the client to constantly find a "new way of being." They saw this as a dynamic activity for which the counselor must be properly trained in an atmosphere in which it is recognized as a genuine human need and the trainee is also viewed and treated from this perspective.

Related to the issue of locus of control in education, counseling, and psychotherapy is a growing interest in studying the
individual in relation to his systems, e.g., the social context, and in studying the individual himself as a complex system (Ashby, 1963; Gaarder and Montgomery, 1977; Kaufman, 1977; Lazarus, 1976; Maglioca and Maglioca, 1978; Rizzo, 1976; von Bertalanfy, 1968; Werley et al., 1976; Zagornik, 1976). For example, Zagornik (1976), who looked at the application of "systems approach" to the teaching-learning process of graduate nursing students, considered this approach relevant because it deals directly with the two major cognitive skills, analysis and synthesis, which are of critical importance to the cognitive development of the graduate student. In addition, she identified the concept of control, a part of a systems approach, as of great value in helping the student understand his own position and impact in the health-care system.

Those interested in the systems approach and those working on the idea of self-control are part of a converging toward the development of an approach in the fields of education and health care known as holism. The roots of the holistic approach can be traced to various schools of thought such as that of Gestalt psychology (Boring, 1950; Wallen, 1970), the neo-Freudian (Hall and Lindsey, 1957), and Adler's individual psychology (Dreikurs, 1953). From this general area arose the concepts and practices of holistic education, holistic treatment, and holistic therapy (Arieti, 1970; Bogen, 1977; DeVogue and Varble, 1976; Elkind, 1974; Frey, 1978; Gross, 1980; Haight, 1975; Morton, 1977; Ogletree, 1978; Peper, Ancoli, and Quinn, 1979; Smuts, 1967; Weisensee, 1977).
The holistic movement has direct implications for counseling and for counselor education. According to Gross (1980), the role of the nonmedical helping professional in the future will involve him in areas such as physical and mental wellness, including nutrition, exercise, and fitness, that in the past have been categorically relegated to medical specialists. In addition, the future helper will have the significant role of educator for his client, helping him to learn to accept responsibility for his own preventive self-care and health maintenance, as well as for his own healing of disease symptoms (Bauman et al., 1978). These are responsibilities that up to now most persons have relegated to health providers, much to the person's disadvantage (Doyle, 1978; Todd, 1978).

Archer et al. (1972) were among the first to advocate that the physiological responses of the client be considered a part of the behavioral complex the counselor needs to deal with in the counseling situation. They also emphasized the importance of the social-interactional context of these responses and suggested that therapy students should receive training about the affect and other psychological variables by examining their own physiological responses in situations analogous to those of their clients. Such training would more properly equip the counselor trainee for the increasingly holistic role being advocated for him. For example, the involvement of counselors in the holistic treatment of coronary heart disease patients comes from the current recognition that most such patients have behavioral and attitudinal problems that contribute significantly to the disease and critically affect response to treatment and potential recovery (Friedman
and Rosenman, 1974; Ottens, 1977). The same viewpoint has been expressed for other major health problems, including cancer (Achterberg and Lawliss, 1978; Cullen et al., 1976; Gordon et al., 1980; Simonton and Simonton, 1975) and hypertension. Handkins and Munz (1978) found that patients suffering from hypertension tend to self-disclose significantly less than nonhypertensive control subjects. Southern and Hannaford (1981) concluded from this type of evidence that there is a definite role for the modern counselor in the health profession. The same conclusion was reached by medical researchers, who see the need to integrate the counselor into the health profession (Gordon, 1981). This development in the professional world of the counselor needs to have a similar application to development of educational policies and methods in the counselor training programs.

Of even more direct consequence are the recent events in the field of education. The concept of holistic education includes the integration of all relevant factors that influence the student's learning into a systematic and comprehensive approach to his education. Such an approach would by necessity emphasize the individualized needs of the student by recognizing individual differences in the strengths and weaknesses of the various sensory modalities of learning (Huxley, 1977). This new movement also highly values the need for reexamining the role of imagination and other cognitive phenomena that have been ignored in the field of education (Mock, 1970).

Two separate areas of research have been converging toward a concept of holistic education. Psychologists have been studying the development of cognitive functioning in the human organism (Elkind,
1974; Furth, 1977; Kohlberg, 1972, 1975; Piaget, 1954; Piaget and Inhelder, 1969, 1971). From the development point of view, researchers tend to view a person's learning as resulting from a convergence of variables over time, all directly or indirectly under the relative control of the organism. In the last decade there has been a surge of interest in the relationship between the hemisphericity characteristic of the human brain and the integration of various cognitive functions (Blakeslee, 1980; Bogen, 1977; Frumkin, 1976; Gazzaniga, 1970, 1975; Kimura, 1973; Krashen, 1975; Nebes, 1975; Ornstein, 1972; Paivio, 1974; Sackheim, Packer, and Gur, 1977; Wittrock, 1975). Researchers of the "split-brain" phenomenon also tend to hold that learning and education are best seen from a holistic point of view. According to them, the process of learning in an educational setting involves the integrating organization of information differentially processed by each hemisphere under the relatively active control of the learner. Investigators in this line of research seem to agree that educational principles and practices need to be modified in view of the findings.

A real reform of the educational system will not occur until the individual teachers learn to understand the true duality of their students: minds. With this awareness it becomes only natural to conduct the class in a way that keeps the attention of both the verbal and the nonverbal minds (Blakeslee, 1980, p. 59).

The contrast between holistic and nonholistic educational approaches can be graphically illustrated in a vivid case example in the literature. A teacher in an arithmetic class was trying to explain the concept of infinity. The following interaction took place in the sixth-grade class: (Jones, 1968, p. 72):
Teacher: "And can anyone tell me what infinity means? (silence) "What is infinity?"

Billy: (Pause) "Uh, I think it's like a box of Cream-of-Wheat."

Teacher: "Billy, don't be silly."

A counselor subsequently had occasion to explore Billy's thinking and was able to determine that he was thinking of the picture on the cover of the cereal box, which showed a man holding a cereal box on which was a picture of a man holding a cereal box on which was a picture of a man holding a cereal box, ad infinitum!

This case example illustrates how, in recalling the picture of the cereal box, the child in the classroom was actively involving in learning the concept of infinity, not passively receiving it from the teacher. The child had performed (according to Piagetian concepts) a concrete operation using imagery, a cognitive skill developed relatively early and at Billy's age strongly developed (Piaget and Inhelder, 1971). Imagery is considered an antecedent developmental step, prerequisite to dealing with abstract concepts, or formal operations, a skill which a child usually has not developed at this age. It should also be noted that visualization of images is believed to be primarily a function of the right hemisphere for most children, whereas verbal forms of thinking are functions of the left hemisphere.

The case example also illustrates a very important assumption for this investigation: In an educational setting a teacher who is not holistically oriented may ignore the developmental and self-directed aspects of students' learning process, thereby probably missing
opportunities to facilitate that process. Worse, still, such a teacher could be responsible for discouraging the learning process with potentially serious consequences to the future education development of the students.

Although the example dealt with a child, the principle is believed to be the same for a graduate student in a counselor training program, namely, ideally learning is self-directed and holistically involves both sides of the brain. A graduate training program for counseling students, no less than elementary school programs, needs to be designed in a manner that is sensitive to the ideal conditions for learning. Some investigators have indicated that much of the skill and competency of counseling trainees is acquired by the active and primarily self-directed process of self-examination in the context of learning how to interact with the person to be helped (Fuhrmann, 1978; McClain, 1969). The specific activities involved in this process are varied, and they include the newly emphasized area of physiological awareness and its integration with the more traditionally taught techniques for emotional and behavioral self-awareness (Archer, 1972; Cross, 1980). The concept of holism seems fitting to the process of learning counseling skills in two important aspects: how the trainee views his own self-development as a person and as a counselor and how he will be viewing the development of his clients.

**Innovative Approaches to Self-control**

Innovative methods currently being used in education, counseling, and psychotherapy seem to be relevant to the described
needs of counseling education. These innovative approaches include biofeedback, imagery, and self-control skills training. Despite the glowing reports concerning these methods appearing in the applied psychology literature, the techniques have not received sufficient experimental validation, largely due to the lack of an adequate theoretical formulation (Elmore and Tursky, 1978). However, the preliminary evidence suggests that these techniques are successful in facilitating positive changes in counseling, therapy, and education (Astor, 1977; Basmaijan, 1979; Blanchard and Young, 1974; Brownell, 1978; Carlson, 1977; Geffen, 1973, 1975; Haight, 1975; Horowitz, 1970; Kelly, 1974; King, 1976; Olton and Noonberg, 1980; Paivio, 1971, 1974; Peper, 1976; Schwartz, 1973; Stoyva, 1976, 1980; Stuart, 1977; Thoreson and Mahoney, 1974).

In biofeedback training, an educational approach is combined with an electronic technology to provide the subject with information concerning his physiological responses. He is given training in increasing his control of these responses and in the positive application of this control. Theoretically, the mechanism believed to be involved is the conditioning of changes in psychophysiological response and the immediate reinforcement of the desired responses, supported by positive cognitive changes such as increased self-esteem and change in the perceived locus of control. These changes are believed to result in improved learning, health, and other benefits (Basmaijan, 1979; Blanchard and Young, 1974; Carlson, 1977; Danskin and Walters, 1973, 1975; Engelhardt, 1978; Epstein and Blanchard, 1977; Gaarder and Montgomery, 1977; Green and Green, 1975, 1977; Haight, 1975; Kappes

The method of imagery training involves guiding the student, or client, in the production of his own visualization responses (also including auditory, tactile, and other sensory modalities) internally represented. This training also involves the use of imagery response to change psychophysiological responses, attitudes, emotions, and behaviors in desired directions (Assagioloi, 1965, 1973; Bugelski, 1970; Caroll, Marziller, and Watson, 1980; Dilley, 1973; Edmonston, 1975; Geffen, 1973; Gendlin and Olsen, 1970; Haight, 1975; Hollenberg, 1970; Horowitz, 1970; Kelly, 1974; Kosbab, 1974; Leuner, 1969; Paivio, 1974; Reyner and Smeltzer, 1968; Richardson, 1969, 1972; Sheikh and Panagiatou, 1975; Shorr, 1974; Wilkins, 1976; Wittmer, 1973).

Klinger (1977), who explored the process in psychotherapy from the standpoint of the client's thoughts and other cognitive experiences, described the clinical usefulness of imagery. He identified one advantage as that of providing both the client and the therapist with more accessible and relevant material upon which to focus in the effort to increase awareness of conflicts and unresolved issues. A second usefulness mentioned was the active use of imagery in rehearsing behaviors. Reyher and Smeltzer (1968) demonstrated that active use of imagery in a therapy session resulted in greater productivity in terms of increased physiological responding, which indicated the anxiety the client has begun to allow himself to experience and the reduction in the use of defenses to block awareness of experience.
Hazler and Hipple (1981) demonstrated that involving counselor trainees in active use of their imagery resulted in their enhanced ability to be empathic and increased accuracy of their self-examination and evaluation of their own performances.

Training for the acquisition of self-control skills typically involves instructing the student counselor in the use of direct problem-solving strategies, including changes in verbalizations, thinking, imaging, written statements, tape recordings, role rehearsals, manipulation of emotions, and bodily states (Barrios and Shigetomi, 1980; Epstein and Blanchard, 1977; Jonas, 1973; Kanfer, 1977; Mahoney, 1977; Marlatt and Marquez, 1977; Meichenbaum and Cameron, 1974; Meyers, Mercatoris, and Artz, 1976; Stuart, 1977; Wood, 1978; Zivin, 1979). A critical variable in this approach is the student counselor's responsibility for implementing and evaluating progress toward his goals of change. Self-monitoring techniques are part of self-control skill training (McFall, 1977).

In the actual clinical setting, two or more of these three methods are usually employed simultaneously with a given client. In this sense, the last category, self-control skills training, is more comprehensive than biofeedback and imagery training (Yord and Witmer, 1980). In addition, it should be noted that in the clinical setting these "innovative" methods are not necessarily seen as rival to more traditional approaches. Rather, they are often integrated with more established modalities of therapy (Braud, 1978; Onoda, 1979).
Methodological Research Approach

Another area to be considered in the background for this study is the choice of the appropriate methodological research approach in this type of investigation. A dilemma in human behavior research has been the question of whether it is better to obtain data with a nomothetic approach, having the statistical advantage of a large number of observations of a number of subjects under controlled laboratory conditions or to study the individual in a holistic manner so as to obtain an undistorted view of the realistic complex natural phenomena. The former has the disadvantage of requiring the breakdown of complex naturalistic behaviors into artificially simpler components, whereas the latter's disadvantage is that it lacks the desired control of variables that permit a definitive statistical analysis of an event (Hall and Lindsey, 1957).

This conflict is finally being abandoned as a pseudo-controversy largely because of the recognition of the validity of both points of view as being necessary and complementary research strategies (Bergin and Strupp, 1970; Kiesler, 1971). Following a developmental view of the evolution of the research process, some investigators have stated that the idiographic approach, and specifically the single-subject design, is appropriate for defining the important parameters for subsequent nomothetic study of certain complex human phenomena in relatively new areas of investigation (Hersen and Barlow, 1976; Kratochwill, 1978). Other authors have criticized researchers in the field of counseling for overreliance on the traditional academic statistical approaches that have yielded a too-narrow perspective. They have recommended that investigators be willing to operate creatively and subjectively and not
remain "obsessed" with atomism and esoteric statistics (Diamonti and Murphy, 1978). The choice for this investigation of the single-subject method as described in more detail in the next section was based on these considerations.

It is evident from the background that there are theoretical concepts available for a beginning attempt to describe and explain the complex learning process to a student in a graduate counselor education program. These concepts are self-control and holism. They will be operationally defined in this study in terms of the instructions to the subjects to use certain cognitive strategies (mainly active imagery) and in providing nonverbal training to modify internal experiences (mainly biofeedback control over physiological reactions). In the review of the relevant theory, it was also demonstrated that these concepts could be related to specific training procedures currently being used in the field to design a prototypical instructional set that is proposed to be used in counselor education programs for systematic training toward self-regulation and self-development.

No comprehensive coherent theoretical statement that would tie together the concept and field methods currently exists. Not surprisingly, there has been no systematic scientific evaluation of either. The following general questions can therefore be raised: Can testable hypotheses concerning the counseling educational process be formulated and experimentally evaluated based on a theoretical framework suggested by available concepts? If so, would the results of an exploratory study lend sufficient support to justify further work in that direction? This study is the result of an affirmative answer to the first
question, and it is hoped that the results will give an affirmative answer to the second.

Framework and Assumptions

In the statement of the general problem to be addressed in this study there was a need to develop a prototypic theoretical formulation of an education procedure for counselor and therapist training based on the concepts of self-control and holism in learning. In addition there was stated the need to tie these down to the specific techniques of biofeedback training, imagery training, and self-control skills training. It was also pointed out that in this study this formulation and the procedures would be initially evaluated in terms of whether or not there is evidence that they can lead to desirable changes in the direction of increased therapist competency. An additional goal was to relate this prototypic theoretical formulation to a broader, more comprehensive theoretical system.

A basic assumption for this study was based on the developmental point of view, as espoused by Piaget (1954; Piaget and Inhelder, 1969, 1971) of the cognitive development of the child and extended to describe the continued development of the adult by Kohlberg (1972), Kovacs and Beck (1978), and Malerstein and Ahern, 1979. According to this view the counselor trainee can be seen has having an inherent need and tendency to develop in an increasingly integrative manner (Szent-Gyoerigy, 1977). A second assumption, taken from the holistic standpoint, is that the totality of the trainee's experiences, including those in his counselor education program, is a search for a coherent
meaning of himself and of his relationship to the social world (Adler, 1918/1963; May, 1967). According to this assumption, the trainee's experiences in his educational program parallels the experience of the client in the counseling process in terms of an equivalent search by both for growth and actualization. In addition, the trainee's future experiences as a therapist can be seen as having been strongly influenced by his learning experiences in the training program. This assumption of equivalency between the trainee's educational experience and the client's counseling experience has received wide exploration and support in the literature (Astor, 1975; Authier et al., 1975; Bakker, 1976; Bergin and Strupp, 1972; Carkhuff, 1971; Guerney, Guerney, and Stollak, 1971/1972; Ivey, 1974; Johnson, 1978; Lambert, 1974; Levy, 1968; Mahoney, 1977; Parker, 1968; Patterson, 1971; Truax, 1968; Weiner, 1975). For example, Johnson (1978) reviewed the learning factors in a counseling session. The counselor should be aware of the variety of cognitive styles used by individual clients. It is also interesting that some of the psychological tools that have been extensively used in counseling and psychotherapy are now being used to help students and trainees cope better with their problems of learning (Cole, 1979; Tremonti, 1973).

The assumption of equivalence of experiences of the trainee and the client leads to the implication that there would be a more effective outcome in the use of counseling skills by a counselor whose training experience included paying close attention to the process of change and development in himself.
Adlerian Individual Psychology Theory

In the individual psychology theory of Adler (Adler, 1918/1963, 1930; Allen, 1971; Dreikurs, 1953; Mosak and Dreikurs, 1973) is the general theoretical system considered by the author of this study to comprehend all assumptions stated earlier and to unify them into a comprehensive coherent statement that can serve as a framework for this study. The individual psychology theory is a holistic approach that views the person in an integrative manner. Adler (1918/1963) was one of the first modern theorists to emphasize the unity and completeness of human experience. He was opposed to the prevailing notions that dichotomize human experience such as the mind/body split and the conscious/- unconscious polarization that tend to present the person in a fragmentary manner. Similarly, the Adlerian theory opposes the mechanistic- deterministic philosophy that dominated academic psychology for a long time because it views human experience as fragments and the totality of the personality as a sum of fragments.

In contradiction, the holistic view of Adlerian theory used the concept of systems before the idea came into its current vogue. The Adlerian concept of the creative self epitomizes the assumption of self-directed learning. With this concept, the individual psychology theory assigns the individual the significant role of exercising control on forces determining his life.

Given the assumptions of self-direction and of control, the events in a counselor trainee's educational experience take on a definite meaning under the Adlerian-influenced theoretical framework of this study. The desired attitudes and behaviors leading to effective
counseling have previously been identified as (1) the counselor's active approach to the client, operationally defined in terms of use of cognitive operations such as visualization, (2) his spontaneity and imagination in interacting with the client, (3) his cognizance of his self-responsibility in terms of awareness of his own attitudes and behaviors, and (4) possession of a holistic view of himself and others that would color the counselor's understanding of his client as the latter relates to others (Blocher, 1968; Carkhuff and Berenson, 1967; Christensen and Thomas, 1978; Levy, 1968; Lewis, 1978; Parker, 1968).

Adlerian concepts for the theoretical framework for this study call for an education program that would emphasize the student's own drive to learn and progress. The use of desirable instructional methods would serve the secondary, though important, function of encouraging the trainee's self-directed quest and providing him with meaningful guidelines through relevant data. This would include making available to the student effective methods of acquiring accurate external and internal feedback that would accentuate for him the issues and choices and, therefore, the consequences important for him to be aware of if he is to persevere in his task of personal growth as a counselor.

The specific methods of biofeedback, imagery, and self-controls skills training selected for this study have not been developed directly from Adlerian theory. Yet they seem to be explicitly congruent with the theory's major constructs and the practices Adlerian counselors and therapists have been implementing for years (Scarff, 1976) and with the theory's philosophical outlook of man.
Summary

The literature was reviewed in terms of the background provided in Chapter 1. First was identification of needs in the area of counselor education, both in theory and application of theoretical concepts to practice. Statements in the literature concerning the state of counseling education were shown to lead toward the development of a more integrated and coherent view of the complex learning process in counselor training and toward the development of educational procedures aimed at realistically meeting the trainee's needs in acquiring counselor competency through emphasis on self-development. This was seen as becoming defined in the various studies reviewed in terms of specific behaviors, cognitions and attitudes of self-awareness, and the regulation and control of the trainee's own physiological and cognitive processes.

The specific theoretical concepts that emerged as potentially useful in accomplishing the educational goals were those of holistic learning and active self-control. The theoretical system of Adler's individual psychology, including its more recent restatements, was selected as the one system whose overall view of the human experience and specific constructs is most closely related in a comprehensive way to the theoretical assumptions upon which this study was based: (1) the learning of a counselor trainee is a self-directed phenomenon and (2) the trainee's learning is most effective when it holistically involves all sensory and cognitive modalities such as imagery and physiological reactions.
CHAPTER 3

METHODS

The specific hypothesis tested was that attitudes and behaviors of self-regulation of the counseling students who served as subjects for this study would be enhanced by using the instructional set designed for this study. This hypothesis was operationalized as described in the sections on subjects and experimental treatment. This chapter also includes a description of the criteria measures used to define attitudes and behaviors of self-regulation and the instrumentation used to obtain the scores and to provide the treatment of the experimental design used to analyze the results. In the conclusion the hypothesis is restated in terms of specific predictions that would be observed with the specific measurements following the experimental treatment.

Subjects

The four subjects who participated in the study were graduate students in one or more of the counselor education programs at The University of Arizona, Tucson. Each student subject was at the entry level toward a master's degree and was at the beginning of his preparation for a professional career in the general field of behavioral health. Subjects were recruited by a sign-up sheet placed on the student bulletin board. The first two males and first two females who signed up were selected if they met the criterion of having no past experience with the techniques and methods of biofeedback training,
training, imagery training, and self-control skills training. Ages of the males were 26 and 41 years and of the females, 29 and 39 years.

Treatment Procedures

The treatment used a counseling session analog during which the pretest scores and physiological measurements were taken and a final session during which posttest scores and measurements were obtained. The subjects were administered a comprehensive treatment package after the initial pretest measurements were taken to establish baselines. The pre- and posttreatment phases comprised seven sessions held at weekly intervals. The administration of the treatment condition constituted an additional session, which intervened between the pre- and posttreatment sessions. Each subject was given the treatment session at a different point according to the experimental design.

Instructional Set

The instructional package itself (Appendix A) consisted of a taped presentation of didactic information concerning self-regulation in counseling, emphasizing the need for the counselor to learn self-awareness and self-control of important behaviors and attitudes. The didactic presentation was complemented by the use of imagery exercises and rehearsals of relevant situations and by direct biofeedback and self-control skills training, including deep muscle relaxation and autogenic exercises.

A case presentation of a "client" was presented on videotape in terms of problems of helplessness and lack of control. This was done to make the analog session appear more realistic. This videotape is on
file at the Department of Counseling and Guidance, University of Arizona, Tucson, and is available upon request. A videocamera was used to film the subjects enacting the role of therapist as they responded to the "clients." Azrin (1978) presented the rationale for using a multivariate package rather than isolated variables for research studies in a naturalistic area at an early phase of exploration such as this investigation.

Biofeedback Instrumentation

The instrument used in the biofeedback training was an electro-mylograph (EMG) model BF401C (Biofeedback Technology, Inc., Garden Grove, California). An EMG measures the electrical response of a muscle to nerve stimulation. Electrodes are applied onto the skin of the forehead over the area of the frontalis muscle onto which a conductive gel has been applied to pick up and conduct the electrical activity of the muscle to the EMG unit where it is transformed into two modes of feedback: a visual signal and an auditory signal. The visual signal is provided through a meter whose needle moves laterally with increases or decreases in muscle activity. The auditory signal has a varying pitch, which provides similar information. The two signals are presented simultaneously. The EMG was used to provide (1) biofeedback training, part of the treatment condition; and (2) a physiological measurement of self-control, one of the criteria measurements.

The EMG was connected to another electronic device, a model BFT21C Time Period Integrator (Biofeedback Technology, Inc., Garden Grove, California), which provides stable recordings of the fluctuating
EMG output signals. The measuring mode used in this study was the peak-to-peak average of the EMG signal, which was read off a digital meter at automatically selected intervals.

Criteria Measurements

The criterion measurement comprised physiological measurements and a self-assessment paper-and-pencil test. Both instruments have a common element: They are used to measure various aspects of the concept of self-control. All criteria measurements were centered around the analog "counseling sessions," which were held immediately prior to and following the administration of the treatment condition, the instructional package. The effectiveness of the treatment was evaluated in terms of the subject's perception of himself in the dimension of self-control, using a rating scale, the Adult Nowicki-Strickland Internal-External Control (ANS-IE) Scale (Appendix B), for locus of control. Physiological measurements from the EMG were used as the primary objective measurement of self-control changes due to the administration of the treatment condition.

Adult Nowicki-Strickland Internal-External Control Scale

The theory behind the ANS-IE Scale is that individuals differ in locus of control, a personality variable (Nowicki and Duke, 1974; Nowicki and Strickland, 1974). This construct refers to the degree an individual believes he controls the outcome of his behavior (Deaton, 1978; Rotter, 1966). The internal consistency of the scale was reported by Nowicki and Duke (1974) to be in the 0.70s in terms of split-half
reliability coefficients and in the 0.80s in terms of test-retest reliability coefficients. Both were considered satisfactory by them.

The ANS-IE Scale, which is self-administered, consists of 40 items, which can be answered "yes" or "no." It is a modification of an earlier scale used with children in education settings (Nowicki and Duke, 1974). The score is the total number of responses in the direction of external control; thus, the lower the score the more the subject perceives himself as having internal control, or greater self-control. Of interest to this study will be the change score, the difference between the pretest and posttest scores. Several validity studies have related the adult version of the scale to a number of variables, including educational factors (Duncan, 1974; Nowicki and Yock, 1974; Pappas and Nowicki, 1972).

Electromyograph Muscle-tension Level

The EMG measurement of muscle activity has been used as an indicator of an individual's general ability to control his behavior, especially his physiological responses (Stern and Berrenberg, 1977). Biofeedback measures, in general, have been related to self-regulation (Blanchard and Young, 1974; Epstein and Blanchard, 1977).

In this study, the EMG readings were recorded every 5 minutes during each of the 30-minute "baseline" sessions, which ranged from a minimum of two to a maximum of five for each subject. Following the baseline phase, each subject was administered the treatment condition and was then administered the physiological measures in the posttreatment phase, which again ranged from two to five sessions, according to
the experimental design. During the posttreatment measurement phase, recordings were taken every 5 minutes over a 30-minute interval and the score was the average EMG level. The EMG scores were analyzed on a graphic scale.

During the time the subjects were undergoing the EMG measurements it was deemed necessary to structure the time in terms of subjects' cognitive experience to preclude or diminish idiosyncratic cognitive responses by the subjects. Therefore, before each measurement session, subjects were asked to sit still and physically relax, and then they were told that a statement would be read at the beginning of each session and that they were to think and reflect on the statement while the measurements were taken. The statement consisted of a didactic reading of a short introductory chapter of a textbook of psychotherapy (Weiner, 1975, pp. 3-9). The contents of this statement were considered to be low level for arousal of imagery. The same taped reading was played at the beginning of each of the seven pre- and posttreatment sessions.

Having a battery of criteria measures at the present stage of research in the chosen area is considered useful because the validity of the various forms of measurement involved have not been individually sufficiently established experimentally.

**Experimental Design**

The single-case-with replication design was selected as the appropriate one for this study because the study meets the criteria for such a design as described in the literature (Barlow et al., 1977; Bird,
Cataldo, and Cunningham, 1977; Hersen and Barlow, 1976; Kiesler, 1971; Kratochwill, 1978; Shontz, 1965). The design is considered valid by various authorities, and for some studies, a preferred alternative to the between-groups design for which there is a question of economy and efficiency of time and other resources and when the duration of the experimental procedure is relatively long. Another important criterion for the design is a relatively new field of study in a naturalistic and complex setting where the treatment effect is expected to be strong, based on "clinical" observation (Parsonson and Baer, 1978, p. 113). This type of experimental design has been considered by several investigators to be particularly appropriate for this kind of research in the area of counseling as opposed to the more traditional between-groups approach that has prevailed in academic psychological research literature (Anton, 1978; Frey, 1978; Thoresen, 1978).

In addition to the treatment session, there was a total of seven measurement sessions of 30 minutes duration each per subject. Of the various single-subject design options available (Kratochwill, 1978), the one selected was that of the multiple baseline across subjects for time-series data (Barlow et al., 1977). In accordance with this design, the treatment condition was administered to each subject in a separate session. Each of the four subjects received a different number of baseline measurement sessions for the EMG measurements, with a minimum of two sessions and a maximum of five. The same condition was held for the posttreatment measurement sessions. The mechanics of the design are illustrated in Figure 1 in which \( \text{O} \) represents the measurement taken and \( \text{I} \) the application of the treatment condition. As the
Figure 1. Idealized graph of electromyograph levels to be recorded for each subject for each of the seven measurement sessions.

"I" represents the administration of the treatment condition. "0" represents observations to be made. Dotted line separates baseline from posttreatment phases.
diagram shows, the first subject received two sessions in the baseline phase, then was given the treatment condition, which was followed by five sessions in the posttreatment phase. The second subject received three baseline sessions, then the treatment condition and four post-treatment session. The third subject received four baseline sessions, then the treatment condition, and three posttreatment session. The fourth subject received five baseline sessions, then the treatment condition, and two posttreatment sessions.

The data were analyzed according to the guidelines described for this design; the results are reported in the following chapter. The analysis involved a visual examination of the graphic curves representing the EMG measurements recorded. The analytical criteria included changes in trends between and within phases, stability and variability between and within phases, and overlap (Parsonson and Baer, 1978).

**Hypothesis and Specific Predictions**

The general thesis was that an instructional set derived from the concepts of holistic education and self-directed learning, which use the techniques of biofeedback training, imagery training, and self-control skills training, would produce an increase in behaviors and attitudes related to effective counseling in the area of self-development. Whether this general thesis holds was not expected to be answered conclusively as a result of this investigation. However, the following hypothesis was tested to determine the tentative validity of the general thesis.
The stated hypothesis was that administering the experimental instructional set to the subjects will result in positive changes in those behaviors and attitudes considered essential in the development of competency for facilitating self-responsibility in future clients. Because the student's competency was operationally defined in terms of his own self-awareness and self-control behaviors, the following predictions were made with respect to changes observed in the measurements that were used to define the dependent variables:

1. For all subjects, there will be a positive change between the pretest and post-test scores on the ANS-IE Scale in the direction of internal, as opposed to external, locus of control.

2. For all subjects, the EMG curves will be relatively horizontal during the baseline phase.

3. For all subjects, a strong effect will follow the treatment condition, indicated by a sudden drop in EMG scores due to a sudden drop in muscle-tension levels reflecting greater physiological control.

4. For all subjects, the EMG curves obtained during the posttreatment phase will either remain horizontally stable or continue to show a downward trend.

5. No sex-related or age-related difference will be seen in either the ANS-IE Scale or the EMG scores.
CHAPTER 4

RESULTS

The study was designed to test the hypothesis that administration of an instructional set based on the concepts of holism and self-control would facilitate the student counselor's learning self-regulatory behaviors and attitudes. Change in self-regulatory attitudes was determined by comparing pre- and posttest scores on the ANS-IE Scale.

The important data for this study were the physiological measurements provided by the EMG scores, which were analyzed by the single-subject design method. The four subjects fulfilled the requirements of the specific multiple-baseline across subjects design.

Of secondary importance were the subjects' scores on the ANS-IE Scale as a measurement of perceived locus of control. The pre- and posttest scores were compared, but no statistical technique was used because the data did not meet the requirements for statistical treatment.

Electromyograph Scores

Table 1 show the mean EMG scores for the four subjects for each of the seven sessions. The score reported on Table 1 was the average of the peak-to-peak electrical activity for 5 minutes, recorded in microvolts (μV), generated by the fluctuating muscle-tension levels during a session. Subject 1 received two baseline sessions before being
Table 1. Mean electromyograph scores (μV) during baseline and post-treatment phases

<table>
<thead>
<tr>
<th>Subject</th>
<th>Age</th>
<th>Sex</th>
<th>Baseline Session</th>
<th>Posttreatment Session</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>1</td>
<td>26</td>
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administered the treatment condition (the instructional set) and five posttreatment sessions during which EMG levels were obtained. Subject 2 received three pretreatment and four posttreatment sessions, Subject 3 received four pretreatment and three posttreatment sessions, and Subject 4 received five pretreatment and two posttreatment sessions. In accordance with this design all subjects received the same total number of sessions.

Figures 2, 3, 4, and 5 show graphic curves that provide a summary of the EMG data for the four subjects. Figure 6 shows graphic curves for the means of EMG measurements for each session in a manner that allows for visual comparison of the scores of the four subjects.

Both Table 1 and Figure 6 show that in all sessions all posttreatment means of the mean EMG scores were lower than all baseline means of the mean scores for each subject. A more meaningful understanding of the data can be obtained by examining Figures 2, 3, 4, and 5.

Baseline Trends

Although none of the four baseline curves is strictly horizontal, as had been predicted, all but the baseline curve for subject 4 were more horizontal, that is, showed less slope than did their respective curves for the posttreatment phase. For subject 4 the slope was about the same for both the baseline and posttreatment curves. In none of the curves is the slope in the upward direction, and generally for all subjects the curves showed a slight downward trend, indicating that
Figure 2. Mean electromyograph levels as a function of measurement session for Subject 1
Figure 3. Mean electromyograph levels as a function of measurement session for Subject 2
Figure 4. Mean electromyograph levels as a function of measurement session for Subject 3
Figure 5. Mean electromyograph levels as a function of measurement session for Subject 4
Figure 6. Mean of mean electromyograph levels as a function of measurement session for the four subjects.
Figure 6--Continued
muscle-tension levels remained stable or showed a slight decrease during the baseline phase. The greatest downward slope was observed for subject 4, who also had the largest number of sessions in the baseline phase.

Between-phase Trends

A between-phase analysis of the curves in Figures 2, 3, 4, and 5 shows a clearcut effect for all four subjects, with the largest drop in muscle-tension levels seen for subject 4 and the smallest for subject 2. As can be seen from these figures and Figure 6 and Table 1, despite the somewhat clouding effect of the existence of a downward slope in three of the four baseline curves, the drop in levels between baseline and posttreatment phases is fairly obvious. Figure 6, which presents curves for the means of the mean EMG scores, demonstrates that for subjects 3 and 4 this drop is quite sharp. This appearance of a clear effect for subjects 3 and 4 is probably due to their baselines curves being more horizontal, especially the baseline curve for subject 3, than the curves for subjects 1 and 2. Note that the slight slope that does occur in the baseline curve for subject 3 is positive rather than negative, as it is for the posttreatment phase. For subject 4, the last three sessions of the baseline phase (Fig. 6) are nearly horizontal, which helps to demonstrate a fairly large between-phase effect attributable to the treatment condition.

It should be noted that for subjects 1 and 2 the baseline sessions were the least in number, two and three sessions,
respectively. This may account for the absence of a "leveling off" of slopes observed in the baseline curves for subjects 3 and 4.

Posttreatment Trends

Examination of the curves in figures 2, 3, 4, and 5 shows that, there was a definite downward slopes in all curves, indicating reduction in muscle-tension levels. The curves for subjects 1 and 4 show this most clearly. In no curve is there an indication of a reversal of the downward trend. Although all curves show a gradual leveling off, only the curve for subject 4 shows a final horizontal level.

Overlap

One way of analyzing the curves to determine if they show evidence of a treatment effect with the design used in this study is the analysis of overlap between curves of the baseline phase and those of the posttreatment phase. A horizontal line drawn through the lowest EMG level in the baseline phase and another horizontal line drawn through the highest level in the posttreatment phase defines the overlap area. If a relatively large number of posttreatment events fall between these lines, some evidence against the existence of an effect exists. Conversely, a relatively small number is supportive evidence to some extent for a treatment effect (Parsonson and Baer, 1978).

Examination of Figures 2, 3, 4, 5 shows that only for subject 2 (Fig. 3) were there no events in the overlap area. However, the number of observations that fall in the overlap area for the other three subjects is quite small. For subject 3 (Fig. 4), only 2 of the 15 scores taken in the posttreatment phase fall in this area, whereas the
number for subjects 1 and 4 is even smaller: 1 event out of 25 (Fig. 2) and 1 event out of 10 (Fig. 5) for subjects 1 and 4, respectively. This is seen as fairly strong evidence for a treatment effect. This receives additional support from the observation that where an overlap did occur this tended to be at the very beginning of the post-treatment phase. No crossover or overlap was observed after the second observation and only one overlap occurred after the first observation. No overlap is shown on the curves for mean EMG scores (Fig. 6).

Variability

A third type of evidence that is looked for in graphic curve analysis for single-subject designs is within-phase and between-phase variability. This analysis compares the deviation of the observations from their mean as well as looking at the range of deviations as well. Figures, 2, 3, 4, and 5 shows that there is a significant decrease in variability between the baseline and posttreatment phases for subjects, 1, 3, and 4. This was not observed for subject 2. In fact, there seemed to be a small increase, apparently not significant, in the variability of the EMG scores at the end of the posttreatment phase. On the whole, however, the variability for subject 2 appears fairly uniform throughout the sessions. Nevertheless, the overall evidence seems fairly straightforward in terms of this criterion that there is support of the hypothesis that the treatment condition (the instructional set) will facilitate learning self-regulatory behaviors by student counselors.
A second prediction based on the hypothesis of this study was that student counselors' scores on the ANS-IE Scale of locus of control would be lower in the posttreatment phase than in the pretreatment phase. This would be indicative of a change in self-regulatory attitude from externally oriented to internally oriented locus of control. Student counselors would tend to see themselves as more in control after the use of the instructional set.

Table 2 shows the pre- and posttreatment scores on the ANS-IE Scale for all subjects. For the purpose of this study, the measurement was used to determine if it would tend to corroborate evidence for the treatment effect obtained through more objective measurements by also showing an effect on a relatively more subjective measurement. As can be seen from examining data in Table 2 this indeed seems to be the case. For all subjects there was a decrease in scores, indicating a change in the direction of perceived internal (or self-) control. The degree of change, as seen from the difference between the pre- and posttreatment scores for each subject seems to have been about the same for all four subjects.

One of the problems with this dependent measure can be seen from the observation that for one subject the posttreatment score was zero, indicating the improbable finding that this subject perceived himself as being completely self-controlled. This indeed was born out when during the debriefing of subjects which took place after the experiment was completed that subject was asked his views concerning his level of "internal" control. His response indicated that, whereas he
Table 2. Scores on Adult Nowicki-Strickland Internal-External Scale before and after treatment condition

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perceived himself to be relatively self-controlled, he would not make a claim that he had reached perfection. In addition, a posttreatment score of 2 for another subject indicates that there is the existence of a "floor" effect with this measure. This will be discussed further.

In summary, the results seem to be fairly unequivocally in support of a treatment effect; that is, the evidence supports the hypothesis that the instructional set used in this study did facilitate the behavior and attitudes of the subject, students in a counseling program, in the direction of increased self-control. This conclusion and its implications are discussed in the next chapter.
CHAPTER 5

DISCUSSION

An examination of the results showed that generally the hypothesis of this study and specific predictions based on it were supported. That is, there was an affirmative answer to the question whether the instructional set designed for and used in this investigation would relate to an increase in behaviors and attitudes operationally designating "self-control" of the four graduate counseling students who served as subjects for the study. This generalization can only be made within the limits defined by the investigation. These include:

1. The conclusions cannot be extended to counseling trainees in general or even to counseling students at The University of Arizona.

2. The positive findings cannot appropriately lead to a definitive conclusions that the observed reduction in muscle tension, which operationally defined the concept of physiological control, was due primarily to the effect of the instructional set.

3. Even more emphatically, the results of this study cannot be appropriately used to conclude that there was confirmation of the theoretical concept that an educational process that includes a holistic approach and is based on self-direction will result in more effective self-development of its trainees and in a more successful outcome in their future work as counselors.
The reason for these limitations on the ability to draw definite positive conclusions from the positive results of this study is simply the experimental design used in the investigation. Definitive conclusions such as those that were ruled out can only be made after much further investigation, which would include studies using between-groups designs to provide a statistical basis for making such generalizations.

Despite these limitations, the findings do provide a basis for other positive conclusions:

1. The theoretical concepts of holistic education and self-directed learning as applied to counselor training programs appear to be fruitful in helping to generate testable hypotheses that could help build a theoretical formulation of the learning process involved and lead to more knowledge in this area.

2. The acquisition of further knowledge in this area could lead to important improvements in its application to the development of instructional and curricular methods in counseling education.

3. Furthermore, the positive results in this investigation can be seen as providing support for the continued use of the specific techniques of biofeedback training, imagery training, and self-control skills training in education procedures in research in this area.

Although it is not believed that it would be appropriate to extend this as a blanket endorsement of the practical application of this methodology in actual field situations, the results of the investigation certainly do not give any reason to discourage the use of these techniques in the applied field situation. This is a moot point, because a
review of current trends shows that these techniques are being used and will probably continued to be used in practical application. The contribution of the findings here, however, is that they provide an incentive to study these techniques in a systematic manner so that an eventual scientific basis will exist upon which to decide what is to be done in the field.

What was aimed for in this study, and therefore dictated the choice of the design, was experimental direction in an area and at a phase of exploration in which definitive statistically supported conclusions would be premature and would tend to hamper rather than facilitate the process of acquisition of knowledge. Findings based on the wrong design at this stage, whether they are positive or negative, would likely lead to an erroneous conclusion. They could have the effect of endorsing the use of ideas and methods that have not met necessary tests or of unduly stifling the search in a potentially fruitful area with potentially useful concepts and procedures and result in the unwarranted and possibly inaccurate rejection of a potentially correct hypothesis. Consequently, we could possibly be deprived of useful tools in the quest for the improvement of counseling education and efficacy.

In this study, however, with the appropriate use of the single-subject design, the danger of either one of the extremes is minimized. Negative results, or even positive results, can and should be appropriately followed by one or more of the following:
1. At least one effort at replication, using either the single-subject design, as in this study, or a between-groups design with limited parameters.

2. Consideration of concepts other than those used here but still aimed at the general thesis that self-development is a viable goal in counselor education.

3. Extension of the positive results into areas related to counseling education in order to begin to establish the generalizability of the findings.

The findings of this study should be examined, not only in terms of the answers they may provide concerning the treatment condition and the proposed theoretical framework and methods, but also in terms of the strategy of the investigation itself such as the appropriateness or desirability of asking the questions that were asked as opposed to other questions that could have been asked within the same general problem area. More specifically, an alternate approach might have been to do an "outcome-type" study in which the concepts and methods of holistic and self-directed counselor education would be pitted against rival methods or a no-treatment control group. The choice of a "process" type of study as opposed to an "outcome" study was deliberate. To understand why, one need only look at the recent historical developments in the research. During the decades of the '50s and '60s, there was a flurry of "outcome studies" for various rival schools and methods of counseling and psychotherapy. This was to a large extent fostered by those in the camp of behavior therapy and learning theory applications to the clinical field (Meltzoff and Kornreich,
1980). It was reasoned that the best order of sequence would be to determine the efficacy of an approach before being concerned with the mechanisms by which it worked. After all, why spend a lot of time studying an approach if it can be ultimately shown to be ineffective or irrelevant? This proposed test of efficacy has not worked out. Interest in the various methods in the clinical field has been far more the result of interest in the mechanisms, the processes involved in the methods, than in the influence of outcome studies. For example, in the field of behavior therapy, the methods of systematic desensitization and implosive therapy utilized the methods of imagery control, suggestibility, expectancies, and other cognitive variables to such an extent that the methods themselves became the object of interest and study (Kiesler, 1973; Lewis, 1978; Schwartz and Shapiro, 1976; Strupp, 1973).

This study, which is classified as a "process" study, aimed to make the contribution of stimulating further research, ultimately the type of "outcome" research described above, simply by pointing out the promise of the concepts and methods, as shown by the apparent strength of the effect. Such maximization, rather than an overly restrictive test that might have masked part or all of the effect, was considered to be a good strategy from a heuristic point of view (Parsonson and Baer, 1978). In addition, this study can be said to have made a contribution in the area of evaluating the appropriateness of the dependent variables and providing clues concerning criterion measurements for future studies.
From the curves on Figures 2, 3, 4, and 5 it can be seen that the physiological measurements had a balanced combination of two desirable characteristics. There was sufficient stability so that a fairly unequivocal differentiation could be made between a baseline and posttreatment curve for most of the subjects even without use of statistical methods. Furthermore, this type of measurement was apparently sensitive enough to reflect in a relatively short period of time the changes associated with a treatment effect that was also of fairly short duration. There were some difficulties, however, that need to be discussed in terms of suggesting strategies for future research.

First, there was a tendency for all subject to demonstrate a downward trend in the baseline measurements, that is, a reduction of muscle tension prior to the administration of a treatment condition. Despite that this trend was moderate, it did detract some from the ability to show the strength of a positive effect, and it indicated the possible effect of other independent variables that had not been identified. One method of countering this difficulty would be to prolong the baseline phase. Inspection of the curves shows that those subjects who had a longer baseline phase (larger number of baseline sessions) tended to have a more stable horizontal curve toward the latter portion of the curve. This would tend to confirm that the difficulty may simply be one of a time lag between the setting up of conditions favorable for a baseline phase and the response of the organism to those conditions. This lag may vary with different physiological responses. For example, the literature (Benson et al., 1971) refers to one such response, blood
pressure, as requiring a relatively longer period of stabilization than that required to measure muscle tension.

A second suggested modification would be to take recordings only toward the latter end of each baseline session rather than as was done in this study in which EMG readings were recorded from relatively early in the session. Note that in Figures 4 and 5 the last readings of each baseline session showed less variability than the earlier readings. Lastly, it may be suggested that averaging the fluctuations with the use of the integrator for only 5 minutes at a time may have contributed to the baseline curve's appearing less stable than if the length of the averaging period were increased. This choice is a relative matter, to some extent dictated by what is being looked for. At this stage, there was a useful purpose served by looking in more detail at the pattern of fluctuations. However, at the point in the development of research in this area when the object would be to determine a statistical difference between responses of an experimental and one or more control groups, it would be more important to maximize the possibility that an effect would be reflected in the scores to be statistically analyzed. These suggestions are supported by examination of the curves in Figure 6, which shows the data in terms of averages. The stability of these curves is enhanced, and the curves demonstrate the effect much more clearly. It must be pointed out, however, that these curves would not be appropriate as a basis for conclusions for this study because the selected single-subject design calls for the exclusive use of curves showing the specific measurements for the individual subjects.
It would appear that the usefulness in this study of the other dependent variable, the ANS-IE scale scores, which reflect perceived locus of control by the subjects, was considerably limited. Partly, as was pointed out, the problem seems to be that the instrument does not accurately tap attitudinal problems of counseling students in the area of self-control. Even though one would expect a lower mean score for counseling students, there was no reason to believe that the four subjects who participated in this study were more unusually self-developed than the rest of the counseling student population, yet all the scores, even the pretest scores, were extremely low, that is, in the direction of internal (versus external) control. The mean pretreatment score for the trainees in this study was 6.2 and the mean post-treatment score was 2.7. Nowicki and Duke (1974) reported norms of 9.2 for "normal" controls (college students) and 16.3 for schizophrenic patients. If one considers that this is a 40-item inventory, it seems clear that this particular measure would not be valuable as an indicator to follow the progress of a counseling trainee as he deals with the challenge of improving his perception of self-control during the course of his professional preparation.

This conclusion is not surprising if one considers that perceived locus of control is a relatively new area of focus. The phenomenon of helplessness, which is related to this measure, is receiving considerable attention because of its apparent influence on behavioral problems of clients and patients (Seligman, 1975). The population of children and even college students on whom the locus of control scales have been used to developed norms have not been followed very long,
so it is too early to determine the utility of the concept and of the scales for intervention. By comparison, even entry-level counseling students have been sufficiently exposed to the terminology and ideas of control that the current scales are not reflective of a significant challenge based on the particular kinds of self-control issues faced by the trainees.

Positive directions could be given so that attitudinal, self-rating inventory type of instruments could be used with counseling students or other groups relatively sophisticated in the dimension of locus of control or self-control. One step would be to develop items based on specific kinds of experiences that are more relevant to these populations. In view of the increased emphasis on "internal" mental events and on physiological awareness, a comprehensive rating inventory should include these experiences within the covered behavioral range. A second modification would be to provide a wider range of responses than in the "yes or no" format upon which such inventories have relied.

A final conclusion is that this study has helped to point out some directions in the research and practice of counseling education. First, in the statement of the problem and review of the relevant literature, it has crystallized the importance of more closely relating the goals of therapist and counselor training with those of counseling and therapy by pointing out the need to refocus on the processes of the counseling session and learning experiences, which were viewed as somewhat analogous. Secondly, the study related the developing concepts of self-control, self-directed learning, and holistic approaches to
the person to the specific problem area of counselor education. It also suggested a theoretical framework, individual psychology, within which to further develop ideas, hypotheses, and procedures. Additionally, the study integrated several intervention techniques of current interest, namely, biofeedback training, imagery training, and self-control skills training, in developing a prototype instructional set based on the theoretical framework being built.

The most significant implication this investigation has had for the theoretical system of individual psychology is its support for the use of this conceptual model as a basis for explaining the problems of the developing counseling student in terms of self-awareness and the need for increased self-control and as a source of creative ideas to find the means of effecting desired changes. A specific illustration of this contribution is the ability to relate biofeedback training and imagery training to the Adlerian techniques of describing early memories as a way toward awareness of one's lifestyle. The common thread is the understanding that cognitive events are related to behavior and physiology and that these are not only manipulatable by "helpers" but they can also be facilitated toward increasing control by the "helpee."

Lastly, the Adlerian concept that had the greatest relevance in terms of the area of focus of this study was that of the creative self. This concept is elaborated to imply that much of the behavior of the individual is more causally related to him than is normally superficially observed. This conceptual statement is opposed to a rival explanation traditionally given by theoretical systems that are philosophically oriented toward a mechanistic-deterministic view of human behavior.
These see man as being directed mainly by external environmental conditions. There are clear differences between these viewpoints for implicated directions for education in general and for counselor education in particular.

The results of this study are seen as providing support for the continuing development of hypotheses and tests of these from the Adlerian theoretical standpoint. In looking at his behaviors and experiences in the arena of the counseling session, a student can be directed to examine his lifestyle, including the fictional ideas that direct his thoughts, emotions, and even physiological responses. He can be helped to find and correct distortions, become aware of hidden strengths and reinforce them, and, most importantly, learn how to operate himself as an "instrument" in the social context toward his own goals of self-development and of socially interested facilitation of others. The study demonstrated that a counselor trainee can use cognitive instructions and technical information about his body physiology along with direct feedback and synthesize these with his observations of a client to determine what responses should be used. This gives encouraging support for continuing to pursue the potential of the "creative self" as a useful concept.

This study had the following goals:

1. To define a problem in the area of counseling education from the available literature that would related the continued need for improved effectiveness of counselors to the need of counseling students for more effective training procedures.
2. To formulate a theoretical statement using available concepts that have a bearing on the problem from which could be derived methods and procedures and testable hypotheses to evaluate them.

3. To develop an instructional set, based on the theoretical framework, using the techniques of biofeedback training, imagery training, and self-control skills training as a prototype of an educational procedure that could be tested in an experimental situation.

4. To design and carry out an investigation using this instructional and a relevant hypothesis within the problem area defined in (1).

5. To analyze the results of the experiment to determine whether they support the hypothesis and the concepts and methods from which it was developed and to provide the guidelines and implications offered toward further research in this area.

The first goal was met by searching the literature in the area of counselor education. It became clear that there is criticism by workers in the field of what they consider a serious gap between the need for counselors to better develop their facilitating skills and their effectiveness and the need for training programs to provide the necessary experiences of learning for students. In their evaluative statements these investigators also provided clues toward an appropriate theoretical basis by pointing out that the experiences they believe would best help students should be more directly aimed at the development of the "total" person rather than at techniques or other bits of knowledge in a fragmented approach.

This direction was helpful in accomplishing the second goal because it was possible to identify in the theoretical literature that the
concepts of a holistic approach to learning and the self-directive aspect of such an approach were relevant to the counselor education situation. The learning process of the student was conceptually equated to the type of learning that a client undergoes in therapy in terms of their common goal of self-development and short-term objects of increased self-awareness and self-regulation toward the goal.

Based on this conceptual framework, an instructional set was developed that uses the techniques of biofeedback training, imagery training, and self-control skills training. The hypothesis was set for that by using this instructional set students would show an increase in their self-control behavior and attitudes that are related to their performance in counseling. Specifically, this hypothesis was used to make the predictions that after being administered the educational set in an experimental treatment condition, the student subjects would perceive themselves on an inventory of locus of control more in the direction of internal control and they would also be better able to control the physiological reactions involved in reducing muscle tension.

The instructional set was administered to four graduate students in the counseling education programs at The University of Arizona. The dependent variables were perceived locus of control and physiological control of muscle tension. Locus of control was operationally measured by the subject's score on the Adult Nowicki-Strickland Internal-External Scale, and physiological control was measured by electromyograph scored recorded from an integrator that displayed the scores as EMG average peak-to-peak scores. For both
variables the measure involved comparing scores before and after the treatment condition.

In analyzing the results from the EMG measure, the experiment design used the single-subject, multiple baseline-across-subjects method. This method involved taking baseline EMG measurements with a different number of baseline measurements for each of the four subjects and, correspondingly, a different number of posttreatment measurements for each subject. All subjects received the same number of sessions of EMG measurement, seven sessions. The placement of the treatment condition differed for each subject. The results were reported as curves drawn for each subject to show the EMG levels as a function of the number of sessions during which they were recorded. In addition, curves were drawn to compare the mean baseline and posttreatment values for each subject. The patterns in all these curves demonstrated a fairly clear difference between the EMG levels in the baseline and posttreatment phases, the latter being clearly reduced. Analysis of trends, variability, and overlap of the curves showed support for the prediction based on the hypothesis that increased physiological control associated with the use of the instructional set.

Similarly, the ANS-IE scale scores were lower after the administration of the treatment condition for all subjects. However, this finding was not considered very fruitful for further research that uses the same instrument because of an observed "floor" effect that limits the usefulness of this instrument with counseling students to reflect changes in attitudes related to self-control. Modifications of this type
of measure were suggested so that the attitudinal dimension could continue to be scrutinized in future studies.

A less serious methodological difficulty was encountered with the physiological measure in that the baseline curves were not as stable as predicted and consequently qualifying the confidence of establishing a relationship between reduction in muscle tension and the use of the instructional set as the treatment condition. Modifications were suggested in the further use of this measure in future studies.

The implications of these results were interpreted as supporting further work with the proposed theoretical framework as well as with the procedures with which the concepts were tested. Additionally, the results were considered as confirming the utility of the experimental design as a single-subject strategy for research within the required guideline this study met, for example, in a relatively new area in which the parameters of the variables of interest have not been established and with procedures that have not been previously systematically studied in an experimental manner.

There was also a discussion of the theoretical implications of the findings of this investigation, particularly as they apply to the theories and concepts of the Adlerian individual psychology theoretical system. It was noted that the Adlerian concept of the creative self seemed to have the most relevance in using this study to understand the process of learning of a student counselor from the standpoint of his self-development through learning self-control skills.
APPENDIX A

INSTRUCTIONAL SET

The instructional set was presented to the subjects by having them listen to a cassette. The same cassette was used for all subjects. The following is a transcript.
This tape will contain an instructional set that is aimed at helping you, the counseling student, to continue to develop effective skills for your future career in counseling and/or therapy.

During the first part, I will discuss some theoretical ideas about the problems that bring clients and patients into counseling and therapy. I will also discuss some ideas about how therapy works and what are some of the difficulties and obstacles that could lead to failure. Among the factors that I will discuss are those which relate to the therapist's own input. These are known as "therapist" variables.

Next, I will describe in detail three important methods that have recently been introduced in counseling and therapy. These are: biofeedback training, imagery training, and self-control skills training. Then, I will give you instructions that will help you learn these techniques. The most effective way to learn these methods is to apply them to oneself first before one practices with clients. Therefore, in this instructional procedure, you will temporarily be put in the role of the subject or client. This way you will know how these methods work from first-hand experience.

This portion will be preceded by taking some physiological measurements to show the results of this training on you. At first you won't be told much in detail about this. However, at the conclusion of this study, it will be explained to you. I will tell you that you will be asked to fill out questionnaires and that an electronic device will be connected to measure your body's reactions. Please be assured that there will be no pain or discomfort or danger involved in this. The equipment is merely
for measuring and does not produce any electricity. In order not to disrupt the instructional session, you will be connected to the equipment from now until the end of the session. Please do not talk to the instructor throughout the session since he will be required to pay attention to the equipment throughout the whole session. All the instructions that you will need will be provided by way of this tape. However, you may have some questions you want to ask before we get started, so the instructor will turn off this tape for a brief period to answer any questions you may have. After that he will begin to connect you to the equipment and will turn this tape on again. There will now be a break of about 5 minutes.

At this point, the instructor will place three plastic discs on your forehead. Then he will connect to these three different wires attached to sensor electrodes. You will be able to ask any necessary question. Following that you will be asked to listen to the discussion that follows:

We will now resume. Earlier I mentioned that I would discuss certain ideas about why people need counseling and therapy. One interesting new idea is that a basic problem for most clients is the feeling of being powerless or helpless to deal with different aspects of their lives. This feeling is carried out by clients both in what they say and in the way they behave. A therapist can learn much by tuning in so that he can observe even subtle signs of this communication when the client expresses his feeling of lack of power and of control in his life.
Many of the symptoms and maladaptive behaviors that clinicians see in their clients and patients can be understood in terms of this idea of helplessness and powerlessness. For example, some clients who have difficulties in their work setting show such behaviors as frequent absences and tardiness, negative attitudes toward work supervisors and others. It is behaviors such as these rather than lack of work-related competence that cause most of these clients to fail in their job situations. Another example is that of the married couple who have relationship problems. One or both of the partners feels discounted by the other. Basic disagreements about finances, child rearing, and other issues are not adequately resolved; instead a continuous atmosphere of tension and even subdued hostility may linger for months, even years, till the crises develop which bring them in to see the counselor. Another very typical example is the case of the adolescent who is acting out—getting into trouble at school for skipping classes, smoking pot, being rebellious with the school officials, also arguing and fighting about the limits which they set, often inconsistently, and so on.

All these cases are believed to have in common the perception on the part of the client that he or she has no other choice but to act in the maladaptive and unrewarding ways that they are behaving. One can even extend this to many cases of medical problems that people have: heart disease, asthma, stomach ailments, and many other diseases that have been linked to stress. Here, too, people have the basic feeling that they have little or no control over the forces that bring them misery. Even the helping professionals are not immune. In fact, several studies have shown that the rates of divorce, suicide, and
other types of casualties are more prevalent among the helping professionals, due to their inadequate ways of coping with the high levels of stress that characterize their lives.

One way of understanding how therapy and counseling works is to consider the goal of restoring to the client the feelings and experience of being in a position to make positive choices and to be more in control of his own life. This process begins immediately when the counselor takes a history from the client. To the extent that it is possible, the counselor needs to structure this interview in a manner that will require the client to assume responsibility. At first, the client is given the responsibility of remembering events, organizing them in his own mind, and communicating this clearly and cohesively to the counselor. This can be facilitated by the counselor's way of asking questions, structuring the interview, and giving feedback to the client as he goes along.

Next, comes the responsibility for the client, with the counselor's help, to define and delineate the significant problems which affect his life negatively and require him to seek professional help. This is an early opportunity for the counselor to request and reinforce the client's assuming of the responsibility of increased self-awareness. This is done by continuously demanding clarification of vague statements, so that it finally becomes clear in which specific ways the client's behaviors and attitudes have led to symptoms and other maladaptive consequences.

Once this phase is accomplished, the next phase is to help the client assume the responsibility of setting his own goals for change.
The counselor's role in this is first to check for the realism, seriousness, and sincerity of the client's commitment to these goals. Next, the counselor must help the client to translate goals that may be relatively distant in the future to short-term objectives in the "here-and-now" and in the immediate future in terms of specific and concrete behaviors to be enacted by the client. At first the emphasis is exclusively on the behavior observed in the counseling sessions themselves, then gradually more emphasis is put on what the client will do outside the office and in-between sessions.

A very crucial next step is to assist the client in assuming the responsibility for monitoring and evaluating his own progress toward his goals.

It is obvious that the counselor's own behaviors and attitudes will critically influence the outcome of the client's behavior in all of these phases of the therapy. In the research this has been studied as "therapist variables" and refer primarily to how the counselor perceives and understands the client and how he communicates with him. It is very important that the counselor recognize his own effect on the client so that he can use this in a positive manner to influence him in the desired direction. Interestingly, this can only be accomplished when the counselor himself has sufficient awareness of how he is affected by the client and the events of the therapy session. This instructional program, which you are now undertaking, places the emphasis on you as a counselor in training in terms of how much aware you will be of what you do—how you sense and perceive your client even at very subtle and low levels of awareness and how you respond to him, again even at
very subtle and low levels of awareness. Thus, you will be helped to notice more carefully what your thoughts are, even fleeting ones, even nonverbal images, and with the help of biofeedback training you will even learn to be aware of and control minute changes in the physiology of your body that could lead you to behave in one way or another.

Another way of looking at this problem is to consider possible ways in which therapy could fail and what the possible contributions the counselor might make that would help lead to failure. One mistake would be to allow or assist the client to avoid responsibility in the various phases mentioned above. For example, if the counselor takes it upon himself to set the goals for therapy and either assumes that the client will automatically work toward these or grandiosely believes he can persuade the client to accept them. Similarly, it is possible for the counselor to encourage the client to avoid experiencing and expressing within the session. If, for example, the counselor himself avoids uncomfortable feelings he may unconsciously inhibit the client from paying attention to negative feelings of sadness or anger.

Clearly, the danger of this occurring increases with the extent to which the counselor lacks awareness of himself—of what he experiences and senses and of how he responds at various levels, including at the physiological level. The single important experience that the competent counselor must learn to be aware of and to master is that of anxiety.

You will be given instructions and practice in three methods that will help you increase the control of your own self in the counseling session. These are: (1) imagery training, (2) biofeedback
training, and (3) various self-control skills that complement the first two methods.

First, listen to the following instructions of imagery training. This involves helping you to actively use one of the most potentially useful abilities which you possess, that is, your creative imagination. Developing this power will help you to improve your ability to understand your client with more empathy, to better communicate this understanding to your client, to help you and him be increasingly aware of how both of you experience anxiety and other reactions and responses of your mind and bodies and to gain more control over these so that you can guide them in the directions you both want to chose.

To begin with, close your eyes. This will help you to start with better concentration. Next, take in a deep breath and let it out slowly and allow yourself to relax as much as possible so that you will be less distracted by tension in your body.

Now, allow your brain to spontaneously run free for a minute without your active effort to control it either by forcing it to go in a certain direction or by preventing it from going in a certain direction. You may notice that during this period of "spontaneous activity" your brain might produce for you experiences in the form of clear verbal thoughts, thoughts that may be partly clear and partly vague, feelings, emotions, moods, and sensations, and visual images as well as sounds and other forms of "images."

[One minute silence]

Now begin to exert active control of the functions of your brain. The first rule is to remain physically relaxed. This will help
you to remain emotionally relaxed, which in time will give you maximal control of your mental activity.

At first, I will help you by directing a specific image for you to think, then I will give you more and more general instructions and less and less specific ones, so that you will assume increasing control and responsibility for structuring the images.

Now begin by allowing your brain to create a picture of a black sphere. Now, allow this to change color, so that it becomes a white sphere. Then, allow it to change shape, so it becomes a white diamond. Then change it to a black diamond. Then a black square. And then a white square. And finally, a white triangle. And a black triangle.

Now that you've had this experience, please allow your brain to form the following images. Imagine your own face as it might appear when you look at a mirror. Next imagine seeing your face happy with a smile on it. Then, sad. Then, angry. Then, neutral.

Now, imagine that you can hear someone say your name. Then, someone shouting your name. Now imagine feeling the texture of a fur. Then of sandpaper. Then tingling sensations in your fingers. Now, imagine the sensation of an ice cub in the palm of your hand and of a warm, wet washcloth on your forehead. Now, imagine feeling yourself walking fast, with your arms swinging fast. Imagine feeling a tenseness in your stomach. Then, imagine yourself lying on a sandy beach on a warm day slowly drifting off into a nap.
Now, I will read to you three case histories of clients. I will no longer directly suggest images for you, but I will ask you yourself to take over this task. I will simply ask that you allow your imagination as vividly as possible to re-create for you a "living" picture of the clients as I describe them to you.

Client number 1 is a 16-year-old boy. He is referred for counseling by a psychiatrist who examined him at the request of the juvenile court judge. The boy's name is Roger. Roger was picked up by the highway patrol while he was hitchhiking on a road 50 miles out of the city on the way to California. He was very disheveled and appeared to be intoxicated, possibly under the influence of some narcotic. When his parents were contacted, they told the authorities that Roger had apparently run away from home the previous evening but that they weren't sure because he often stayed out all night without their knowing his whereabouts. Roger has been suspended from his high school for the third time this year because of excessive truancy. Previously he had been suspended for threatening a teacher and before that for drinking beer on the school grounds.

Imagine that you were asked to be Roger's counselor and that you are now having a session with him. . . . . Pay attention to how you imagine Roger as well as your own self. Do this on your own for about a minute. [one minute silence]

The second client is Clara, who is 56 years old. She has been divorced for 3 years after 18 years of marriage to a man whom she describes as having been callous and uncaring. She is referred by her physician for counseling because he is concerned that she is becoming
increasingly dependent on tranquilizing and pain medication for a variety of vague and lingering physical complaints with little justification from an organic basis. In addition, Clara has been without a job since her divorce. She has taken no steps toward a vocation, claiming that she is too sick. Throughout her 18 years of marriage she worked only during the first 6 months and quit at the insistence of her husband, who wanted her to devote herself to being a "full-time" wife. The couple had no children.

Now, imagine yourself having a session with Clara. In your imagination, allow yourself to be very aware of your own feelings and reactions during the session.

The third client is Eugene, who is a 45-year-old building contractor. He referred himself for counseling on the advice of his daughter, who recently got married and moved out of Eugene's home. Eugene has been a widower for almost a year. During that time he has suffered a moderately severe heart attack. He is still under the care of a heart specialist because he has dangerously high blood pressure. Eugene has been told by the doctor that he has a "Type A" personality, which means that he is driven and constantly functions under stressful conditions which he helps to maintain.

Imagine yourself having a session with Eugene.

The last part of this section on imagery training is as follows. Imagine that you can see inside your body as if you were looking with x-ray vision. Imagine looking at your body and being able at will to see any part or organ and being able by inspection to tell how each is functioning, so that you could tell, for example, if the muscles in the
back of your neck are excessively tense or be able to look at your heart to see if it is pumping too quickly and so on. Lastly, imagine being able to change any of the bodily functions merely by thinking about it and visualizing the change. For example, if you could tell that your arteries were too constricted causing your blood pressure to increase, you can imagine sending a signal from your brain to the blood vessels, allowing them to dilate and relax, thereby reducing the blood pressure. This can be an effective method of controlling stress and anxiety in your body.

The next method to be learned is biofeedback training. You are already hooked up to an electronic machine called an electromyogram, or EMG. This device will measure electric activity in your body which is related to the state of tension of the muscle from which we will be recording, the frontalis muscle over your forehead. When information concerning the tension level of the muscle is fed back to you in a certain manner, you will be able to use it in two important ways. First, you will be able to become more acutely aware of even very small changes in the activity of the muscle. Secondly, you will be able to exercise gradually more and more control and manipulate the level of muscle activity. At this point, the direction of change with which we will be working will be to reduce muscle tension, that is, to relax the muscle.

To begin with, please close your mouth somewhat tightly, but making sure not to press so hard as to cause pain or discomfort. Look over to the gage on the panel of the EMG and you will notice that as you tighten your jaw, the needle deflects to the right. Now, relax
your jaw, allowing your lips to slightly part and you will notice that the needle will deflect to the left. You will notice the same effect when you wrinkle your forehead, then allow it to become smooth. I will ask you to repeat these actions and as I turn this volume control up you will notice that there is a tone that changes in pitch in correspondence to the changes in the deflection of the needle. As the needle moves to the right, the pitch gets higher, and as the needle moves to the left, the pitch gets lower. A higher pitch, this means that the muscle is getting more tense, whereas a lower pitch indicates that the muscle is relaxing.

Starting now and for the next 5 minutes, you will be getting both these forms of feedback and therefore you will continuously be able to tell whether your muscle is tensing or relaxing or remaining unchanged. This alone will help you acquire more awareness of your own muscle tension and help you to control and relax it.

[Five-minute pause]

You have noticed that sometimes the needle and the tone indicated that the muscle was relaxing and at other times they showed that the muscle was tensing. You were probably able to tell that these changes were related to what you yourself did, even to what you thought and felt. If you tightened up, or worried, or had stressful thoughts, the muscle probably tensed, and, conversely, as you relaxed, became calmer, and had quiet and pleasant thoughts, the muscle relaxed. During the next 5 minutes you will again be given the two modes of muscle tension feedback. This time, knowing more about the relationship between yours thoughts and actions and the resulting
changes in the muscle, I will also instruct you to take the attitude that trying to relax the muscle is not an effective method. Instead, expecting it to relax and letting go of any effort or concern will bring about the desired changes. When you observed this it will help you have more confidence in your own control and the ability of your brain to respond to your will and to produce changes in your body. Incidentally, you will notice that along with this body control, there is an increase in the ability to control thoughts and emotions. These are really integrated rather than separate functions. I would like you to pay attention to this idea in the following manner. Keep in the back of your mind the feedback you are getting about the muscle. Especially, the sound feedback will continuously let you know without much effort on your part to watch for it, whether or not your muscle is tensing or relaxing. During that time, notice what relationship there may be between your thoughts, feelings, and bodily states and the feedback from the muscle. For example, when you last hear the pitch go up, how were you breathing? Was it shallow, rapid breathing or slow and deep? Were you swallowing? Was your mouth tightly closed or were your lips slightly parted? What about the muscles of your arms and legs? Did you notice any tightness? And so on. Soon you will be able to establish more clearly how it is that you control the feedback from the machine and, therefore, the activity of your muscle.

The next phase of this training, which is called self-control skills training, involves several techniques. First, I will play a tape for you called "Letting Go of Stress: Effective Techniques for Stress Reduction and Relaxation," by Emmett E. Mill, M.D., and Steven
Halpern, Ph.D., Stanford, California, 1980. This tape combines a relaxation technique known as "progressive relaxation" with music that was composed and specially designed to aid in meditation and in the production of positive imagery. By allowing yourself to become as relaxed as possible and by following the instructions that you will hear you will learn additional self-control which will aid your development as a counselor.

[20 minutes, tape]

The next technique is referred to as autogenic training or exercise. It involves first your listening to verbal phrases concerning states and changes in various aspects of your body physiology. I will make these statements, but I will put them in the first person, as if you would be saying them to yourself. As I continue, I will frequently ask you to repeat the same statements to yourself. The main task for you will be to remain relaxed and open to the changes that occur and that you will notice.

"My right arm is heavy . . . (repeat twice, with a pause)

. . . my left arm is heavy . . . (repeat twice with a pause) . . . both my arms are heavy . . . (repeat twice with a pause) . . . my right leg is heavy . . . (repeat twice with a pause) . . . my left leg is heavy . . . (repeat twice with a pause) . . . both my legs and arms are heavy . . . (repeat twice with a pause) . . . my right arm is warm . . . (repeat twice with a pause) . . . I can feel warmth traveling down from my right shoulder, down my right arm, past my elbow, past my wrist, all the way down to the tips of my fingers . . . (repeat twice with a pause) . . . My left arm is warm . . . (repeat twice with a
pause) . . . I can feel warmth traveling down my left arm, past the elbow and past the wrist, all the way down to the tips of my fingers. . . (repeat twice with a pause) . . . I can feel warmth traveling down my left arm, past the elbow and past the wrist, all the way down to the tips of my fingers . . . (repeat twice with a pause) . . . my right leg is warm . . . (repeat twice with a pause) . . . I feel warmth traveling through my right leg, past the knee, past the ankle, all the way down to the tips of my toes . . . (repeat twice with a pause) . . . my left leg is warm . . . (repeat twice with a pause) . . . I feel warmth traveling through my left leg, past the knee, past the ankle, all the way down to the tips of my toes . . . (Repeat twice with a pause) . . . Both my arms and legs are warm all the way to the tips of the fingers and toes . . . (repeat twice with a pause) . . . My arms and my legs are heavy and warm (repeat twice with a pause) . . . My heart beats calmly and regularly . . . (repeat twice with a pause). My body breathes me . . . (repeat twice with a pause) . . . My body and my mind are quiet (repeat twice with a pause) . . . I feel myself quiet and in control . . . (repeat twice with a pause).

The last phase of this training incorporates several ideas and techniques from the field of cognitive therapies. It requires that you actively think through some of your ideas concerning yourself as a person and as a counselor. Since it is believed that our ideas have the power to influence our actions, then it is important that we check out what are our beliefs and how they affect our behaviors in the counseling session. Here is the first exercise.
Close your eyes and bring into your imagination a situation connected to counseling, whether or not you were directly involved and whether or not the situation has actually occurred or is likely to occur. Let yourself imagine the stressful aspects of that situation. After a moment, review in your mind the same situation once again, but this time when you reach a point where there is a stressful thought, feeling, or image, say to yourself "Stop!"; review the stressful thought in terms of the following three questions: What makes this stressful to me? What is my worst fear concerning this? Is this likely to happen? What realistic evidence do I have that this might happen? If your answer is that the event is likely not to happen, then bring this thought to a conclusions by saying to yourself: "This is likely not to happen," then proceed to think further about another situation. If your answer was that the event that you feared is likely to happen and you have thought of the evidence for the conclusion, then follow this up with the question: "What are my choices, as to what I can do concerning this?" Label each alternative with a number (1, 2, . . . , etc.), then take each alternative separately and give it a rating from 1 to 3 in terms of its desirability, 1 being least desirable, 3 being most desirable. Desirability is related mostly to the outcome should a particular choice be made, and it refers to your own subjective judgment: How pleased or displeased will such an outcome make you? How willing will you be to accept that outcome? Go through each of your numbered alternatives and give it a rating. Once you have done this, then select the alternative with the highest rating and make a verbal, definite commitment that you will implement this choice, because you have carefully
evaluated all the known alternatives and have judged this one to be best. Take a few moments to practice this process in the following manner: Recall the three cases that were presented to you in the first part of this instructional set: the cases of Roger, Clara, and of Eugene. Select the one case which you feel led to your experiencing the highest level of discomfort or stress when you imagined yourself as the counselor having a session with the person. Then, allow yourself to think further and imagine a session again with this client. When you reach a thought or image or feeling which you recognize as causing you stress, discomfort, or anxiety, say to yourself "Stop!" and go through the procedure outlined immediately above.

When you have completed this practice exercise, this training will be over. One parting instruction: The three major methods which were described and discussed in this tape are not too effective if used in fragmentary way. They can be effective if used in an integrative manner. Recall your experiences while undergoing the training in each situation, then actively put these together in your mind to form a single complete experience. Thank you for your participation. Now go back and do the exercise of cognitive control with the case you selected.
APPENDIX B

ADULT NOWICKI-STRICKLAND INTERNAL-EXTERNAL SCALE

The Adult Nowicki-Strickland Internal-External Scale was developed by Nowicki and Duke (1974) as a research tool to study the phenomenon of locus of control in adults.
We are trying to find out what men and women your age think about certain things. We want you to answer the following questions the way you feel. There are no right or wrong answers. Don't take too much time answering any one question, but do try to answer them all.

Please answer all question either "yes" or "no". If you are not sure on a specific item, answer "yes" if you feel that the statement is more true than not. Answer "no" if you feel the answer is more false than it is true. Please answer all items by circling a "Y" for "yes", or an "N" for "no".

NAME or ID NO. ___________________ AGE _______ SEX _______

Y N 1. Do you believe that most problems will solve themselves if you just don't fool with them?

Y N 2. Do you believe that you can stop yourself from catching a cold?

Y N 3. Are some people just born lucky?

Y N 4. Most of the time do you feel that getting good grades meant a great deal to you?

Y N 5. Are you often blamed for things that just aren't your fault?

Y N 6. Do you believe that if somebody studies hard enough he or she can pass any subject?

Y N 7. Do you feel that most of the time it doesn't pay to try hard because things never turn our right anyway?

Y N 8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?

Y N 9. Do you feel that most of the time parents listen to what their children have to say?

Y N 10. Do you believe that wishing can make good things happen?

Y N 11. When you get punished does it usually seem it's for no good reason at all?

Y N 12. Most of the time do you find it hard to change a friend's (mind) opinion?
Y N 13. Do you think that cheering more than luck helps a team to win?

Y N 14. Did you feel that it was nearly impossible to change your parent's mind about anything?

Y N 15. Do you believe that parents should allow children to make most of their own decisions?

Y N 16. Do you feel that when you do something wrong there's very little you can do to make it right?

Y N 17. Do you believe that most people are just born good at sports?

Y N 18. Are most of the other people your age stronger than you are?

Y N 19. Do you feel that one of the best ways to handle most problems is just not to think about them?

Y N 20. Do you feel that you have a lot of choice in deciding whom your friends are?

Y N 21. If you find a four leaf clover, do you believe that it might bring you good luck?

Y N 22. Did you often feel that whether or not you did your homework had much to do with what kind of grades you got?

Y N 23. Do you feel that when a person your age is angry at you, there's little you can do to stop him or her?

Y N 24. Have you ever had a good luck charm?

Y N 25. Do you believe that whether or not people like you depends on how you act?

Y N 26. Did your parents usually help you if you asked them?

Y N 27. Have you felt that when people were angry with you it was usually for no reason at all?

Y N 28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today?

Y N 29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?
30. Do you think that people can get their own way if they just keep trying?

31. Most of the time do you find it useless to try to get your own way at home?

32. Do you feel that when good things happen they happen because of hard work?

33. Do you feel that when somebody your age wants to be enemy there's little you can do to change matters?

34. Do you feel that it's easy to get friends to do what you want them to do?

35. Do you usually feel that you have little to say about what you get to eat at home?

36. Do you feel that when someone doesn't like you there's little you can do about it?

37. Did you usually feel that it was almost useless to try in school because most other children were just plain smarter than you are?

38. Are you the kind of person who believes that planning ahead makes things turn out better?

39. Most of the time, do you feel that you have little to say about what your family decides to do?

40. Do you think it's better to be smart than to be lucky?
APPENDIX C

SUBJECT"S CONSENT FORM AND HUMAN SUBJECTS COMMITTEE APPROVAL
SUBJECT'S CONSENT FORM

I, __________________________, hereby give my consent to participate in an experimental project titled: Biofeedback and Imagery in Counselor and Therapist Training, to be conducted by Joseph Geffen, M.A., Ph.D. Candidate, of the Department of Counseling and Guidance, University of Arizona, who will be the principal investigator.

I understand that the purpose of this project is to explore the effects of imagery and biofeedback training on graduate trainee's development of counseling and therapy skills. Imagery training will involve instructions to me on how to develop and use visual, auditory and other forms of imagery to increase my self awareness. Biofeedback will involve my being hooked up to electronic, battery-operated equipment that will measure the tension level of my Frontalis muscle, on my forehead. I understand that the electronic equipment is for the purpose only of measuring electrical impulses produced by my muscle, and does not involve any electrical stimulation to me. I further understand that the procedure will not produce any form of physical pain or discomfort. With biofeedback training I will be instructed on how to decrease muscle tension.

As part of this study, I will be asked to respond to four questionnaires designed to measure attitudes. I understand that because of the experimental nature of the study, I will not receive a full disclosure of the details of the project until after it is completed. At that time, at my request, I will receive from the principal investigator a full description of the study.

I understand that I am being selected for this project as a member of a population of graduate students in a counseling or therapist training program who are planning to become professional counselors or therapists. I will be asked to participate in eight hourly sessions. The benefits of my participation will include taking part in an effort to expand knowledge in the general field of counseling, toward the possibility of long term benefit to counselors and their clients. Further, I will benefit by learning the techniques of imagery and biofeedback training, which may be useful in my career. Also, I will receive a payment of twenty-five dollars for my eight hours' participation. I further understand that I may at any point, for any reason I may have, terminate my involvement without incurring ill will or any other adverse reaction to me or in any way affecting my university standing or my grade in any course. In case I terminate my participation prior to the conclusion of the full eight hours, I will receive a pro-rated amount of payment for the hours which I have participated. I have been informed that the project will take place at the office of the
principal investigator, at the Southern Arizona Mental Health Center,
1930 E. 6th St., Tucson, Arizona 85715.

I understand that at no time will my privacy be violated. All questionnaires which I will fill out will have a coded number rather than my name. Data to be reported will not identify me personally. I will receive a copy of this consent form at my request. I have been informed that this consent form will be filed in an area designated by the Human Subjects Committee with access restricted to the principal investigator or authorized representatives of the Counseling and Guidance department.

Subject's signature ______________________ Dated ____________

Witness' signature ______________________ Dated ____________
Mr. Joseph Geffen
3352 North Calle Largo
Tucson, Az. 85715

Dear Mr. Geffen:

We have reviewed your proposal entitled, "The Use of Imagery and Biofeedback in the Training of Counselors and Therapists," which was submitted to the Human Subjects Committee and concur with the Departmental Review Committee's examination and recommendations of this minimal risk project. Therefore, approval is granted effective October 31, 1979.

Approval is granted with the understanding that no changes will be made in the procedures followed or the consent form used (copies of which we have on file) without the knowledge and approval of the Human Subjects Committee. Any physical or psychological harm to any subject must also be reported to each committee.

A university-wide policy requires that all signed consent forms be kept in a permanent file in the Departmental Office to assure their accessibility in the event that university officials require the information and the principal investigator is no longer on the staff or unavailable for some other reason.

Sincerely yours,

Milan Novak, M.D., Ph.D.
Chairman
Human Subjects Committee

xc: Elizabeth B. Yost, Ph.D.
Departmental Review Committee
Counseling & Guidance Department
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