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COUNSELOR TRAINEE EMOTIONAL RESPONSES
TO INITIAL COUNSELING INTERVIEW
STRESS

by

Thomas F. Mooney

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

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COUNSELOR TRAINEE EMOTIONAL RESPONSES TO INITIAL COUNSELING INTERVIEW STRESS

Thomas F. Mooney, Ed.D.

Western Michigan University, 1974

Changes in emotionality as measured by paper and pencil tests and physiological measures were obtained from counselor trainees during two periods of non-stress and one period of stress. The stress measure was taken immediately prior to the trainee's initial interview of a client in a supervised laboratory setting. Measures of emotionality were represented by the Taylor Manifest Anxiety Scale (MAS), the Multiple Affect Adjective Checklist (MAACL), Systolic Blood Pressure, Diastolic Blood Pressure, Pulse Rate and Digital Sweat.

The Ss for this study were sixty one master's degree counselor trainees enrolled in counseling practicum courses for the Spring semester of 1973 at Western Michigan University. The students were selected from four sections of a pre-practicum class (683) and two practicum classes (684).

A two-way analysis of variance found significant differences over the conditions of pre-stress, stress and post-stress for the combined 683 classes on state anxiety ($P < .01$), state depression

($P < .02$) and state hostility ($P < .01$) as measured by the MAACL. Significant differences were found for systolic blood pressure ($P < .001$) and digital sweat ($P < .001$). Significant differences between classes were found for state anxiety ($P < .02$) and state depression ($P < .02$). Significant interaction effects between conditions and classes were found for state anxiety ($P < .02$), state depression ($P < .01$), state hostility ($P < .03$), diastolic blood pressure ($P < .01$), pulse rate ($P < .05$) and digital sweat ($P < .04$).

A one-way analysis of variance found no significant differences across conditions for the 684 class on the MAACL measures. Significant differences were found for pulse rate ($P < .01$) and digital sweat ($P < .01$) with systolic blood pressure showing expected trends.

Inter-correlational matrices showed consistently high relationships between the paper and pencil measures and consistently low relationships between paper and pencil measures and physiological measures, and the various physiological measures.

An analysis of the sources of anxiety by means of a questionnaire revealed the trainees to be guarded and defensive in their answers and generally unable to differentiate between cognitive (thinking) and affective (feeling) responses. The interpretation of the Source of Anxiety Questionnaire indicates that the trainees were most bothered about the idea that they had to do a good job, imagined

what the client might be thinking about them and the probability that they might do poorly.

Ratings of counseling effectiveness were obtained by peer and supervisor ratings. Of the five classes, only one class showed a significant correlation ($P < .05$) between these measures. Comparison of the peer and supervisor ratings and measures of emotionality revealed low and nonsignificant correlations.

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students who served as subjects I am very grateful.

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Thomas F. Mooney

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CHAPTER I

PURPOSE OF STUDY

The main purpose of this study was to quantify the emotional changes, primarily anxiety, that counselor trainees experience as they interview a client under supervised conditions. Measures of depression and hostility were also obtained. Various paper and pencil as well as physiological measures were taken during two periods of non-stress and one period of stress. The stress period consisted of an initial interview of a client by a counselor trainee.

In addition to quantifying emotional changes during stress and non-stress conditions, this study (1) correlated physiological measures of emotionality; (2) correlated physiological and psychological measures of emotionality; (3) correlated the ratings of counselor effectiveness by peer and supervisor ratings with the various measures of emotionality; and (4) sought to arrive at the source of anxiety as experienced by the trainees.

A review of the Second Handbook of Research on Teaching (Travers, 1973) revealed no research dealing with emotional aspects of teacher education. A review of the literature in counselor education revealed only sparse attempts at quantifying the emotionality

of counselor trainees (Miller, 1970; Monke, 1971).

Outside the fields of teacher and counselor education there is a great deal of inquiry and activity going on in the area of emotional control both in academic circles and the lay public.

The biofeedback movement has been given a great deal of impetus by the research of Miller (1969) and Di Cara (1970) who have demonstrated the control of autonomic functions (heart rate in rats) by operant conditioning techniques. Other publications include four volumes reprinting much of the two hundred fifty journal articles (Schwartz, 1973) that are now available on biofeedback (Barber, et al., 1971; Kamiya, et al., 1971; Stoyva, et al., 1972; Shapiro, et al., 1973). The movement has reached the public-consumption stage by various devices (i.e., portable alpha wave machines) currently on the market and articles written for the lay person in such publications as Playboy (Morris, 1972) and The National Observer (Malloy, 1973).

It was not within the scope of this study to examine the extent to which too much emotionality would interfere with the performance of the counselor trainee. While it is generally agreed that optimal performance requires a certain amount of arousal or emotionality, too much arousal or emotionality impedes performance as indicated by the curvilinear relationship between performance and arousal (Hebb, 1972). Nor was there an attempt to

investigate the Yerkes-Dodson theory (1908) that suggests an inverse relationship between emotionality and the complexity of the performed task. While the counseling of a client is generally considered to be a complex task, the Yerkes-Dodson theory would indicate that very low arousal--even a very relaxed state of the counselor, would be optimal. These two conditions were not investigated because of the tremendous complexities of the variables involved.

Historical Perspective

The study of emotions has been conducted by various disciplines throughout the ages. Philosophers such as Aristotle, Descartes and Spinoza have discussed the nature of emotions as well as made attempts at classifying them. Biologists have made attempts at identifying the evolutionary roots of emotions. In his book The Expression of the Emotions in Man and Animals, Darwin (1873) traces emotions back to an evolutionary remnant of once serviceable habits of instinctive action. The first experimental psychologists early in the twentieth century, Wundt and Titchener, attempted to analyze emotions into constituent elements. James and Lange had also published their famous theory and stated that emotions were simply the sensory experience of physiological changes (Arnold, 1968).

The first systematic investigation into the connection of emotion with autonomic changes was conducted by Walter B. Cannon, who set about not only to refute the James-Lange theory but also to advance his own "emergency theory of emotion." Cannon (1927) built on the existing theory that implied physiological changes which occur during emotional states will facilitate emotional action. Although his work was restricted to animals, he studied extensively the flight and fight responses. He observed that emotions classified as fear predisposed an organism to flight; emotions classified as anger predisposed an organism to fight. Cannon concluded that the physiological changes were due to sympathetic excitation and adrenaline secretion and that the function of the sympathetic nervous system was to prepare the body for emergency action (Arnold, 1968).

Building on Cannon's emergency theory, Hans Selye (1946, 1956) investigated the dimension of stress on the organism and described this reaction pattern in his now famous "general adaption syndrome." The importance of emotional stress on physiological functioning was given further credence by the writings of Helen Flanders Dunbar, Franz Alexander, and Roy R. Grinker. These authors, among others, have contributed a great deal of knowledge and understanding to what is known about emotional behavior and its effect upon psychosomatic disorders (Lachman, 1972). Dunbar's

book, Emotions and Bodily Change, was first published in 1935 and contained over 2,000 references. Alexander's book, Psychosomatic Medicine (1950), explained the etiology and development of psychosomatic disorders from a psychoanalytic frame of reference. Grinker's interest in stress began with his research during World War II into the effects of the holocaust of war on the human condition (Grinker and Spiegel, 1945).

Emotion Defined

Two somewhat differing, yet comprehensive, definitions of emotions are offered by Hebb and Lachman. Hebb (1972) defines emotion as, ". . . a special state of arousal accompanied by mediating processes which tend to excite behavior maintaining or modifying the present state of affairs (p. 328)." Hebb's definition briefly alludes to process variables and seems to emphasize the drive or the motivational dimension of emotion. Lachman (1972) defines emotion thus: "Emotional behavior refers to extensive and often pronounced patterns of reaction in structures innervated by the autonomic nervous system in response to stimulation of receptors (p. 63)." Probably the most thorough of all definitions is provided by Izard:

Emotion is a complex concept that has neurophysiological, motor-expressive, and phenomenological aspects. At the neurophysiological level emotion is

defined primarily in terms of patterns of electrochemical activity in the nervous system, particularly in the hypothalamus, the limbic system, and in the facial and trigeminal nerves. The cutaneous nerve supply in the face and the proprioceptors in the facial muscles also participate in emotion at the neurophysiological level. At the motor level emotion is primarily facial activity and facial patterning, and secondarily it is bodily (postural-gestural, visceral, and sometimes vocal) activity. At the phenomenological level emotion is essentially motivating experience and/or experience that has immediate meaning and significance for the person. (Izard, 1972, p. 59)

CHAPTER II

RELATED RESEARCH

Although the previous chapter defined emotions in terms of increased physiological functioning and a predisposition to behave accordingly, no attempt was made to differentiate emotional states. The purpose of this chapter will be not only to differentiate emotional states, but also to operationally define them and cite relevant research. The condition known as anxiety was the principle affective response studied in this experiment and consequently will be reviewed in detail. Measures of depression and hostility were also obtained.

There have been literally thousands of studies dealing with anxiety in addition to the fact that anxiety is the central concept of many theoretical positions. Despite the quantity of research on anxiety, there still remains a great deal of disagreement among theoreticians as to the nature of the phenomenon and its constitutive aspects (Fischer, 1970). Spielberger (1972a) reports a lack of consensus on such basic issues as the measurement and conceptual meaning of anxiety. This lack of agreement among theoreticians has not impeded publications on anxiety. Spielberger conservatively

estimates that ". . . over 5,000 articles or books on anxiety have been published during the past two decades (p. 6)." The literature on anxiety is comprehensive in that many dimensions of anxiety such as its nature, measurement, neurophysiological and biochemical aspects have been investigated. The philosophical dimension of anxiety has also been presented in the classic book, The Meaning of Anxiety (May, 1950).

Definitions of Anxiety

One thing the literature is replete with is its definitions of anxiety. The more representative definitions are presented here.

One of the first modern psychological thinkers to incorporate anxiety into a detailed system of personality was Sigmund Freud. He regarded anxiety as the fundamental problem in all symptom formation (Freud, 1936). He conceptualized anxiety as something felt, as an unpleasant emotional (affective) state that everyone experiences to some extent but when manifested in pathological amounts would represent the clinical syndrome of anxiety-neurosis (Freud, 1924). He further stated:

Anxiety (or dread) itself needs no description; everyone has personally experienced this sensation, or to speak more correctly, this affective conditions, at some time or other. But in my opinion not enough consideration has been given to the question why nervous persons in particular suffer from anxiety so much more intensely, and so much more altogether,

than others . . . one thing is certain, that the problem of anxiety is a nodal point, linking up all kinds of most important questions; a riddle of which the solution must cast a flood of light upon our whole mental life (Freud, 1959, p. 341)

For Freud, anxiety was not only a central issue in neurosis but also the understanding of it was important in the comprehensive study of human behavior. Freud's conclusion as to the definition of anxiety were summed up in him concluding that anxiety is: "(1) a specific unpleasurable quality; (2) efferent discharge phenomena; and (3) the perception of these." (Freud, 1936, p. 70).

Consistent with Freud's conception of anxiety, Basowitz, Persky, Korchin and Grinker (1955, p. 3) defined anxiety as "the conscious and reportable experience of intense dread and foreboding, conceptualized as internally derived and unrelated to external threat."

Krause (1961), in discussing the measurement of transitory anxiety, defines anxiety in terms of six types of evidence: (1) introspective verbal reports by the client; (2) physiological signs such as measures of various autonomic responses; (3) the response to stress; (4) clinical intuition on the part of the clinician; (5) free molar behaviors which include body posture, gesturing, speech characteristics, and facial expressions; and (6) performance on tasks.

Similar to Krause's definition, Martin (1961) defines anxiety

in terms of physiological components and as a starting point proposes:

. . . that the construct of anxiety be considered similar and perhaps identical to the reaction of fear, the neurophysiological bases for which are not completely known but would seem to especially involve the functions of the posterior hypothalamus and its effect upon the sympathetic nervous system, the adrenal medulla, and the pituitary-adrenocortical system. The brain stem reticular formation may also play a part in this reaction. (p. 234)

The cognitive dimension of anxiety is articulated by Schachter (1966) who draws heavily from the James-Lange theory of emotion.

According to Schachter, given a state of arousal:

. . . it is suggested that one labels, interprets, and identifies this stirred-up state in terms of the characteristics of the precipitating situation and one's apperceptive mass. This suggests, then, that an emotional state may be considered a function of a state of physiological arousal (excitement of the sympathetic nervous system) and of a cognition appropriate to this state of arousal. The cognition, in a sense, exerts a steering function. Cognitions arising from the immediate situation as interpreted by past experience provide the framework within which one understands and labels his feelings. It is the cognition which determines whether the state of physiological arousal will be labeled "anger," "joy," or whatever. (p. 194 and 195)

The multivariate approach to the study of anxiety has been pioneered by Cattell and Scheier (1961). Anxiety in the multivariate approach is defined in terms of the many variables that people have suspected to be measures of anxiety and then correlating and factor-

ing them to discover whether one or more single factor underlies anxiety. Cattell lists advantages of the multivariate approach over other approaches of studying anxiety. Basically, the approach allows the investigation of the covariation of a number of different measures over time (Cattell, 1972).

More clinical definitions of anxiety that would be considered neurotic anxiety are provided by Millon (1969), "extreme apprehension and diffuse emotional tension" (p. 382); Coleman (1972), "apprehensiveness, which may be punctuated by recurring episodes of acute anxiety. But since neither the anxious expectations nor the acute anxiety attacks appear to stem from any particular threat, the pervasive anxiety is said to be 'free-floating' (p. 221)." The American Psychiatric Association, DSMII, Diagnostic and Statistical Manual of Mental Disorders (1968) defines anxiety as an "over-concern extending to panic and frequently associated with somatic symptoms. Unlike phobic neurosis, anxiety may occur under any circumstances and is not restricted to specific situations or objects (p. 39)," and by Drever (1964): "A chronic complex emotional state with apprehension of dread as its most prominent component; characteristics of various nervous and mental disorders (p. 17)." Wolpe (1966) defines anxiety simply as an emotional habit. DSMII classifies anxiety as the chief characteristic of the neurosis.

Spielberger (1972a) summarizes the various definitions of anxiety by reducing them into two major categories; (1) introspective verbal reports, and (2) physiological behavioral signs.

Trait and State Anxiety

Originally proposed by Cattell and Scheier (1961) anxiety has been differentiated in terms of trait and state anxiety (McReynolds, 1968; Spielberger, 1966, 1972b; Zuckerman and Lubin, 1965a).

Trait anxiety implies that the anxiety is a relatively stable aspect of the individual's personality structure. Trait anxiety does not take into account the situational and transitory nature of anxiety as a response to appropriate stimuli.

Spielberger (1972b) presents a cogent definition of personality states and traits. He states:

A personality state exists at a given moment in time, and at a particular level of intensity. Although personality states are often transitory, they can recur when evoked by appropriate stimuli, and they may endure over time when the evoking conditions persist. Emotional reactions may be viewed as expressions of personality states.

In contrast to the transitory nature of personality states, personality traits may be conceptualized as relatively enduring individual differences among people in specifiable tendencies to perceive the world in a certain way and/or in dispositions to react or behave in a specified manner with predictable regularity. (p. 31)

In applying these concepts to anxiety, Spielberger (1972b),

defines state and trait anxiety as:

State anxiety (A-State) may be conceptualized as a transitory emotional state or condition of the human organism that varies in intensity and fluctuates over time. This condition is characterized by subjective, consciously perceived feelings of tension and apprehension, and activation of the autonomic nervous system. Levels of A-State should be high in circumstances that are perceived by an individual to be threatening, irrespective of the objective danger; A-State intensity should be low in nonstressful situations, or in circumstances in which an existing danger is not perceived as threatening.

Trait anxiety (A-Trait) refers to relatively stable individual differences in anxiety proneness, that is, to differences in the disposition to perceive a wide range of stimulus situations as dangerous or threatening, and in the tendency to respond to such threats with A-State reactions. A-Trait may also be regarded as reflecting individual differences in the frequency and in the probability that such states will be experienced in the future. Persons who are high in A-Trait tend to perceive a larger number of situations as dangerous or threatening than persons who are low in A-Trait, and to respond to threatening situations with A-State elevations of greater intensity. (p. 39)

Many studies have shown the validity of state and trait anxiety as separate and distinct anxiety constructs. Johnson (1968), Johnson and Spielberger (1968), Hodges (1968), Hodges and Spielberger (1969), and Newmark (1972) have consistently demonstrated the stability of A-Trait or anxiety-proneness over extended periods of time and the transient nature of A-State anxiety as influencing performance on such tasks as Digit Span. Morris and Liebert (1972), in criticizing the state-trait concept

of anxiety, cite evidence in support of a cognitive (worry) emotional (affective) dichotomization of anxiety. They found that worry scores were aroused only in the failure threat situation and that emotionality scores were elevated only in shock threat conditions. In previous studies, they found worry to be more negatively correlated with examination grades and expectancy than was emotionality or pulse rate (Liebert and Morris, 1967; Morris and Liebert, 1970).

The literature shows further differentiation of the state-trait dimension of emotionality. Auerbach (1973) investigated the relationship of state-trait anxiety with the effects of surgery-induced stress and post-operative adjustment. His findings, while substantiating previous studies showing the stability of A-Trait scores, revealed other interesting results. As might be expected, A-State scores declined slightly after surgery and then decreased markedly in the post-operative convalescence period. However, the magnitude of decline in A-State scores was unrelated to severity or type of surgery, surgical history, or patient's age. He also found that moderate levels of pre-operative fear facilitated recovery from surgery and that there was some evidence that A-State levels were curvilinearly related to post-operative adjustment.

In another study, Otterbacher and Munz (1973) reported the findings of the Perceived Guilt Index Inventory which is a self-report measure of state-trait experiential guilt. The authors

reported construct validity studies that gave strong support for the theory underlying the development of the instrument.

Arousal, Motivation and Performance

In light of previous definitions of anxiety cited in this chapter, anxiety can be considered to be a major component of general emotional arousal. Emotional arousal, according to Hebb (1972), is both organizing (increasing behavior effectiveness) and disorganizing; that is, it may at times be energizing and at other times be debilitating. In this sense, emotion serves as a motivator but, when experienced to an increasing degree, leads to a decrease in performance. The relationship between arousal and performance is shown in Figure 2.1. This inverted U-curve shows the relationship between arousal and performance to be curvilinear as opposed to

Figure 2.1. --Relationship between cue function and arousal

Source: Hebb, 1972, p. 199. Reprinted with permission.

linear. For best performance there appears to be an optimal amount of arousal. States of arousal less than or greater than the optimal amount detract from performance.

What appears to be most damaging are high levels of arousal that result in emotional disturbance and disorganization. Tyhurst (1951) describes the behavior of people inadvertently caught in a tragedy such as a fire on a ship or apartment house, or by a flash flood. He states that about 15 percent show rather effective and organized behavior; about 70 percent are still able to function but show varying degrees of disorganization; and another 15 percent show gross ineffective behavior. Studies of men under the stress of combat show similar results (Marshall, 1947).

While Figure 2.1 shows the general relationship between arousal and performance, it does not take into account the variability of the task. Figure 2.2 shows the relationship between arousal and three separate tasks. Curve "a" shows a simple, long-practiced habit such as giving one's name. Maximal efficiency is reached with low arousal and maintained over a wide range. Curve "b" shows a complex task. Maximal efficiency is reached only at a medium degree of arousal. Curve "c" shows maximal performance at a high degree of arousal. An example would be of running a race, a rather simple task, but requiring full mobilization of effort.

Figure 2.2. --Relationship between cue function and arousal for tasks of varying complexity

Source: Hebb, 1972, p. 200. Reprinted with permission.

Early investigation into the relationship between intensity of arousal and performance on a task dates back to the classic studies of Yerkes and Dodson (1908). Working with mice in the white-black discrimination habit formation task, they were able to discern that a certain amount of stimulation was necessary for optimal performance. Too little stimulation or too much stimulation led to reduced performance. Through their research they were able to establish an inverse relationship between optimum arousal or drive and complexity of task. This also implies the curvilinear relationship which states that there is an optimal level of stimulation in learning with lower and higher levels being less effective. As the complexity of the task increases, however, the optimum level of arousal decreases. This concept is one of the most stable and is

referred to as the Yerkes-Dodson Law (Travers, Reid and Van-Wagenen, 1963).

Of the human studies that have been done correlating arousal and performance, there does appear to be consistency in supporting the Yerkes-Dodson Law. Courts (1939) showed that subjects who were under a moderate increase in tension memorized material better than they did while being too relaxed or under too much strain. Spielberger (Chapter 14, 1966) reports a series of studies where differential levels of anxiety were compared with intelligence and performance on complex tasks. On the basis of these studies, the following conclusions were drawn: (1) high anxiety can be both facilitating and disrupting on different elements of a complex task for the same subjects; (2) with subjects of high intellectual ability, anxiety seemed to facilitate performance on a challenging concept-formation task while impairing the performance of low intelligence subjects. His general findings substantiated the clinical observation that high levels of anxiety usually interfere with human performance, such as academic achievement.

Sarason, et al. (1960), found similar results for elementary school children. His findings differed from Spielberger's in that Sarason found high anxiety to interfere with the performance of all children, even those of high intelligence. Farber and Spence (1953) found that when students of high anxiety were asked to trace a path

through a maze while blindfolded, they learned the task more slowly than students with low anxiety. Ganzer (1968) has shown that the rate of learning of a list of nonsense syllables by high anxiety subjects was lower than low anxiety subjects when the students were being observed by others.

There is also some evidence to support the notion that higher levels of anxiety may, in some instances, act as a facilitator if the task is simple. Taylor (1951) has shown that simple conditioning of the eyeblink response was more rapid for the anxious group than for the non-anxious group. Taylor's findings in this study support the notion that for a simple task, high states of arousal do not necessarily impede and may in fact facilitate performance.

In an extensive review of studies relating anxiety and verbal productivity, Murray (1971) found a strong tendency for verbal quantity to be positively related to trait or dispositional anxieties and concurrent anxiety (variations in speech disturbances or physiological indexes). He also found verbal quantity to be negatively related to situational or state anxiety. In addition, he found silence to be negatively related to dispositional (trait), but positively related to situational and concurrent anxiety. He concluded that verbal quantity first rises and then falls as stress increases, indicating a U-curve or curvilinear relationship between anxiety and verbal productivity.

In another study, Kestenbaum and Weiner (1970) examined achievement motivation, test anxiety and performance on a standardized reading test. They found that reading performance was positively related to test anxiety. In a related study, Allen, Lerner and Hinrichson (1972) examined the relationships among study behaviors, test anxiety and academic performances. They attempted to determine whether study-related behaviors would increase the accuracy of prediction of grade point average beyond that provided by personality measures and academic potential as well as investigate the relationship between test anxiety, study behaviors and grades. Using a multivariate regression analysis they found high-school ranking to be the best predictor of college grade point average. Self-report study behaviors were positively related to grade point average while trait anxieties and number of study time interruptions were negatively related to grade point average.

Rappaport and Katkin (1972) examined the relationship between scores on the Taylor Manifest Anxiety Scale, response to stress and the perception of autonomic activity. They found a significant relationship between scores on the Taylor and nonspecific galvanic skin responses to mildly threatening, ego-involving instructions. Contrary to expectations, they found no differences between Ss in the reporting of autonomic perceptions.

Three recent studies tend to shed some new light on the issue

of performance and anxiety. In one study, Saltz (1970) suggests that we may well have misread the data. Citing various studies, Saltz disagrees with the Taylor and Spence interpretations of high MA scores implying more susceptibility to stress. Saltz concludes that people who score high on measures of anxiety show more disruptive behavior under failure-induced stress, but not necessarily under pain-induced stress. He also claims that people scoring low on measures of anxiety show more disruptive behavior under pain-induced stress, but not necessarily under failure-induced stress. He suggests that high scorers on the Taylor Manifest Anxiety Scale are not necessarily more susceptible to stress than are low scores, but rather they are susceptible to different stressors. The other two studies are similar in their findings.

Wine (1971), in an extensive review of the literature on test anxiety, made the following conclusions:

Highly test-anxious persons typically perform more poorly on tests than do low-test-anxious persons, particularly when the tests are administered under stressful, evaluative conditions. The literature reviewed . . . suggests that this performance difference is largely due to a difference in the attentional focuses of high-and-low-test-anxious persons during task performance. The low-test-anxious person is focused on task relevant variables while performing tasks. The highly test-anxious subject is internally focused on self-evaluative, self-deprecatory thinking, and perception of his autonomic responses. Since the difficult tasks on which the test-anxious person does poorly require full attention for adequate performance,

he cannot perform adequately while dividing his attention between internal cues and task cues. (p. 92)

The third study conducted by Sarason (1972) examined the relationship between different levels of test anxiety and observation by subjects of the performance on a task by a model. The experiment was conducted in two different designs where subjects observed a self-derogatory model (Experiment I) and a model who failed at a serial learning task (Experiment II). In both experiments, the best performance was obtained by low-anxious scorers. Sarason concludes:

The findings support the conclusions that persons differing in test anxiety differ in the stimuli to which they are especially attentive and how they react to the stimuli. Evaluative cues seem to motivate persons of low anxiety. For those who are highly anxious, evaluative cues may be quite threatening danger flags. (p. 413)

Theories of Anxiety

Because the nature of this study is empirical and not theoretical, a detailed description of the various theories of anxiety will not be presented. Rather, a brief description of the more representative theories of anxiety will be presented. Some of the physiological theories are discussed in Chapter I. Of the various sources available describing theories of anxiety, one very succinct and cogent source is William F. Fischer's book, Theories of

Anxiety (1970). Fischer presents in this book some of the major theories (nine in all) and attempts to integrate them. Another excellent source is Volume II of Anxiety: Current Trends in Theory and Research (Spielberger, 1972). Should the reader want a more detailed explanation of the many theories of anxiety, the bibliography provided by these respective authors are most comprehensive.

The psychoanalytic theory interprets anxiety as located structurally within the ego. The genetic dimension of anxiety is viewed as originating in the prototype of all future anxiety and is to be found in the anxiety experienced during the birth process (Fischer, 1970).

The analytic interpretation delineates three major types of anxiety: (1) realistic anxiety, which is rational and synonymous with fear; (2) moral anxiety, which is a reaction to threat from the superego; and (3) neurotic anxiety, whether free-floating or phobic and quite irrational. Fischer goes on to interpret the analytic conception of neurotic or nonrealistic anxiety as the consequences and direct manifestations of unemployed ego. Neurotic anxiety, therefore, is the fate of libidinal energy that encountered repression. Given a state of neurotic anxiety, the cause would be in the perception of danger from the id instincts.

Epstein (1972) cites Freud's concept of primary anxiety and

equates it with excessive stimulation of the cerebral cortex--a sensory overload. He explains traumatic neurosis as being determined by a reaction to over-stimulation rather than unconscious conflicts.

Learning theory interprets anxiety and fear as conditioned pain (Epstein, 1972). Learning theory, in essence, states that a subject will manifest fear responses to stimuli that have been contingently associated with pain-producing stimuli. The response of anxiety or fear is considered learned because it is attached to a previously neutral cue. The concept of reinforcement is used to explain the avoidance of the fear-producing stimulus. By avoiding the noxious stimulus, the subject does not experience the negative emotion, thereby reinforcing whatever behaviors were emitted that led to anxiety reduction.

The existential theory of anxiety, as with the analytic and learning theories, has many spokesmen. Kierkegaard relates anxiety to commitment and awareness (May, 1950). Other dimensions of his interpretation of anxiety include the comprehension and confrontation of options and the realization of responsibility. Kierkegaard conceives of the anxious person as one who is caught between two mutually exclusive possibilities and yet unable to abandon one for the other (Fischer, 1970).

May (1950) interprets anxiety as ". . . the apprehension

cued of by a threat to some value which the individual holds essential to his existence as a personality (p. 191)." Basic anxiety, therefore, is associated with disintegration of the personality.

Measures of Anxiety

Many types of assessment devices have been constructed to measure anxiety. Krause's (1961) six types of evidence of transitory anxiety (p. 9) give a good overview of these assessment modes. This section will deal with two types of anxiety assessment; self-report measures, such as paper and pencil tests; and physiological measures, such as changes in the galvanic skin response, blood pressure, respiration, heart rate, palmar conductance and more recently, the biofeedback devices.

Self-report measures

Although there are literally hundreds of inventories that claim to measure anxiety, a review of two prominent texts in the field of psychological testing (Anastasi, 1968; Cronbach, 1970) revealed an inappreciable amount of discussion relevant to the measurement of anxiety.

Clearly, the generic instrument in anxiety research is the Manifest Anxiety Scale (Taylor, 1953). The items on the test are taken from the Minnesota Multiphasic Personality Inventory and

are believed to be indicative of manifest anxiety in the judgments of experts. Although not originally constructed for use as a measure of manifest anxiety, the test was constructed to test the effect of anxiety upon learning in an extension of Hull's theory of drive (Spence, 1958).

Other popular self-report measures of anxiety include the Achievement Anxiety Test (AAT), (Alpert and Haber, 1960); Test Anxiety Questionnaire (TAQ), (Mandler and Sarason, 1952); Cattell's Handbook for the I. P. A. T. Anxiety Scale (1957); Sarason, et al., (1960) Test Anxiety Scale for Children (TASC) and Test Anxiety Scale (TAS); Spielberger, Gorsuch, and Lushene's Manual of the State-Trait Anxiety Inventory (1970); Zuckerman and Lubin's Manual for the Multiple Affect Adjective Check List (1965a). McReynolds (1968) gives an extensive review of available techniques to assess anxiety.

Although the data are somewhat outdated, Cattell and Scheier (1958) reported more than one hundred twenty personality tests claiming to measure anxiety.

Physiological Measures of Anxiety

The literature is more abundant with various physiological indexes of anxiety than with information concerning paper and pencil measures. Cattell (1972) discusses physiological expressions

of autonomic system activity and lists them in three major classifications: I--General Autonomic Activity; II--Sympathetic-Autonomic (Adrenergic) Pattern; and III--Parasympathetic vs. Arousal. The complete listing is shown in Appendix A. Cattell states that anxiety is best considered as a general autonomic activity and distinct from sympathetic or parasympathetic responses.

Elsewhere, Cattell (1966) has listed physiological variables that are representative of pure anxiety. This list is presented in Appendix B. Cattell considers pulse rate and blood pressure to be excellent indicators of anxiety.

Cattell's listings are comprehensive in their delineation of various physiological variables that may be used in anxiety research. The following will be a discussion of some of these variables, especially those that were used in this study.

Blood pressure

The taking of blood pressure is a standard medical procedure in every physician's office. Contrary to common misconception, there are actually five phases of blood pressure heard through the stethoscope instead of the usual two. The taking of blood pressure by the cuff or auscultatory method is an approximation of the true blood pressure reading that is obtained by inserting a needle into the artery and measuring the pressure on an electronic manometer.

For various reasons, this technique is rarely used and the auscultatory method is used, and is only a few millimeters lower than that obtained by the direct method.

The first phase or systolic blood pressure marks the onset of the tapping sound which means that the first spurt of blood has gotten through the artery beneath the inflated cuff. For normal blood pressure, this will be around 120 mm of mercury.

After the first phase, a slight murmur can be heard at about 110 mm of mercury marking the second phase. The third phase, around 98 mm of mercury, is represented by a tapping sound alone with no murmur. As the murmur ends, about 88 mm of mercury, the tapping becomes lower-pitched and less intense. This muffled sound constitutes the fourth phase. The disappearance of the sound around 80 mm of mercury is the fifth phase or the diastolic blood pressure for normal blood pressure (Ravin, 1972).

Blood pressure has been used in a number of classic studies dealing with emotionality. Ax (1953), in a unique experiment, elicited fear in resting subjects by first of all giving a gradually increasing intermittent shock stimulus to the little finger which never reached an intensity sufficient to cause pain. When the subject reported this sensation, the attendant acted surprised and led the subject to believe that there may be a dangerous high-voltage short circuit in the eight-channel electroencephalograph machine.

At the same time the attendant would push a button that caused harmless sparks to jump near the subject. After the subject was reassured that the short-circuit had been found and repaired, a ten to fifteen minute recovery period was provided with music to relax the subjects.

Anger was then elicited in subjects by using the attendant and polygraph operators as key figures. The attendant would inform the subjects that the regular polygraph operator was ill and the only substitute that could be found was an operator who was recently fired for incompetence and arrogance. Thus, the operator would be a suitable target for hostility by the subject.

The anger portion of the experiment was initiated by the operator entering the room and informing the attendant that he had to check the wiring. The attendant, although objecting, agreed to go into the other room and operate the polygraph machine. The operator then proceeded to shut off the music, criticize the attendant and make sarcastic remarks to the subject. This procedure lasted for five minutes.

Ax was able to demonstrate the differentiation in physiological reaction patterns for anger and fear. The fear-producing situation produced similar patterns as injections of epinephrine; the anger-producing situation produced similar patterns as injections of epinephrine and nor-epinephrine. Ax concluded that:

Diastolic blood pressure rises, heart rate falls, number of rises in skin conductance, and muscle potential increases, were greater for anger than for fear, whereas skin conductance increases, number of muscle potential increases, were greater for fear than for anger. (pp. 441-442)

Schachter (1957) repeated Ax's study and added a pain experience (cold pressor test) to the fear and anger situation. In reviewing his and other studies, Schachter (1966) concluded that:

Epinephrine or adrenaline is a sympathomimetic drug whose effects, with minor exceptions, are almost a perfect mimicry of a discharge of the sympathetic nervous system. Shortly after injection systolic blood pressure increases markedly. Heart rate increases somewhat, cutaneous blood flow decreases, muscle and cerebral blood flow increases, blood sugar and lactic acid concentration increases, and respiration rate increases slightly. (p. 198)

Funkenstein, et al., (1957) findings suggest similar hormonal correlations of fear and anger. They suggest that the emotion of anxiety has a strong epinephrine-like reaction while the emotion of anger has a strong nor-epinephrine-like reaction. Martin (1961) sums up his findings by stating that:

In general it is found that epinephrine leads to increased palmar conductance, systolic blood pressure, heart rate, cardiac output, forehead temperature, central nervous system stimulation, blood sugar level; and decreased diastolic blood pressure, peripheral resistance, hand temperature and salivary output. Nor-epinephrine leads to increased systolic and diastolic blood pressure and peripheral resistance, no change or a slight decrease in heart rate and cardiac output, and only slight increases in central nervous system stimulation and blood sugar level. (pp. 237-238)

These findings tend to concur with Grinker's (1966) conclusions that diastolic blood pressure will rise when anger is either repressed or suppressed. Diastolic blood pressure is an important concomitant of essential hypertension.

In comparing the Ax, Schachter and Funkenstein, et al., studies, Martin (1961) concludes that despite some inconsistency, there is considerable evidence to support the notion that there are some common elements involving the emotions labeled anger and fear. In all three studies, diastolic blood pressure increased more for anger than for fear, heart rate increased more in fear than in anger. Cardiac output also seems more sensitive to fear than to anger. One study, Dimascio, Boyd and Greenblatt (1957) found a significantly inverse relationship between heart rate and anger.

Several of the biofeedback studies have demonstrated the efficiency of the operant approach in preliminary research controlling systolic and diastolic blood pressure and pulse rate. (Benson, et al., 1971; Schwartz, 1972, 1973; Swartz and Higgins, 1971; Shapiro, et al., 1969, 1972) These findings will hopefully lead to more refined techniques for the treatment of various psychosomatic diseases such as essential hypertension and high blood pressure.

These procedures have many "bugs" yet to be worked out. The positive reinforcement used to either raise or lower rates of

physiological responses have included such items as slides of beautiful scenes and nude women. The subjects for these experiments, not too surprisingly, have been healthy young men. This approach (biofeedback) has much to offer therapeutically, but is no panacea (Schwartz, 1973).

Galvanic Skin Response (GSR)

GSR is a commonly-used psychophysiological measurement of electrical conductance of the skin. GSR works on the principle in physics called Ohm's Law. This principle implies that a decrease in resistance, caused by innervated sweat glands, leads to an increase in current flowing through the body. The neurological dimension of GSR includes postganglionic fibers of the sympathetic nervous system that are controlled by the hypothalamus. The increase in current flowing through the skin is basic to emotion (Woodworth and Schlosberg, 1954).

Although GSR is a popular measurement, and it is extremely sensitive, it does require a temperature and humidity controlled room to be effective. For this reason, GSR was not used in this experiment, but remains a common and valid dependent measure of changes in emotionality (Malmo, 1966).

Pulse rate

The literature is replete with studies using pulse rate as a dependent measure. Studies previously cited have found pulse rate to be a sensitive indication of changes in emotionality. Norman and Melville (1972) and Elliott (1969 and 1970) agree that heart rate is a more reliable dependent variable than skin conductance because of technical recording considerations.

A theory of pulse rate advanced by Lacey (1959) implies a relationship between attention variables and the heart rate response. A decrease in heart rate is associated with acceptance of the environment or attention to an external task and an increase in heart rate associated with rejection of the environment or attention to internal cues. The theory is much more complex than this and has generated much excitement in the field of psychophysiological research over the past ten years as well as critical dialogue (Hahn, 1973; Elliott, 1972).

Digital Sweat Index (DSI)

Originally called palmar sweat and sometimes called finger sweat, the digital sweat index is a sensitive indicator of changes of emotionality. Working on the same principle as the galvanic skin response, digital sweat is a measure of sweat on the digital surface

of one's finger.

The Digital Sweat Index (DSI) was originally developed by Kuno. In his book, Human Perspiration, Kuno (1965) discusses the various types of perspiration. Sweat from the palms of hands and the soles of feet tend to be activated by emotional arousal such as anxiety and are not affected by moderate increases in temperature.

DSI has been used in numerous studies with impressive results. (Allen, 1970; Droppelman and McNair, 1969, 1971; Lipper and McNair, 1972; Haywood and Hunt, 1963; Haywood and Spielberger, 1966; McNair, Droppelman and Kissman, 1967; O'Malley, 1972; Paul, 1964, 1966; Winter, Ferreira, and Ranson, 1963) A detailed discussion explaining the actual process of the index is presented in Chapter III.

Forearm blood flow

A relatively new dependent measure of emotionality is the forearm blood flow (Kelly, 1966). This physiological index of anxiety has been developed based on the measurement of muscle blood flow in the forearm as determined by venous occlusion plethysmography (Matthews and Lader, 1971). Anxiety is associated with an increase in muscle blood flow (Kelly, Brown and Shaffer, 1970). In studies where mild anxiety was induced by mental arithmetic, an increase of forearm blood flow of 300 percent was reported (Blair,

Clover, Greenfield and Roddie, 1959).

Correlations Between Physiological and
Psychological Measures of
Anxiety

Contrary to what one might assume, correlations between physiological measures of emotions tend to be low and usually statistically insignificant (Ax, 1953; Chamber, Hopkins and Hopkins, 1968; Lacy, 1959; Lazarus and Opton, 1966; Matthews and Lader, 1971; Martin, 1961). Ax accounts for these low correlations by implying that there is a uniqueness in the physiological expression of emotion. This would correspond to Lachman's concept of organ specificity which entails specific organ receptiveness interacting with environmental stress that would account for a specific psychosomatic ailment (Lachman, 1972).

This raises many fundamental questions as to the theoretical concept of stress. One important issue is which, if any, physiological measure is more appropriate for studying anxiety. Lazarus and Opton (1966) state that anxiety is a multidimensional concept with various components of physiological arousal in the various organ systems as well as subjective phenomena. They conclude by saying:

The maximum correlations between various indicators of autonomic nervous system reactions are probably only modest even under the most favorable

conditions. The discrepancies between stress-reaction indicators are even more marked and obvious when we compare different levels of analysis, for example, the physiological response and the behavioral response. (p. 235)

The correlations between physiological and psychological measures tend also to be low and insignificant. Katkin (1965) found no relationship between the MAS scores and GSR rates during either adaption or stress conditions. In another study, Winter, et al., (1963) found significant correlation between the MAS and the Affect Adjective Check List but no correlations between these psychological measures and palmar sweat index. Johnson and Spielberger (1968) found systolic blood pressure and heart rate to be significantly correlated although the correlations were not large. They found no relationship between the Affect Adjective Check List and these physiological measures.

One study (Haywood and Spielberger, 1966) did find high anxiety subjects scoring significantly higher on palmar sweating. Their conclusion was that the palmar sweat index was a sensitive measure of anxiety. Another study (Kelly, et al., 1970) found no correlation between the Taylor Manifest Anxiety Scale and any of five physiological measures of anxiety.

Problem Area

A review of the literature in counseling and counselor

education revealed only sparse attempts at investigating anxiety, as experienced by the counselor, that effect the counseling process. A computer search of ERIC documents revealed no studies in this area.

Russell and Snyder (1963) examined the effects of coached hostile and friendly clients on the anxiety of the counselor. Using palmar sweating, eyeblink rate, client-actor estimates of counselor anxiety, and judgments of verbal anxiety made by independent judges as dependent measures, they found that counselors interviewing hostile clients were significantly more anxious than when interviewing friendly clients. They found no differences between less experienced and more experienced counselors.

Two studies in the area of counselor education have made attempts at reducing counselor trainee anxiety by various desensitization procedures. Miller (1970) investigated the effects of self and in vivo desensitization on counselor trainee anxiety. As dependent measures, he used the Anxiety Differential, the Fear Index, and the Taylor Manifest Anxiety Scale--all paper and pencil measures. The Ss were administered seven treatments of desensitization over a period of several weeks. Miller's primary finding was that there was no effect on anxiety level due to treatments. He concluded that the reason his subjects did not show any decrease in anxiety was because they were not that anxious to begin with. This

interpretation does not correlate with clinical observations that indicate quite clearly that counselor trainees do experience considerable anxiety in their counseling interview.

In the other study, Monke (1971) and his associates administered two sessions of body relaxation followed by five sessions of desensitization designed specifically for the purpose of reducing the anxiety state of beginning counselor trainees. Of the thirty trainees that he worked with, he found significant differences in measures of self-report anxiety, but no significant differences in measures of heart rate and skin resistance. Monke interpreted the significance of the self-report measure of anxiety as being influenced more by a desire to please the experimenter than by real changes.

While these two studies did not demonstrate effective anxiety-reduction by means of desensitization, the method still has demonstrated effectiveness. Systematic desensitization is one of the more effective therapeutic modalities for the reduction of fear and anxieties (Di Loreto, 1971; Franks, 1969; Lazarus, 1971; Paul, 1966; Rachman, 1967; Wolpe, 1969). A recent publication, Annual Review of Behavior Therapy: Theory and Practice, 1973 (Franks and Wilson, 1973) list many impressive studies using behavior therapy.

One area of investigation that has not received too much

attention is that of hypnosis as an anxiety-reducer. One study (Astor, 1971) cites research in the area indicating that hypnosis, used in educational settings, can increase performance on various learning tasks. In addition to citing relevant studies, Astor gives a strong argument for the use of hypnosis in an educational setting.

Pennscott and Brown (1972) investigated the relationship between anxiety and the development of empathy in counselor trainees during a full year guidance institute. They found that empathy did not increase significantly during this time as measured by the Truax Scales; that there was no significant relationship between anxiety and empathy; but that anxiety significantly decreased over this period of one year as measured by the Taylor Manifest Anxiety Scale.

Several clinical publications substantiate the notion that counselor trainees do in fact become very anxious when interviewing clients under supervised conditions. Mueller and Kell (1972) and Kell and Mueller (1966) have studied counselor trainee anxiety in terms of their role as counselor trainee supervisors. It is their position that any significant human relationship is charged with anxiety. The counselor trainee-client and counselor trainee-supervisor relationships, being very significant human relationships, are charged with a great deal of anxiety.

In their book, Coping With Conflict: Supervising Counselors and Psychotherapists, Mueller and Kell (1972) delineate three basic response patterns to counselor trainee anxiety. The anxiety approacher is characterized by being able to "bear" or "own" his anxiety and, consequently, is open to the feeling and allows the feeling to happen. The counselor who is open to his feelings of anxiety is more likely to be a problem solver and even though he may experience anxiety often he is more likely to function effectively. Needless to say, Mueller and Kell believe that therapists and counselors should be anxiety approachers.

The second response pattern is that of the anxiety avoider. At the opposite end of the continuum, the therapist who avoids anxiety by suppression and repression tends to be very ineffective. The avoider is caught up in a vicious circle of being first anxious, next believing that he can't do anything about it and assumes that the anxiety is an insoluble problem. Mueller and Kell are quick to point out that even the best of anxiety approachers are bound to be avoiders at some time.

The third response pattern is that of the anxiety binder. Unlike the anxiety avoider who relies on denial and withdrawal, the binder is much more subtle. Although Mueller and Kell do not adequately define the binder, they imply that he tends to be non-productive as well as instilling a great deal of animosity and

uncertainty in the interactions that he encounters.

In addition to describing the various facets of supervising counselors and therapists, Mueller and Kell list an extended reference section on the supervisory process.

Further evidence of counselor trainee anxiety is given by Bauman (1972) in an interesting article dealing with the resistance of counselor trainees as manifested by the games that trainees play in supervision. Bauman lists five forms of resistance that are most often used by trainees when they feel threatened by the supervisory process. They are (1) submission, whereby the trainee submits himself to the supervisor and agrees with everything the supervisor has to say; (2) shifting the focus away from the trainee, onto the supervisor and how he would work with the client; (3) the trainee assuming an "I'm no good" attitude for the purpose of bolstering by the supervisor; (4) a combination of (2) and (3) whereby the trainee pleads helplessness and inability to deal with the client and then proceeds to dump responsibility for the success of counseling onto the supervisor; and (5) projection, whereby the trainee's anxiety is externalized by transferring blame for poor counseling onto the supervisor.

Accountability in Counseling

Accountability is a topic of high priority in education today.

Accountability involves the establishment of agreed-upon behavioral objectives and modes of assessment to determine the extent to which these objectives have been met (Odiorne, 1965). Because of the nature of the counseling process and the importance placed on the interpersonal relationships between client and counselor, there appears to be a lack of agreed-upon behavioral objectives and modes of assessment. The literature is giving more attention to the issue of accountability in counseling and counselor education. Many programs in accountability are being planned both at the state and national levels. One aspect of accountability is minimum entrance level skills for beginning masters degree counseling students. Counselor education departments are devoting more attention to this behavioral objective of what competencies a beginning counselor should have.

Accountability is not new to the counseling process. Travers (1949) discusses the highly invalid criterion of subjective reporting of counseling effectiveness by clients and presents a strong argument for well documented objective criteria. He states specifically that counselees reporting feeling satisfied is not sufficient evidence for the desirability of the counseling process. Travers alludes to such objective criteria as improvement of grade point average, income after a number of years and stability of life goals as valid measures for evaluating the outcome of counseling. He

concludes by making the point that progress in counseling will be slow until counselors can demonstrate specific objectives to be achieved, measurement of these objectives and provision for the control of relevant variables.

Objective criteria have long been considered for evaluating the outcome of counseling. Knight (1941) listed three major groups of criteria for evaluating counseling. These criteria included (1) disappearance of presenting symptoms; (2) real improvement in mental functioning such as acquisition of insight, development of tolerance to frustration, development of ability to accept self with strengths and weaknesses; and (3) improved reality adjustment such as more consistent and loyal interpersonal relationships including full heterosexual functioning.

Eysenck (1952) presented data indicating that patients treated by means of psychoanalysis improved forty four percent; patients treated by more eclectic methods improved around sixty four percent and patients treated only custodially or by general practitioners improved around seventy two percent. While Eysenck's data has raised many serious questions as to the validity of the counseling process, it has also raised a stimulating debate in the literature.

Strupp (1963), in a very succinct paper, criticizes Eysenck's paper as incompetent, irrelevant and immaterial. Bergin (1963) added to Strupp's criticism by pointing out the inadequacy of

experimental and control groups in such a complex phenomenon as counseling or psychotherapy. Bergin contends that requirements for an adequate test of psychotherapeutic effectiveness have rarely been met. Bergin goes on to discuss some studies that have come close to matched controlled and experimental groups but are still lacking adequately matched groups. Further discussion of outcome research philosophies, design and measurement, process research and analogue research in psychotherapy is provided in the book, The Investigation of Psychotherapy: Commentaries and Readings (Goldstein and Dean, 1966).

Strupp and Bergin have since collaborated in an extensive journal article (Strupp and Bergin, 1969) entitled "Some Empirical and Conceptual Basis for Coordinated Research in Psychotherapy." This article is a critical review of issues, trends and evidence in research dealing with psychotherapy. The article has since been expanded into a book including many critiques, replies and correspondence by many of the leading authorities in the field (Bergin and Strupp, 1972). Another article that has dealt with the problem of outcome research in psychotherapy is written by Luborsky, et al., (1971). This article deals with the many factors that influence the outcome of psychotherapy.

Because this study has not dealt with the outcomes of counseling and therapy, these studies were not explained in depth.

These studies were cited to indicate the already extensive interest in the area of accountability of the counseling process. Should the reader be interested, a review of these articles would reveal a great deal of information regarding accountability in the counseling process. This study has focused on counselor trainees and the emotionality they experience and so, will deal with modes of accountability as they relate to this area.

Peer and supervisor ratings

One area of accountability that has been utilized in counselor education for a number of years has been that of ratings of effectiveness by peers and supervisors. In situations where peers have opportunity to interact with each other, peer ratings have been judged to be reliable and valid measures of individual performance and generally less subject to observer-deficiency bias in comparison to ratings by supervisors (Prien and Woodley, 1971). One study (Schumacher, 1967) found that counselors were not able to rate peers more reliably if they had worked closely with them than if they had considerably less contact with them.

Engle and Betz (1971) compared the differences in peer and supervisory ratings of counselor trainees in both guidance institutes and regular graduate programs. They found that the rank-orderings with respect to counselor competence of institute supervisors and

institute members correlated .77, and that the ratings among supervisors and students in a regular education program showed a rank-order correlation of .46. They suggest that the environment generated by the institute unlike that generated by the regular education program, created a broader base for intimate knowledge of each other including counseling skills. Other studies have shown positive and significant correlations of the magnitude of .60 to .90 comparing peer judgments and supervisory ratings (McDougal and Reitan, 1961; Steffire, King and Leafgren, 1962; Dilley, 1964). Janson, Robb and Bonk (1972) investigated the relationship between peer rankings on dimensions of competency, knowledge, and likeability. The graduate students were unable to differentiate their peers on these three dimensions and were consistent in their tendency to choose one person as most competent. They would also choose him as most knowledgeable and likeable. They found also that the subjects ranked in the highest and lowest quarters by their peers were valid discriminations between graduate students of both sexes with regard to potential as counselors.

These chapters (I and II) have attempted to summarize the more salient definitions of emotion and anxiety. The related research dealing with anxiety and performance has been cited as well as the various measures of anxiety. What research has been

in the problem area--counselor trainee anxiety--has also been cited. The issue of accountability in counselor education is discussed as well as the accountability of the counseling process.

In light of the data presented, this study concerned itself primarily with conditions of emotionality, as experienced by counselor trainees in initial interviews with clients. Other issues that this study dealt with were correlations between paper and pencil measures of emotionality, correlations between various physiological measures of emotionality, and correlations between paper and pencil and physiological measures of emotionality.

This study also attempted to identify the sources of anxiety as experienced by the trainee. Measures of perceived competence of the trainees were obtained by peer and supervisor ratings.

A detailed description of the methods and procedures employed in this study is given in Chapter III.

CHAPTER III

METHOD

Sample

The subjects were sixty one master's degree counselor trainees, thirty one women and thirty men, enrolled in the 1973 Spring Semester at Western Michigan University in counseling practicum courses. The mean age was twenty-six years for both males and females. The courses that the Ss were drawn from were Counseling and Personnel courses 683 and 684. The course 683¹ was entitled "Theory and Laboratory Practice in Counseling." The major orientation of this course was to provide students with a strong didactic background in counseling theories as well as to provide them with the opportunity to counsel clients while being observed by fellow students and the supervisor. In this course, students were also requested to participate in a basic encounter

¹Due to a reclassification of courses within the Counseling and Personnel Department effective the Fall Semester of 1973, the course 683 is now 617, "Introduction to Theories of Counseling," and 618, "Counseling Techniques." The course 684 is now 628, "Practicum and Professional Experience."

experience guided by a staff member other than the instructor.

The course 684 was entitled "Supervised Practicum and Professional Experience" and was an extension of the 683 experience, but with more emphasis placed upon the supervised practicum experience. Both courses were the last in the professional sequence leading to the master's degree in counseling with 683 being a prerequisite for 684. Both courses offered credit of four semester hours. Ss were drawn from four sections of 683 (37 Ss) and two sections of 684 (24 Ss).

Instruments

Psychological inventories

The two paper and pencil inventories used in this experiment were the Taylor Manifest Anxiety Scale (MAS), (Taylor, 1953), and the Multiple Affect Adjective Checklist (MAACL), (Zuckerman and Lubin, 1965b).

The MAS was originally constructed by Taylor (1951) for use in a study dealing with eyelid conditioning. The fifty items selected from the Minnesota Multiphasic Personality Inventory were judged by clinicians to be most representative of chronic anxiety reactions. The test was constructed so that the answers are forced choice and the subject responds by either a "true" or "false"

to each question. The items of the MAS elicit answers that reflect trait anxiety as opposed to state anxiety (Johnson and Spielberger, 1968).

The MAACL elicits both trait and state anxiety depending on the directions given to the subject. This test is unique in that attempts are made to measure both trait and state anxiety, as well as trait and state depression and hostility. In addition, the test is brief, taking less than five minutes to complete for most subjects.

The MAACL consists of one hundred thirty two words describing emotions or feelings which are listed alphabetically. The subject is asked to place a check mark next to that emotion that best describes him. When assessing state emotions, the subject is instructed to answer the questions from the frame of mind of how he feels now and not how he feels most of the time.

Scoring of the MAACL is somewhat complicated in that for each emotion, anxiety, depression and hostility, the scoring key requires the examiner to keep track of two scores. Each of the three scoring keys are constructed with + items and 0 items. The plus items checked by the subject would add to his gross score for that emotion. Likewise, the 0 items not checked by the subject would also add to his gross score. The 0 items are antithetical to the + items. For example, on the anxiety scale the + items consist of adjectives that reflect anxiety such as "afraid," "tense,"

"worrying." The 0 items are the antithesis of anxiety such as "calm," "happy," "joyful." In effect, this scoring procedure is a partial control for the tendency of Ss not to admit being anxious. By not checking the 0 anxiety items, his anxiety score would still be elevated. The same procedure holds true for the depression and hostility scales. There is some evidence that the MAACL has adequate reliability and validity. Reliability measures were available for the anxiety scale only. Both trait and state internal reliability were high (.72 and .85) respectively. State retest reliability was low (.31), which would be effected because of the nature of state anxiety. Trait retest reliability remained high (.68) (Zuckerman and Lubin, 1965, a, b; Zuckerman, Lubin and Robins, 1965).

Physiological measures

The four physiological measures used in this experiment were systolic blood pressure (SBP), diastolic blood pressure (DBP), pulse rate (PR), and digital sweat index (DSI), (formally called palmar sweat).

Blood pressure measures were taken from the right arm while the S was seated.¹ Pulse rate measures were taken from

¹Blood pressure measures were taken on Baumanometer V-Lok Cuffs.

the radial artery of the right arm after the blood pressure reading was taken. Pulse rates were taken for fifteen seconds on standard nursing watches.¹

Digital sweat measures were obtained by a procedure recommended by the Psychological Clinic at the University of Tennessee (Dropleman, 1973). The procedure involved preparing Whatman filter paper strips using tannic acid, thymol and distilled water; preparing a ferric chloride solution using ferric chloride, hydrochloric acid and acetone; and actually taking the prints and rating the prints.

The tannic acid solution was prepared by putting 1000 cc. of distilled water in a pyrex glass container, adding 50 gm. of tannic acid and one gram of thymol. The mixture² was stirred while being slowly heated. After the ingredients were completely mixed, the solution was filtered into an opaque container. The sheets of Whatman filter paper were then cut into 1-inch widths and 9-inch

¹Medical consultation was obtained from Fred L. Wedeking, M. D., of the University Health Center regarding the medical implications of taking blood pressures and pulse rates.

²The Whatman filter paper, tannic acid solution and ferric chloride solution were most generously provided by Dr. J. Lindsay Foote of the Biochemistry Department of Western Michigan University.

lengths. Four strips were then laid into a 6 x 9 inch pyrex dish filled with enough tannic acid solution so that one layer of the filter paper was covered by the solution. Rubber gloves were worn during the preparation of the paper strips to avoid finger prints on the paper.

The strips were soaked for three minutes and then dried on a clean formica counter for ten minutes. They were then turned over and placed on another part of clean formica until completely dry (approximately one hour). After the strips had thoroughly dried, they were then cut into 1-1/2 inch lengths.

The 1-1/2 inch paper strips were inserted into 1 x 1-1/2 x 1/16 inch plastic splints cut from 1 inch diameter plastic tubing. These plastic splints were flexible enough to adapt to any finger size simply by the attachment of a rubber band, which provided adequate pressure for accurate digital prints (McNair, Droppleman and Kussman, 1967).

The digital sweat measures were taken from the middle finger of the right hand of each S by first of all swabbing the distal part of the finger in the ferric chloride solution by means of a Q-tip and then applying the plastic splint with the inserted paper strip, held on by a rubber band. The paper strips were applied to the distal part of the finger for approximately sixty seconds and then removed. Ss were then instructed to write their names on the back

of the paper strip for proper identification. Scoring of the digital prints was done by three raters working independently of each other using the fifteen numbered photograph provided by the Psychopharmacology Laboratory, Boston University Medical Center (McNair, 1973) and shown in Figure 3.1.

The mean reliability for the three raters determined by averaging two scores was .72. This was somewhat below the interrater correlation of .94 to .97 reported by Droppleman (1973). This lower interrater correlation may be accounted for by the raters working at different times of the day in varying lighted conditions. Another factor may have been that the ratings of the prints by the raters were conducted with varying time lapses between the actual taking of the print and the scoring of the print. In two incidences, a time lapse of two weeks occurred before the prints were scored. Despite this somewhat irregular procedure for scoring the prints, the correlation of .72 was highly significant ($P < .01$).

Procedures

Instructors' consent for this experiment was secured before the semester began by means of a letter (Appendix C) sent to each instructor along with a copy of the proposal. Students' consent was secured by means of a letter (Appendix D) distributed during the first class meeting. After each student had thoroughly read and

FIGURE 3.1.--Scoring criterion for digital sweat prints

understood the letter, he was asked to sign the letter, indicating that he agreed to participate in this experiment. All Ss signed the letter and were most cooperative throughout the experiment.

Design and Measurements

Figure 3.2 summarizes the experimental procedures used in this experiment.

Pre-stress measures

The complete battery of trait and state measures were administered within the first week and a half of classes. These measures were taken in the regular classroom by the investigator and his assistants. The order of assessments were MAACL-General, MAS (measures of trait emotions), MAACL-Today, Blood Pressure, Pulse Rate and Digital Sweat Index. Blood pressure and pulse rates were taken by qualified nurses,¹ and on occasion, by the investigator, who received special training in these procedures. The nurses were instructed not to converse with the Ss in any way other than to maintain a friendly but yet professional manner. The

¹The nurses who so generously gave of their time were Virginia Bottema, L.P.N., Kerry Holmquist, L.P.N., Mary Mooney, L.P.N., and Karen Sobel, R.N.

conditions under which the pre-stress measures were taken were as non-stressful as possible in order to obtain the most accurate rates. On one occasion the measurements had to be rescheduled because of the apparent hostility of a class due to a surprise quiz the instructor had sprung on the students an hour before the pre-stress battery was to be given.

Stress measures

The battery of emotional-state measures were administered to Ss just prior to their first interview with a client. In some cases, it was impossible to measure everyone before they met with their first client which necessitated assessment of approximately ten Ss prior to their second interview with a client.

The rationale for administering these instruments prior to the stressful situation is that anxiety can be interpreted as an anticipatory response and so it is logical to assume that if the trainee is going to experience anxiety, it is likely that he will do so prior to the interview (Allen, 1970; Izard, 1972; Lazarus, 1966; Morris and Liebert, 1970). Giving these instruments prior to the interview also provided a type of experimental control in that each trainee would have the same uncertainty--not knowing what the client's presenting problem would be.

FIGURE 3. 2. --Experimental Procedures

Source of anxiety questionnaire

Immediately after the interview with his client, each S was interviewed by either the investigator or other doctoral candidates¹ with the use of a structured questionnaire, developed by the investigator (Appendix E). This procedure attempted to derive what thoughts and feelings the S experienced during the interview with his client. The interviews were conducted in a manner similar to that used by Mandler, et al., (1958) that assessed autonomic activity by means of a post-experimental interview.

The questionnaire was designed to test Wine's (1971) findings that high anxious Ss focus more on their own self-evaluations and are more preoccupied with self-derogatory thoughts. She also found that high anxious Ss are more aware of their autonomic responses. She found that low anxious Ss focused less attention on themselves and focused more fully on the task.

The questionnaire was in two sections, the first section consisting of open-ended questions that were projective in nature with the goal of eliciting as much subjective material as possible. The second section consisted of a range of forced-choice answers

¹Appreciation is extended to Linda Gay, Fred Greaves, Alton Watts, and Ty Wessel.

ranging from "not at all" (1) to "most of the time" (5). These questions were divided into two parts. The first part consisted of questions that were designed to be perceptual and cognitive in nature. The second part consisted of questions that would reflect the S's recall of his physiological functioning during the interview with his client. Many of the items were modified from DiLoreto's (1971) and Paul's (1966) studies.

The doctoral-level interviewers were instructed to read the open-ended questions verbatim from the questionnaire and record the S's response in the space provided. In the event that Ss' responses were vague and uncertain, the interviewers were instructed to probe for more specific information as one does in "testing the limits" in the Rorschach. After a few interviews had been completed, the interviewers began to observe certain defensive response patterns within the Ss and began to note whatever clinical impressions they had while interviewing Ss.

Post-stress measures

The battery of state measures were administered once again within the last week and a half of classes under conditions that would be as non-stressful as possible. The investigator consulted with each instructor concerning the best time for the post-stress measures and set up times for each class so that the measures could

be taken with the minimum emotional arousal occurring. In some instances, this was difficult because of the brevity of the seven and one-half week session and complicated by the fact that, for two of the post-stress measures, climatic changes had occurred resulting in unseasonably warm temperatures. Unfortunately, there was no way to control for the climatic changes as the building in which the measures were taken was not air conditioned. The effects of these climatic changes would have worked against getting significant results from the analysis of variance. Evidently, the climatic changes did not influence the outcome that much as data presented in Chapter IV show.

Peer and supervisor ratings

Immediately after the post-stress measures had been taken, both the individual instructors and students were asked to rank-order the other students in their respective classes in terms of perceived competence as counselors. The instructors were asked to rank everyone; the students were asked to rank everyone except themselves. The criterion for selection given to the Ss (Appendix F) was, "to whom would you send a friend for counseling if he has a psychological problem". Each class was provided with a sheet containing the names of the students in that class with space adjacent to each name to rank-order the students.

Between pre-stress, stress and post-stress, peer and supervisor ratings, there were a total of twenty seven variables recorded on a chart similar to the one shown in Appendix G. The relationship between these variables was analyzed by means of an intercorrelational matrix for both the individual classes and a composite score of all classes.

Design

A 3 x 4 analysis of variance for repeated measures was computed for each of the state emotion measures for the four 683 classes. Rows consisted of the four classes, columns consisted of the conditions of pre-stress, stress and post-stress. Cell entries were raw scores on each of the state measures. A one-way analysis of variance was computed on the state measures for the 684 class. Raw data were taken from the tally sheets (Appendix E) and keypunched on IBM cards for computer processing. Both the intercorrelation matrices and the analysis of variances were computed on the PDP10 computer at Western Michigan University.

This design allowed for a comparison of the inter-relationship between the various measures of emotionality under the conditions of stress and non-stress. In addition, the design also allowed for statistical significance between pre-stress, stress and post-stress measures of the dependent variables. The inter-correlational

matrices also gave the correlation between peer and supervisor ratings.

CHAPTER IV

RESULTS

This chapter presents the findings of this study in terms of (1) graphs indicating mean scores on the dependent measures over the conditions of pre-stress, stress and post-stress; (2) analysis of variance for the dependent measures across conditions; (3) the inter-correlational matrices between measures; (4) results of the Source of Anxiety Questionnaire; and (5) relationship of peer and supervisor ratings. Means and standard deviations of the dependent measures for the conditions of pre-stress, stress and post-stress are found in Appendix I.

The data from one of the two 684 classes were deleted from this study. The data collection procedures used for this class were not consistent with the other five classes. This irregularity was necessitated by the structure of this section, whereby students began seeing clients immediately and, consequently, time was not available for the regular pre-stress measurements.

Presentation of Graphs

The graphs presented in this section show mean scores for

both the individual classes and the combined average of all five classes. The four 683 classes are indicated by the characters "A₁," "A₂," "A₃," and "A₄." The 684 class is indicated by the character "B₁."

Figure 4.1 shows mean scores for state anxiety as measured by the MAACL. All classes showed an increase in state anxiety under stress conditions with class A₂ showing the highest increase and class A₃, the slightest increase.

Mean scores for state hostility as measured by the MAACL are shown in Figure 4.2. Four of the five classes demonstrated an increase while one class, B₁, showed a decrease in hostility under stress conditions. Two classes, A₂ and B₁, showed an increase in hostility under post-stress conditions.

Figure 4.3 reveals the results for state depression as measured by the MAACL, which shows the greatest variability between classes under all three conditions. Three of the classes showed a marked increase in depression under post-stress conditions.

Figures 4.4 through 4.7 show the mean scores for the physiological measures of the individual classes. Systolic blood pressure (Figure 4.4) exhibited a large variability under pre-stress conditions, a marked increase with less variability under stress conditions and a marked decrease under post-stress conditions. Diastolic blood pressure (Figure 4.5) indicated only moderate

changes over the three conditions for four classes. Class A_4 demonstrated a very low pre-stress diastolic blood pressure, a marked increase under stress conditions and a marked decrease under post-stress conditions.

Figure 4.6 shows the mean scores for pulse rate over the three conditions. A moderate amount of variability is observed under pre-stress conditions increasing under stress and post-stress conditions. Classes A_2 , A_4 and B_1 showed a marked increase under stress conditions; class A_3 a mild increase; and class A_1 a mild decrease for pulse rate under stress conditions. With the exception of class A_2 , all classes showed varying degrees of pulse rate decrease under post-stress conditions.

Digital sweat (Figure 4.7) revealed the most uniformed responses for the dependent measures. All five classes showed a marked increase during stress conditions and all but one a marked decrease under post-stress conditions.

Figures 4.8 through 4.14 show the combined means of the four 683 classes and the 684 class on the dependent measures over the three conditions. The procedure allows for a comparison between the combined 683 classes which have a different instructional orientation from the 684 class.

Figures 4.8, 4.9 and 4.10 show group means for the MAACL. The 683 classes reported being considerably less anxious during

FIGURE 4.1.--Group means for individual classes for MAACL-today anxiety

FIGURE 4.2.--Group means for individual classes for MAACL-today hostility

FIGURE 4.3.--Group means for individual classes for MAACL-
today depression

FIGURE 4.4. --Group means for individual classes for systolic blood pressure "SBP"

FIGURE 4.5. --Group means for individual classes for diastolic blood pressure "DBP"

FIGURE 4.6.--Group means for individual classes for pulse rate
"PR"

FIGURE 4.7.--Group means for individual classes for digital sweat index "DSI"

FIGURE 4.8.--Comparison of the combined 683 classes and 684 class on MAACL-today anxiety

FIGURE 4.9. --Comparison of the combined 683 classes and 684 class on MAACL-today depression

FIGURE 4.10. --Comparison of the combined 683 classes and 684 class on MAACL-today hostility

pre-stress, slightly more anxious during stress, and slightly less anxious during post-stress than the 684 class. Similar results are shown for depression and hostility pre-stress. Both depression and hostility decrease slightly during stress for the 684 class and then increase somewhat during post-stress. The 683 classes show a marked increase during stress with a slight increase in depression and a slight decrease for hostility during post-stress conditions.

Figures 4.11 through 4.14 show the mean physiological scores. The combined 683 classes were consistently lower (with the exception of pre-stress pulse rate and post-stress digital sweat) on all measures, under all conditions. Systolic blood pressure, pulse rate and digital sweat showed marked increases during stress conditions with diastolic blood pressure showing a slight increase. All physiological measures showed a decrease under post-stress conditions. These results are in congruence with Cattell's recommendation that systolic blood pressure is a very sensitive indicator of anxiety (Cattell, 1966); and Funkenstein, *et al.*, (1957) findings that indicate fear and anxiety have a strong epinephrine-like reaction resulting in increased systolic blood pressure.

Diastolic blood pressure showed only a slight increase during stress. This supports research findings that suggest diastolic blood pressure is not a sensitive measure of anxiety (Grinker,

FIGURE 4.11. --Comparison of the combined 683 classes and 684 class on systolic blood pressure "SBP"

FIGURE 4.12. --Comparison of the combined 683 classes and 684 class on diastolic blood pressure "DBP"

FIGURE 4.13. --Comparison of the combined 683 classes and 684 class on pulse rate "PR"

FIGURE 4.14. --Comparison of the combined 683 classes and 684 class on digital sweat index "DSI"

1966; Martin, 1961).

Appendix H shows the combined mean averages of the five classes on the dependent measures. The raw scores for the MAACL measures of anxiety, depression and hostility were converted to T-scores so that more accurate comparisons could be made (Zuckerman and Lubin, 1965a).

Results of Analysis of Variance

A 3 x 4 analysis of variance for repeated measures was computed for each of the state emotion measures from the four 683 classes. Columns (Factor B) consisted of the conditions of pre-stress, stress, and post-stress. Rows (Factor A) consisted of the four classes. Cell entries were raw scores on each of the state measures. A one-way analysis of variance was computed on the state measures for the 684 class.

Tables 4.1 through 4.7 show the results of the 3 x 4 analysis of variance that was computed for each of the dependent measures for the 683 classes. Tables 4.1, 4.2, and 4.3 show the analysis of variance for anxiety, depression and hostility as measured by the MAACL-Today Form. All three measures show significance ($P < .02$) over the conditions of pre-stress, stress, and post-stress. These data show that the self-reporting of anxiety, depression and hostility increased significantly under stress conditions. There

were also significant differences ($P < .02$) between the four classes on measures of anxiety and depression, but not hostility. Significant interaction effects ($P < .03$) were obtained for the three measures.

TABLE 4.1. --Two way repeated measure of analysis of variance comparing treatment conditions for state anxiety for combined 683 classes

Source of variance	Df	Ms	F	Prob
Between Subjects (A)	3	99.7420	4.341	0.011
Conditions (B)	2	138.2703	16.256	0.000
A x B	6	24.7890	2.914	0.014
B x Subjects within Groups	66	8.5050		
TOTAL	110			

TABLE 4.2. --Two way repeated measure of analysis of variance comparing treatment conditions for state depression for combined 683 classes

Source of variance	Df	Ms	F	Prob
Between Classes (A)	3	269.9519	4.088	0.014
Conditions (B)	2	70.7297	4.881	0.011
A x B	6	85.2309	5.881	0.000
B x Subjects within Groups	66	14.4923		
TOTAL	110			

TABLE 4.3. --Two way repeated measure of analysis of variance comparing treatment conditions for state hostility for combined 683 classes

Source of variance	Df	Ms	F	Prob
Between Classes (A)	3	40.8676	2.280	0.098
Conditions (B)	2	39.0270	7.459	0.001
A x B	6	13.4340	2.567	0.027
B x Subjects within Groups	66	5.2325		
TOTAL	110			

Tables 4.4 through 4.7 present the analysis of variance for the physiological measures from the 683 classes. Differences in systolic blood pressure and digital sweat were significant across conditions ($P < .001$). Although diastolic blood pressure and pulse rate did not reach statistical significance, they did follow the established trend of the other measures.

There were no significant differences between classes on the physiological measures as there were on the paper and pencil measures. This phenomenon is important because it indicates the low variability among the classes on the physiological measures and emphasizes the importance that the stress condition had in significantly elevating many of these physiological measures. Significant interaction effects ($P < .05$) were obtained for diastolic

blood pressure, pulse rate and digital sweat.

A table showing group means over the three conditions and the two way analysis of variance probabilities is found in Appendix J.

TABLE 4.4. --Two way repeated measure of analysis of variance comparing treatment conditions for systolic blood pressure for combined 683 classes

Source of variance	Df	Ms	F	Prob
Between Classes (A)	3	393.8594	1.325	0.283
Conditions (B)	2	1202.6016	11.419	0.000
A x B	6	43.7760	0.416	0.866
B x Subjects within Groups	66	105.3156		
TOTAL	110			

TABLE 4.5. --Two way repeated measure of analysis of variance comparing treatment conditions for diastolic blood pressure for combined 683 classes

Source of variance	Df	Ms	F	Prob
Between Classes (A)	3	57.2370	0.335	0.800
Conditions (B)	2	126.9570	2.324	0.106
A x B	6	149.3346	2.734	0.020
B x Subjects within Groups	66	54.6174		
TOTAL	110			

TABLE 4.6. --Two way repeated measure of analysis of variance
comparing treatment conditions for pulse rate for combined
683 classes

Source of variance	Df	Ms	F	Prob
Between Classes (A)	3	405.0599	1.157	0.341
Conditions (B)	2	277.2266	3.001	0.057
A x B	6	206.6758	2.238	0.050
B x Subjects within Groups	66	92.3660		
TOTAL	110			

TABLE 4.7. --Two way repeated measure of analysis of variance
comparing treatment conditions for digital sweat index for
combined 683 classes

Source of variance	Df	Ms	F	Prob
Between Classes (A)	3	14.4807	0.791	0.507
Conditions (B)	2	227.2523	38.941	0.000
A x B	6	14.0557	2.409	0.036
B x Subjects within Groups	66	5.8358		
TOTAL	110			

Tables 4.8 through 4.14 give the one-way repeated measure ANOVAS for the 684 class. Unlike the 683 classes, the 684 class did not show any significant differences over the conditions for anxiety, depression and hostility. However, they did follow the

established trend of the other measures. This data is presented in Tables 4.8, 4.9 and 4.10.

The physiological measures of pulse rate and digital sweat showed significant difference ($P < .01$) over the conditions. Systolic blood pressure, although not reaching statistical significance, did follow the established trend. Diastolic blood pressure showed no difference over the conditions. These data are presented in Tables 4.11, 4.12, 4.13 and 4.14.

Although the MAACL measures of the 684 class did not reach significance and the combined 683 classes did ($P < .01$), care must be exercised in the interpretation of this data. The reason that the MAACL scores were not elevated may well have been that the 684 class was more guarded and defensive in their responses. The fact that two of the physiological measures, pulse rate and digital sweat, did show significant difference ($P < .01$) would indicate that the 684 group did experience considerably more anxiety under the stress conditions than under the non-stress conditions.

The data presented in this section strongly suggest that interviewing a client is indeed an emotion-producing situation for the counselor trainee. The physiological measures of systolic blood pressure, pulse rate and digital sweat appear to be very sensitive measures of emotional change as indicated by the consistently high level of statistical significances for the various classes.

As indicated in Chapter III, the digital sweat prints were scored by three independent raters using Figure 3.1 as a scoring criterion. Cell entries were determined by averaging the three ratings for each print. A Spearman rank-order statistic was computed between the raters revealing correlations of .68 between raters one and two; .60 between raters one and three; and .88 between raters two and three.

These inter-rater correlations were somewhat lower than those reported by Droppleman (1973) of .94 - .97. These lower inter-rater correlations may be accounted for by the raters working at different times of the day and in varying lighted conditions. One of the raters scored the prints in a well-lighted office during the day, the other raters scored the prints in their homes at night. Another factor may have been that the ratings of the prints by the raters were conducted with varying time lapses between the actual taking of the print and the scoring of the print. In two instances, a time lapse of two weeks occurred before the prints were scored. Despite this somewhat irregular procedure for scoring the prints, the mean correlation for the three raters was .72 ($P < .01$) as determined by averaging Z scores (Spence, et al., 1968).

TABLE 4.8. --One way repeated measure of analysis of variance
comparing treatment conditions for state anxiety for 684
class

Source	Df	Ms	F	Prob
Between Groups	2	6.0278	0.337	0.717
Within Groups	22	17.8763		
TOTAL	35			

TABLE 4.9. --One way repeated measure of analysis of variance
comparing treatment conditions for state depression for
684 class

Source	Df	Ms	F	Prob
Between Groups	2	29.1945	1.328	0.285
Within Groups	22	21.9823		
TOTAL	35			

TABLE 4.10. --One way repeated measure of analysis of variance
comparing treatment conditions for state hostility for 684
class

Source	Df	Ms	F	Prob
Between Groups	2	5.2500	0.930	0.409
Within Groups	22	5.6439		
TOTAL	35			

TABLE 4.11. --One way repeated measure of analysis of variance
comparing treatment conditions for systolic blood pressure
for 684 class

Source	Df	Ms	F	Prob
Between Groups	2	185.4453	3.385	0.052
Within Groups	22	54.7777		
TOTAL	35			

TABLE 4.12. --One way repeated measure of analysis of variance
comparing treatment conditions for diastolic blood pressure
for 684 class

Source	Df	Ms	F	Prob
Between Groups	2	19.4443	0.545	0.588
Within Groups	22	35.6870		
TOTAL	35			

TABLE 4.13. --One way repeated measure of analysis of variance
comparing treatment conditions for pulse rate for 684 class

Source	Df	Ms	F	Prob
Between Groups	2	323.1113	5.774	0.010
Within Groups	22	55.9598		
TOTAL	35			

TABLE 4.14. --One way repeated measure of analysis of variance comparing treatment conditions for digital sweat index for 684 class

	Df	Ms	F	Prob
Between Groups	2	33.4445	7.736	0.003
Within Groups	22	4.3232		
TOTAL	35			

Inter-correlational Matrices Between
Measures for all Classes

Tables 4.15, 4.16 and 4.17 give the inter-correlational matrices for pre-stress, stress and post-stress measurements, respectively for all five classes. Table 4.15 gives both trait and state measures, Tables 4.16 and 4.17 give state measures only.

Pre-stress correlations

The MAS showed significant correlations with many other dependent measures. The MAS correlated .70 ($P < .01$) with MAACL-trait anxiety; .62 ($P < .01$) with trait depression; .30 ($P < .05$) with state anxiety; .43 ($P < .01$) with state depression; .31 ($P < .05$) with state hostility; and .33 ($P < .05$) with pulse rate. MAACL trait anxiety correlated .86 ($P < .01$) with trait depression; .41 ($P < .01$) with trait hostility; .30 ($P < .05$) with

TABLE 4.15. --Inter-correlational matrix of pre-stress measures for all classes

	Taylor MAS	MAACL Trait Anxiety	MAACL Trait Depres- sion	MAACL Trait Hostility	MAACL State Anxiety	MAACL State Depres- sion	MAACL State Hostility	SBP	DBP	PR	DSI
	1	2	3	4	5	6	7	8	9	10	11
Taylor Manifest Anxiety (1)	---										
MAACL-Trait Anxiety (2)	.70**	---									
MAACL-Trait Depression (3)	.62**	.86**	---								
MAACL-Trait Hostility (4)	.16	.41**	.50**	---							
MAACL-State Anxiety (5)	.30*	.30*	.22	.21	---						
MAACL-State Depression (6)	.43**	.49**	.46**	.34*	.71**	---					
MAACL-State Hostility (7)	.31**	.45**	.41**	.57**	.74**	.82**	---				
Systolic Blood Pressure (8)	.04	-.001	.11	.09	.01	.17	.12	---			
Diastolic Blood Pressure (9)	.07	-.05	.04	-.06	.002	.09	.05	.64**	---		
Pulse Rate (10)	.33*	.06	.06	.08	.18	.27	.27	.23	.05	---	
Digital Sweat Index (11)	.19	.13	.17	.07	.28*	.18	.18	.21	.001	-.18	---
	* = P < .05					** = P < .01					

state anxiety; .49 ($P < .01$) with state depression; and .45 ($P < .01$) with state hostility. MAACL trait depression correlated .50 ($P < .01$) with trait hostility; .46 ($P < .01$) with state depression and .41 ($P < .01$) with state hostility. MAACL trait hostility correlated .34 ($P < .05$) with state depression and .57 ($P < .01$) with state hostility.

The high correlations between the MAS and the MAACL support previous findings reported by Zuckerman and Lubin (1965a) showing that the MAS and the MAACL trait anxiety correlate significantly for populations including college students, psychiatric patients and pregnant women.

The means for the MAS and MAACL trait anxiety reported in this study (Appendix I) differ considerably from the means reported for college students by the respective authors. Zuckerman and Lubin (1965a) report a mean of 6.6 for MAACL-trait anxiety with an SD of 3.6 for undergraduate students with a mean age of 18.5 years. This study revealed a mean of 4.22 and an SD of 3.6 for graduate students with a mean age of twenty six years. Taylor (1953) reports a mean score of 14.56 for a total of 1971 students taking introductory psychology courses. This study revealed a mean score of 8.1 on the MAS. No tests of significance were computed on these differences; but it is apparent that the graduate students in this study scored considerably lower on these

measures of anxiety than the students who were part of the normative sample.

With the exception of the MAS and pulse rate; $r = .33$ ($P < .05$), no other trait emotion showed a significant correlation with any physiological measure. The MAS correlated .04 with systolic blood pressure; .07 with diastolic blood pressure; and .19 with digital sweat. MAACL trait anxiety correlated -.001 with systolic blood pressure; -.05 with diastolic blood pressure; and .13 with digital sweat. These results were to be expected and support research cited in Chapter II indicating low and insignificant correlations between paper and pencil measures and physiological measures of emotionality.

Stress correlations

Table 4.16 shows the intercorrelational matrices for stress measures. MAACL state anxiety showed high correlations with state depression, $r = .81$ ($P < .01$) and state hostility, $r = .73$ ($P < .01$). State depression correlated with state hostility .77 ($P < .01$).

More significant correlations were observed for the physiological measures under stress conditions than for pre-stress and post-stress conditions. Systolic blood pressure correlated .51 ($P < .01$) with diastolic blood pressure and with pulse rate .36

TABLE 4.16. --Inter-correlational matrices on stress measures for all classes

	MAACL Anxiety	MAACL Depres- sion	MAACL Hostility	SBP	DBP	PR	DSI
	1	2	3	4	5	6	7
MAACL-State Anxiety (1)	----						
MAACL-State Depression (2)	.81**	----					
MAACL-State Hostility (3)	.73**	.77**	----				
Systolic Blood Pressure (4)	.10	-.01	.06	----			
Diastolic Blood Pressure (5)	.19	.15	.10	.51**	---		
Pulse Rate (6)	.19	.21	.03	.36**	.39**	---	
Digital Sweat Index (7)	.44**	.40**	.30*	.25	.15	-.08	---

*P < .05

**p < .01

TABLE 4.17. --Inter-correlational matrices on post-stress measures for all classes

	MAACL Anxiety	MAACL Depres- sion	MAACL Hostility	SBP	DBP	PR	DSI
	1	2	3	4	5	6	7
MAACL-State Anxiety (1)	----						
MAACL-State Depression (2)	.83**	----					
MAACL-State Hostility (3)	.81**	.79**	----				
Systolic Blood Pressure (4)	-.02	.03	-.03	----			
Diastolic Blood Pressure (5)	-.14	-.008	-.12	.58**	---		
Pulse Rate (6)	.39**	.38**	.23	-.03	.25	---	
Digital Sweat Index (7)	.07	.04	.02	.14	-.14	-.04	---

*P < .05

**p < .01

($P < .01$). Pulse rate correlated with diastolic blood pressure .39 ($P < .01$). Digital sweat consistently correlated highly with the MAACL measures; anxiety, .44 ($P < .01$); depression, .40 ($P < .01$); depression, .40 ($P < .01$); and, hostility, .30 ($P < .05$).

The higher incidence of significant correlations under stress conditions would indicate that the higher the stress, the more the activation. The lack of significant correlations between digital sweat, systolic blood pressure and pulse rate would still indicate the relative independence of these autonomic responses.

Post-stress correlations

Table 4.17 revealed high and significant correlations once again between the MAACL measures. Trait anxiety correlated .83 ($P < .01$) with state depression and .81 ($P < .01$) with state hostility. State depression correlated .79 ($P < .01$) with state hostility. With the exception of systolic and diastolic blood pressure ($r = .58$, ($P < .01$), pulse rate and MAACL state anxiety ($r = .39$, $P < .01$), and pulse rate and MAACL state depression ($r = .38$, $P < .01$), all other correlations were low and insignificant for post-stress measures.

These high correlations between the MAACL measures are consistent with Burkhead's (1970) observation that the high inter-correlations among these three scales may pose a problem in that

the MAACL might be measuring a common underlying trait.

The data presented in these tables supports previous findings discussed in Chapter II. These findings indicate a low correlation between paper and pencil and physiological measures of emotionality and between the various physiological measures. These findings are significant in that they indicate anxiety to be a multi-dimensional concept and, because of differing physiological predispositions and atonomic learning, the manifestation of anxiety is a diverse phenomena.

Results of Source of Anxiety Questionnaire

The Source of Anxiety Questionnaire (Appendix C) was administered by five doctoral-level students to all counselor trainees immediately after the counseling session with their client. Part one of the Questionnaire consisted of open-ended questions; part two consisted of forced-choice questions. Examination of the completed Questionnaires indicated a lack of consistency of S responses which made the interpretation of the Questionnaire difficult. After completing approximately fifteen of the Questionnaires, the doctoral-level interviewers noted a strong element of guardedness and defensiveness on the part of the Ss responses. After discussing this phenomenon they decided to note their clinical impressions and report these along with the completed Questionnaires. Part

one of the Questionnaire will be reported by samples of S responses along with clinical impressions made by the doctoral-level interviewers.

One of the first clinical observations made by the interviewers was the tendency for many Ss to confuse cognitive (thought) and affective (feeling) questions. Question 1 asked what the S was thinking and imagining before the interview with his client. Eighteen Ss responded with an affective answer to this cognitive question such as: "I was a little nervous," "some anxiety about getting a client," "I was tired," "I remember being uncomfortable," "I was trying not to think about the counseling because it would make me nervous," "I was afraid I was going to forget some of the structuring," "I was fairly nervous and apprehensive about the whole thing," "very anxious."

These answers indicated a lack of awareness as to cognitive and affective process on the part of these trainees. Only five Ss reported thinking about structuring the interview while approximately twenty five Ss reported being concerned with how they were going to perform during the interview. As a group, the Ss denied feeling self-conscious (Question 2) during the interview with only five Ss reporting feeling self-conscious about being audio and visually taped and being observed by fellow students and instructor.

Question 3 attempted to elicit the affective responses the S

experienced during the interview with their client. The greatest degree of defensiveness was apparent with this question. Of the forty nine trainees interviewed, thirty two of them showed little ability in describing accurately what emotional experiences, if any, they had during the counseling interview. These trainees, when describing their feelings, would use simplistic one-word adjectives such as "surprise," "joy," "empathy," "sadness," "regret," "nervous," "uneasy," "warm," "frustrated," and "anger". There was also a strong tendency for these Ss to report mild levels of negative emotions, i. e., "a little frustrated," "a little anxious," "a little angry." Ss were generally uncomfortable relating their experiences and displayed low levels of empathetic understanding.

The Ss were not very responsive to Questions 4, 5 and 6, which asked for possible negative counselor and instructor impressions and effectiveness of the counseling session as perceived by the trainee.

Questions 7 and 8 specifically asked if the S was anxious during his interview; if so, to what extent was he anxious and what he was anxious about. These questions produced mild responses with twenty eight Ss reporting mild to moderate states of anxiety.

Nine trainees reported that they did not experience anxiety during the interview, or experienced only mild stress. Of these nine trainees, seven scored consistently low, while two trainees

scored high on the stress dependent measures.

When trainees found it difficult to conceptualize their experienced levels of anxiety, the interviewers asked them to conceptualize their anxiety on a scale from 0 to 10. This seemed to help many of the trainees express their intensity of experienced anxiety. There was a wide variability of responses to the question of what the S was anxious about, indicating the the Ss were anxious for various reasons.

Question 9 asked what changes the S expected to make before he becomes a more fully effective counselor. Again there was a wide range of responses. Some of the more representative answers were "more knowledgeable," "more experience," "more insight and understanding," "become a better listener."

Questions 10 and 11 asked if the S had been under any treatment for nervous tension and what medication, if any, he was taking. Six trainees answered in the affirmative to being, or having been, under treatment for nervous tension. Five reported being treated by mild tranquilizers and one trainee was in counseling during the time of the study. Seven of the female trainees reported taking birth control pills.

Part two of the Questionnaire consisted of five point forced-choice questions attempting to elicit the S's recall of what he was "bothered by" and "aware of" during the interview. Raw scores

were tallied for each S and provided the basis for statistical comparison between the top ten per cent and lower ten per cent of the Ss emotionality. Ten per cent confidence limits were computed for systolic blood pressure, pulse rate, digital sweat and state anxiety, depression and hostility for stress measures. Any S scoring in at least two of these limits differentiating high and low categories of emotionality was included in the analysis of part two of the Questionnaire. The rationale for this procedure was to examine statistically the differences between high and low emotion groups in terms of their responses to part two of the Questionnaire. A t-test computed on the differences in mean scores did not reveal any significant differences in direction of attention for the perception of autonomic functioning between these two groups. The purpose of this procedure was to empirically investigate Wine's (1971) conclusions that individuals of high anxiety tend to focus more upon self-evaluative, self-deprecating thinking and an awareness of their autonomic functioning and that individuals of low anxiety tend to focus more on task relevant variables.

Mean scores were computed for each of the twenty five questions for the combined 683 classes and the 684 class. These data are presented in Table 4.18. The highest mean score for both groups was on question 4, indicating that all students seemed to be most bothered about having to do a good job. The second major

TABLE 4.18. --Mean scores for combined 683 classes and 684 class on part 2 of source of anxiety questionnaire

TABLE 4.18. --(cont'd.)

To what extent were you aware of the following during the interview.

concern of the students was what the client might be thinking about him (Question 3) and the probability that he might do poorly (Question 6). The combined 683 classes reported next that they were aware of moving about in their chair. Mean scores for the five classes on each of the questions is presented in Appendix K.

Relationship of Peer and Supervisor Ratings

At the end of the semester, both faculty and students were asked to rate the students in their class in terms of perceived competence by rank-ordering. Table 4.19 shows the correlation for each class. There was a wide difference for the individual classes between peer and supervisory ratings with a range from .007 to .683. Only class A₁ reached significance ($P < .05$) (Spence, et al., 1968).

TABLE 4.19.--Peer and supervisor ratings

Class		Correlation
A ₁	N = 9	.683*
A ₂	N = 7	.429
A ₃	N = 11	.500
A ₄	N = 10	.079
B ₁	N = 12	.007

* $P < .05$

These low correlations may be explained in part by the brevity of the seven and one half week spring semester whereby students and faculty had minimum interaction. The students in class B₁ were required to spend a great deal of time doing supervised counseling in agencies outside of the Counseling and Personnel Department. Consequently, students had minimal observation contact of peer counseling.

Correlations were computed for each class between peer ratings and the dependent measures for the three conditions of pre-stress, stress and post-stress. Correlations were also computed for each class between supervisor ratings and the dependent measures. The peer and supervisor ratings showed generally low correlations with the various measures of emotionality with some rare exceptions. A complete listing of these correlations is presented in Appendix L.

The correlations between peer ratings and the dependent measures, in absolute values, ranged from .01 to .88. Of these one hundred five correlations, three reached the .05 level and two reached the .01 level of significance. Three of these five significant correlations were occurred under stress conditions.

The correlations between supervisor ratings and the dependent measures ranged from .02 to .82 in absolute values. Of these one hundred five correlations, three reached the .05

level (with one being a negative correlation) and one reaching the .01 level of significance. These significant correlations occurred for one class only (class A) and are presented in Table 4.20. This would indicate that on these three dependent measures (MAACL-anxiety, hostility and systolic blood pressure) the more emotional the subject, the less effective he was judged by his supervisor. This particular supervisor was the only one whose ratings correlated significantly ($P < .05$) with peer ratings as reported in Table 4.19.

Because of the arrangement of the data as presented to the computer, a positive correlation would be correctly interpreted as meaning the lower the emotionality, the better performance in counseling.

TABLE 4.20. --Correlations between supervisor A_1 and stress dependent measures

Source	Measure
MAACL State Anxiety	.63*
MAACL State Depression	.52
MAACL State Hostility	.82**
Systolic Blood Pressure	.64*
Diastolic Blood Pressure	.38
Pulse Rate	.27
Digital Sweat Index	.21
*P < .05	**P < .01

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The main purpose of this study was to investigate counselor trainee responses to initial counseling interview stress. Various paper and pencil measures and physiological measures of emotionality were obtained under two conditions of non-stress and one condition of stress. The stress condition consisted of the initial counseling of a client under supervised conditions by a counselor trainee. Measures of depression and hostility were obtained in addition to measures of anxiety.

Graphs indicating means for individual classes and combined classes for the three conditions are presented for the state-dependent measures. Correlational measures were obtained between paper and pencil measures, between physiological measures, and between paper and pencil and physiological measures of emotionality. Ratings of the counselor trainee effectiveness were obtained by peer and supervisor rank-orderings and were then correlated with the various measures of emotionality. An attempt to investigate the sources of anxiety is also reported.

The Ss in this experiment were sixty one graduate students enrolled in pre-practicum and practicum courses in counseling for the Spring semester of 1973 at Western Michigan University. The courses that the students were enrolled in were the last in a series of graduate-level courses leading to a masters degree in counseling.

The paper and pencil measures used in this study were the Taylor Manifest Anxiety Scale (MAS) and the Multiple Affect Adjective Checklist (MAACL). The physiological measures were systolic and diastolic blood pressure, heart rate, and digital sweat.

Measures of trait emotions were obtained during the second week of classes under non-stressful conditions by the MAS and MAACL-General Form. Measures of state anxiety were obtained by the MAACL-Today Form, systolic and diastolic blood pressure, heart rate, and digital sweat, under two conditions of non-stress and one condition of stress.

The mean scores of the trait anxiety measures obtained in this study were considerably lower than normative data reported by the respective authors of the MAS and MAACL. It would seem logical to assume the low reported measures of anxiety on these instruments may be due to a high level of sophistication acquired by graduate students in the behavioral sciences in psychological test-taking rather than actually being less anxious. If this

assumption is true, the underlying reason is probably a desire on the part of the students to produce a "halo-effect" and appear "psychologically good," thereby avoiding negative evaluation that might result from higher test scores. Another, although similar, reason for these differences may be that the paper and pencil measures represent a cognitive description; and, thereby, the more sophisticated behavioral scientist graduate student has sufficiently trained his thinking to correspond with his low reporting of anxiety.

State measures were obtained three different times--once with the trait measures during non-stress conditions; again under stress conditions--immediately prior to counseling a client; and again during a non-stressful time later in the course.

Paper and pencil measures of anxiety, depression and hostility reached significance ($P < .02$) across the conditions of pre-stress, stress and post-stress. Significant differences ($P < .02$) were obtained for anxiety and depression but not hostility between classes. Significant interactions were obtained ($P < .03$) on all three state emotion measures.

A slightly different phenomena was observed for the physiological measures. Although measures of systolic blood pressure and digital sweat reached significant ($P < .01$) across the conditions and diastolic blood pressure along with pulse rate showed expected

trends, there were no significant differences between classes on any of these measures. Significant interactions ($P < .05$) were obtained for diastolic blood pressure, pulse rate and digital sweat.

Inter-correlational matrices between the various dependent measures revealed highly significant correlations ($P < .01$) between the paper and pencil measures over the conditions for measures of state emotions. Paper and pencil trait measures generally correlate high with state measures. These high correlations would indicate that as the perception of anxiety increases, so does the perception of depression and hostility. A logical interpretation of this phenomena would be that paper and pencil measures of emotionality, while measuring the perception of a specific emotion, may, in fact, be measuring perception of general arousal.

Low and insignificant correlations were observed for the most part between the paper and pencil measures and the physiological measures over the three conditions. Correlations between the various physiological measures, with few exceptions, were also low and insignificant. A slightly higher incidence of significant correlations was observed during stress conditions than under pre-stress or post-stress conditions for physiological measures.

An attempt to derive the source of anxiety as experienced by the trainee was not as successful as originally anticipated. Each trainee was interviewed by doctoral-level students from a

structured questionnaire immediately after the session with his client. These interviews, in addition to eliciting empirical data, elicited clinical data on the part of the doctoral-level interviewer.

From the structured interviews, it was ascertained that the trainees were anxious for a variety of reasons. What seemed to bother trainees most was the feeling that they had to do a good job. In terms of priorities, the trainees were then bothered about the probability they might do poorly, that it would be disastrous if they did a poor job and what the client might be thinking about them. Differences were noted between the combined 683 classes and the 684 class.

The trainees seemed to be defensive and guarded in their responses to the questions posed by the interviewers. As a group, they tended to be unable to differentiate between cognitive and affective questions as well as showing a high degree of denial in the amount of anxiety they experienced during the interview.

Both supervisors (faculty) and students were asked to rank-order the students in their respective classes in terms of perceived competence as counselors. This rank-ordering resulted in correlations which were considerably lower than those reported by Engle and Betz (1971). Only one of the five classes showed a significant correlation ($P < .05$) between the peer and supervisor ratings.

This study was unable to demonstrate any consistent significant relationship between the peer and supervisor ratings as to perceived competence of the trainees and the various measures of emotionality.

Conclusions and Interpretations

The counselor trainee finds himself confronted by situations that are unlike most situations dealing with human interactions. He is expected to perform in a competent manner, a very complex task in which he lacks experience. He is expected to interact in one of the most significant of human interactions--that of professionally counseling another human being. In addition, he is expected to do this while being observed by his instructor and his peers. An interpretation of the data presented in this study indicated that the counselor trainee experiences a considerable increase in emotionality immediately prior to the time he interviews a client. A fundamental question remains as to whether this increase in emotionality was facilitative or disruptive.

Research cited in Chapter II presented the curvilinear relationship between arousal and performance (Hebb, 1972) and the early research of Yerkes and Dodson (1908) suggesting an inverse relationship between complexity of task performed and arousal. No attempt was made to establish the apex of the Hebbian inverted

U relationship between arousal and performance because of the tremendous complexities of the variables involved. In other words, no attempt was made to arrive at the optimal level of arousal for counselor performance.

The data presented in this study showed that counselor trainees experience a considerable increase in anxiety before interviewing a client. From the various definitions of anxiety presented in Chapter II, this would mean that the trainees experienced significantly high levels of an unpleasant emotion that is synonymous with dread. From a clinical interpretation, the anxiety may well have been, and probably was, disruptive. This clinical judgment is drawn from the application of the Yerkes Dodson theory which would suggest that the counseling of a client, being a very complex phenomena, would require minimum anxiety levels for optimum performance. The clinical impressions reported by Bauman (1972), Mueller and Kell (1972), as well as the experiences of counseling supervisors, indicate that counselor trainees are often anxious for various reasons and that many therapeutic and supervisory impasses are the result of inhibiting and disrupting anxiety. The interpretation of the data presented in this study substantiate these clinical observations. Both the paper and pencil measures and physiological measures have clearly shown that the trainees in this study experienced significant increases in unpleasant

emotions during stress conditions.

If the Ss in this study were typical masters degree counselor trainees and, therefore, representative of most masters degree counselor trainees in other universities throughout the country and if the program that the Ss were enrolled in would also be representative of most other masters degree programs in counseling, it would be logical to assume that other students in other masters degree programs throughout the country experience similar emotional responses to practicum courses.

The many significant differences between classes on the various dependent measures as well as significant interactions between conditions and classes indicated that there was not a random sample of students in each class. The differences may have been necessitated by typical registration procedures whereby students choose classes at a university. In some instances a student is forced to choose a professor because of scheduling demands and at other times a student will purposely plan his schedule around a special class or professor.

One of the more salient features of this study was the demonstration of the wide variability between the various measures of emotionality. While correlations between the paper and pencil measures were consistently high, correlations between paper and pencil and physiological measures were consistently low, indicating

a general lack of relationship between these measures. This raises an important question as to what the paper and pencil tests are measuring if they are not measuring physiological arousal. A logical interpretation of this phenomena would be that the paper and pencil tests measure the cognitive or perceptual dimension of emotionality, which evidently is not consistent with physiological measures of arousal.

This study also pointed out the relatively low correlations between the various physiological measures. These results confirm previous research findings that have shown the various physiological responses to be more independent functions of the autonomic nervous system and do not necessarily respond in conjunction with each other. The manifestation of anxiety appears to be different for different people. The physiological manifestation of anxiety appears to follow the weak-link theory (Lachman, 1972) with the weakest system being the most affected.

An interpretation of the data presented in this study indicate that anxiety (1) is a complex phenomena, (2) that there is no single best measure, and (3) supports Cattell's (1972) notion of the multi-variate analysis of anxiety. By correlating and factoring many variables that purport to measure anxiety, one can then discover whether a single factor or two or more conceptual influences underly them. Cattell recommends that anxiety be measured in

much the same way as intelligence is measured--by the use of different subtests comprised of various measures of anxiety.

The Source of Anxiety Questionnaire revealed that the trainees were most bothered by the idea that they had to do a good job; by their imagining what the client might be thinking about them; that it would be disastrous if they did a poor job and the probability that they might do poorly. These areas of concern for the trainees appear to be similar to some of the irrational beliefs discussed by Ellis (1962).

A recent publication suggests that counselors look more closely at Ellis' theory of Rational Emotive Psychotherapy and apply the principles to themselves so that they may better deal with their own emotions (Weinrach, 1973).

The failure of this study to demonstrate more significant correlations between peer and supervisor ratings, as other studies have shown, may have been due to the brevity of the seven and one half week Spring semester. The 684 class had minimal peer interaction because of the internship-type experience required of the students which necessitated the students to do most of their counseling outside of the regular classroom practicum experience. Another interpretation of these low correlations may have been a lack of basic agreement between instructors and students as to what criteria is to be used in evaluating a good counselor.

The failure to demonstrate a stronger relationship between effectiveness of counseling, as measured by peer and supervisor ratings, and the various measures of emotionality may well lie in the design of the study.

The variable of counseling effectiveness was not adequately defined nor controlled for in this study. The only criterion for counseling effectiveness was the direction given to the supervisors and peers. This direction was to rank-order the students in the class in terms of whom they would send a friend to for counseling. Until such time as counseling effectiveness can be more adequately defined, the relationship between it (counseling effectiveness) and measures of emotionality cannot be adequately measured.

Recommendations

The data presented in this study indicate that counselor trainees do experience a considerable increase in emotionality prior to their counseling session with a client. Students in some classes tend to exhibit more anxiety than students in other classes, suggesting that some classes are more anxiety-provoking than other classes.

A review of the literature revealed only two studies (Miller, 1970 and Monke, 1971) that attempted to reduce counselor trainee anxiety. Both studies were unable to effectively demonstrate

anxiety reduction by relaxation and desensitization techniques.

There is considerable evidence to support the idea that systematic desensitization is one of the more effective therapeutic modalities for the reduction of fear and anxiety (DiLoreto, 1971; Lazarus, 1971; Paul, 1966; Rachman, 1967; Wolpe, 1969). A recent publication, Annual Review of Behavior Therapy: Theory and Practice, 1973 (Franks and Wilson, 1973), details some rather impressive results with the use of behavior therapy.

An interpretation of the data presented in this study would strongly suggest the need for more effective modes of anxiety reduction on the part of the counselor trainees. While this study was unable to empirically demonstrate interference on the part of the trainee due to increased emotionality, clinical opinion would indicate that the increased emotionality did interfere with the trainee's performance. Further research is needed in the area of anxiety reduction modalities for counselor trainees.

Astor (1971) cites research in the area indicating that hypnosis, used in educational settings, can increase performance on various learning tasks. In addition to citing relevant studies, Astor gives a strong argument for the use of hypnosis in an educational setting. This would certainly be one modality that could be investigated in the area of counselor training.

Future research in the area may well follow the recommen-

dations of Cattell (1972) and use the multivariate approach when investigating emotionality. This approach appears to have much validity and is certainly superior to any single measure of emotion.

Another possibility for further research may be the investigation into the effects of mild tranquilizing drugs, especially for Ss who are particularly anxious. One of the Ss in this study may be a good example of this suggestion. The S scored consistently low on the physiological measures, consistently high on the paper and pencil measures, and was being treated by his physician with mild tranquilizers for a "nervous condition." This S was chosen by both peers and supervisors as number 2 in the rank-ordering of effectiveness for that class.

Further research in this area may also deal with continuous emotional measures such as a polygraph recorder provides. This would enable a more precise investigation of emotional responses that a counselor experiences during the interview with his client.

There appears to be a definite need for better definitions and measurable criteria for counselor effectiveness. When these objectives are met, the establishment of a relationship between counselor effectiveness and levels of emotionality will be facilitated.

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APPENDIX A

Three Major Factors in the Expression of
Autonomic System Activity

I. General Autonomic Activity

High metabolic rate
High pulse rate
High blood pressure
High ratio pupil to iris diameter
High ratings on "vigorous," "active"
High ratio emotional to non-emotional word recall
High body temperature
High G. S. R. deflection size
Brief duration of after-images

II. Sympathetic-Autonomic (Adrenergic Pattern)

High pulse rate
High respiration rate
High ratio of G. S. R. response to systolic blood pressure
Low skin resistance
High pH (alkalinity) of saliva
High blood glucose
Large performance upset by noise
High lymphocyte count

III. Parasympathetic -vs- Arousal

High skin resistance
Rating relaxed, torpid
Low cholinesterase
Large G. S. R. response magnitude
Slow pulse rate
Low blood glucose

Source: Cattrell, 1972, p. 163. Reprinted with permission.

APPENDIX B

List of Physiological Variables Found Significantly Associated
With The Pure Anxiety Factor*

Increase in systolic blood pressure
 Increase in heart rate
 Increase in respiration rate
 Increase in basal and current metabolic rate
 Increase in phenylhydracrylic acid in urine
 Decrease in electrical skin resistance
 Increase in hippuric acid in the urine
 Increase in 17-OH ketosteroid excretion
 Decrease in alkalinity of saliva
 Decrease in cholinesterase in serum
 Decrease in neutrophils and, less clearly, eosinophils
 Increase in phenylalanine, leucine, glycine, and serine
 Increase in histidine in urine
 Decrease in urea concentration
 Decrease in glucuronidase in urine and in serum

*Physiological associations are listed in approximate order of degree of association and degree of confidence in confirmation.

(See Cattell & Scheier, 1961, Ch. 10, pp. 183-242, and especially Table 102 on p. 208.)

Source: Cattell, 1966, p. 33. Reprinted with permission.

APPENDIX C

Dear Dr.

The purpose of this letter is to ask your cooperation in a doctoral dissertation project that would involve the use of your students in the section of 683 or 684 which you are scheduled to teach in the Spring semester of 1973. A copy of the dissertation proposal is included with this letter explaining in detail the project. Briefly, we are trying to investigate the effects of stress (the counselor trainee interviewing a client for the first time in a practicum course) on physiological measures such as pulse rate and blood pressure as well as paper and pencil measures of anxiety. We hope to correlate these findings with peer and supervisor ratings at the end of the semester. A reading of the problem statement and methods section in the proposal will explain the project more succinctly.

In anticipating your concern of taking valuable class time for this project, we would like to offer the following tentative time chronology that could be expected for any one class.

Pre-stress measures	Second week of classes	1/2 hour
Stress measures	Immediately before trainees see first clients	1/2 hour
Post-stress interview	Immediately following first interview	1/2 hour
Post-stress measures	Sixth week of course	1/2 hour
Peer and supervisor ratings	Seventh week of course	1/2 hour
Total time/course		2 1/2 hours

This project has departmental chairman approval and without your cooperation cannot be completed. If you agree to this project, please sign at the bottom of this letter and return to me.

Most cordially,

Thomas F. Mooney, Doctoral
Student Department of Counseling
and Personnel

I agree to allow my class to be used for the above stated project.

Signature _____ Date _____

APPENDIX D

Dear Counselor Trainee:

The field of counseling is one filled with the opportunity to be of great service to one's fellow man. If there is one common motive that counselors have, it is to help others so that they might experience less negative emotion and self-defeating behavior and help them so they can experience more positive emotion and a better sense of self-actualization.

While many dimensions of the counseling process are individualistic and artistic in nature, the point still remains that counseling is also a science with all the ramifications that the term science implies. As such, counseling is charged with the responsibility of demonstrating and measuring the many variables that contribute to the counseling process. The literature is abound with many such studies. One point that the literature is in agreement on is the need for qualitative measurement of counselor traits, client traits and interactional phenomena between counselor and client.

The purpose of this letter is to ask your cooperation in a study designed to investigate one of the dimensions of the counseling process--that of the emotional experiences of the counselor as they relate to counseling. Because of the probability of experimental bias, the details of this study will not be made known to you at this time. When the study is finished, a complete explanation will be available on an individual basis. This study has the approval of the Counseling and Personnel Department and your cooperation is highly desired.

What we can tell you at this time is that we would like to administer to you some paper and pencil tests as well as take your pulse rate, blood pressure and digital sweat (digital sweat is a measure of the perspiration on the palm of your hand), at different times during this course. These measurements are not harmful in any way. Some time during this course, either I or another doctoral student will interview you after one of your meetings with a client.

While the general findings of this study may be made public, the individual scores of each trainee will be known only to myself.

APPENDIX D (Cont.)

No other member of the staff, or anyone else for that matter, will have access to the individual scores so that the anonymity of each trainee will be kept in the strictest of confidences.

If you have read and understand the aforementioned, I would appreciate it if you would sign at the bottom indicating your willingness to participate in this study. If you have any questions, I would be glad to answer them at this time.

Most cordially,

Thomas F. Mooney
Doctoral Student
Department of Counseling and
Personnel
Western Michigan University

I have read the above letter and agree to participate in this study.

Date

Signature

APPENDIX E

Source of Anxiety Questionnaire for Counselor Trainees

Name _____

It is important that you answer these questions as honestly as possible. Please remember that your answers will be kept in the strictest of confidences and that your full cooperation is of the utmost importance.

1. What were you thinking and imagining before the interview with your client?
2. What was there about the situation (interviewing the client) that made you self-conscious?
3. What feelings did you experience during the interview?
4. In what ways do you think the counselee may have had a negative impression of you?
5. Do you think you were effective with the client? How? or Why not?
6. In what ways do you think the supervisor (instructor) may have had a bad impression of you?
7. Do you think you were anxious during the interview? How anxious?
8. In your own words, describe what you were anxious about.
9. What are the main changes you expect to make in yourself before you become a fully effective counselor?

10. Are you, or have you been, under any treatment for nervous tension? If yes, please explain.

11. What medication are you taking now?

To what extent were you bothered by the following during the interview?

	<u>not at</u> <u>all</u>	<u>seldom</u>	<u>at</u> <u>times</u>	<u>often</u>	<u>most of</u> <u>the time</u>
1. Other students watching you-----	1	2	3	4	5
2. Your instructor observing you-----	1	2	3	4	5
3. What the client might be thinking about you-----	1	2	3	4	5
4. That you <u>had</u> to do a good job-----	1	2	3	4	5
5. That it would be disastrous if you did a poor job-----	1	2	3	4	5
6. The probability you might do poorly-----	1	2	3	4	5
7. The possibilities of saying something that might harm the client-----	1	2	3	4	5
8. By the problem the client presented-----	1	2	3	4	5
9. The possibility of being criticized by the client	1	2	3	4	5
10. The possibility of being criticized by the instructor or other students---	1	2	3	4	5

APPENDIX E (Cont.)

	not at <u>all</u>	<u>seldom</u>	at <u>times</u>	<u>often</u>	most of <u>the time</u>
11. How unjust it is that you <u>have</u> to do so many things that you think are sense- less-----	1	2	3	4	5
To what extent were you aware of the following during the interview?					
12. That your heart was beat- ing more than usual----	1	2	3	4	5
13. That your hands were sweaty-----	1	2	3	4	5
14. That your breathing was somewhat irregular----	1	2	3	4	5
15. That your mouth was dry-	1	2	3	4	5
16. That you were perspiring under your arms-----	1	2	3	4	5
17. That your stomach mus- cles were tense-----	1	2	3	4	5
18. That the muscles in the back of your neck were tense-----	1	2	3	4	5
19. That you were biting your lips-----	1	2	3	4	5
20. That you were coughing and/or clearing your throat-----	1	2	3	4	5
21. That you were blushing on your face and neck-----	1	2	3	4	5
22. That you were moving about in your chair----	1	2	3	4	5
23. That you stuttered more than usual-----	1	2		4	5

APPENDIX E (Cont.)

	<u>not at</u>	<u>seldom</u>	<u>at</u>	<u>often</u>	<u>most of</u>
	<u>at</u>		<u>times</u>		<u>the time</u>
24. That your hands were trembling-----	1	2	3	4	5
25. That your leg muscles were strained and tense-	1	2	3	4	5

APPENDIX F

Peer and Supervisor Ratings

On this sheet are listed the students in your class. Would you take a few minutes and think about whom you would send a friend to for counseling if they had a psychological problem. Please rank-order these first, second, third, . . . last, as provided for in the right-hand column. The criterion for your decisions should be made on the basis of perceived competence rather than personal friendships. Please be as honest as possible with your rank-orderings and keep in mind that this information will have no bearing whatsoever on your grade and will be kept in the strictest of confidence. Do not include yourself.

Alphabetical listing of
students in class

Rank-order of perceived
effective counselors

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

APPENDIX G (Cont'd.)

Students Coded Name	Week-June 4, 1973					Week-June 18, 1973	
	Post-Stress State Anxiety					Ratings	
	MAACL Today	SBP*	DBS*	PR*	DSI*	Peer	Supervisor

*SBP = Systolic Blood Pressure

*DBP = Diastolic Blood Pressure

*PR = Pulse Rate

*DSI = Digital Sweat Index

APPENDIX H

Combined 683 and 684 Classes on MAACL-Today

Combined 683 and 684 Classes on MAACL
Systolic Blood Pressure

APPENDIX H (Cont'd.)

Combined 683 and 684 Classes on MAACL Diastolic
Blood Pressure "DBP" Combined 683 and 684 Classes on MAACL Pulse
Rate "PR" Combined 683 and 684 Classes on MAACL
Digital Sweat Index "DSI"

APPENDIX I

Means and Standard Deviations for Dependent Measures Trait Emotion Measures

		Taylor Manifest Anxiety Scale		MAACL-General Trait Anxiety		MAACL-General Trait Depression		MAACL-General Trait Hostility	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
A ₁	N = 9	9.0	7.331	5.22	4.66	8.33	8.01	3.33	2.06
A ₂	N = 7	8.85	5.43	4.57	4.24	7.57	4.86	3.57	2.44
A ₃	N = 11	6.27	5.9	3.36	3.32	6.72	5.31	5.45	4.16
A ₄	N = 10	8.3	4.97	4.6	3.62	7.30	5.66	4.40	3.37
B ₁	N = 12	8.5	7.27	3.75	2.86	8.33	6.00	5.00	2.73
TOTAL	N = 49	8.1	6.13	4.22	3.6	7.65	5.85	4.47	3.09

APPENDIX I (Cont'd.)

Pre-Stress Measures

	MAACL-Today State						Systolic Blood Pressure		Diastolic Blood Pressure		Pulse Rate		DSI	
	Anxiety		Depression		Hostility		X	SD	X	SD	X	SD	X	SD
	X	SD	X	SD	X	SD								
A ₁	3.89	2.80	5.89	3.69	4.11	2.37	123.3	14.73	74.7	10.5	84	20.4	7.89	3.58
A ₂	4.43	2.51	9.86	5.84	4.57	2.44	115.4	8.30	78.3	3.73	77.7	14.58	4.57	2.88
A ₃	3.82	3.12	7.72	5.27	5.27	3.16	125.8	18.4	78.7	9.47	82.5	12.9	6.81	3.78
A ₄	6.20	2.97	12.9	5.42	6.7	2.67	114.4	8.98	68	9.19	86	10	6.8	1.87
B ₁	7.66	5.28	12.75	6.42	7.66	3.5	126.3	17.7	81.3	10.6	79.6	12.9	8.25	3.38
Total	5.34	3.84	9.98	5.94	5.83	3.12	121.7	15.15	76.37	10.17	82	14.0	7.0	3.29

APPENDIX I (Cont'd.)

Stress Measures

	MAACL-Today State						Systolic Blood Pressure		Diastolic Blood Pressure		Pulse Rate		DBI	
	Anxiety		Depression		Hostility		X		X		X		X	
	X	SD	X	SD	X	SD	X	SD	X	SD	X	SD	X	SD
A ₁	7.89	4.48	9.0	5.36	6.4	3.04	132.4	16.9	76.7	11.9	84.4	12.9	12.0	2.39
A ₂	12.42	3.25	13.14	4.81	8.14	3.33	125.4	17.04	76.28	13.97	84	8.33	11.71	3.45
A ₃	5.18	4.38	7.73	5.37	5.36	2.38	129.4	17.23	77.27	7.96	84.7	16.47	10.54	3.64
A ₄	9.7	4.52	16.9	6.97	9.4	4.93	127.6	8.73	82.4	6.58	95.6	11.5	11.5	3.37
B ₁	8.33	5.06	12.25	5.71	6.66	3.98	130.8	13.8	82.16	11.48	90	13.26	11.58	3.75
Total	8.40	4.85	11.71	6.42	7.10	3.792	129.4	14.5	79.26	10.35	99.1	13.37	11.42	3.29

APPENDIX I (Cont'd.)
Post-Stress Measures

	MAACL-Today State						Systolic Blood Pressure		Diastolic Blood Pressure		Pulse Rate		DSI	
	Anxiety		Depression		Hostility		Pressure		Pressure		Rate		Rate	
	X	SD	X	SD	X	SD	X	SD	X	SD	X	SD	X	SD
A ₁	4.33	4.03	7.67	4.74	5.33	2.69	121.3	4.47	77.7	8.21	72.6	8.0	11	2.69
A ₂	10.28	4.85	18.85	7.19	9.28	3.63	115.1	7.82	75.4	8.61	88	14.23	9.85	2.41
A ₃	5.00	3.29	11.0	7.41	5.90	2.70	120.4	13.2	79.8	12.24	83.6	8.47	11.8	3.3
A ₄	6.0	2.62	10.0	4.0	6.8	2.70	115.2	7.67	75.8	9.45	86.4	16.13	8.3	3.4
B ₁	6.92	4.48	15.16	5.41	7.91	3.78	123.0	10.0	79.7	11.27	84.0	11.31	10.1	3.14
Total	6.30	4.16	12.32	6.72	6.95	3.28	119.4	9.57	79.26	10.35	82.9	12.47	10.24	3.19

APPENDIX J

Group Means and Two Way Analysis of Variance Probabilities
for 683 Classes

MAACL-State Anxiety B (Conditions)				MAACL-State Depression B (Conditions)			
	Pre	Stress	Post		Pre	Stress	Post
A ₁	3.89	7.89	4.33		5.89	9.0	7.67
A ₂	4.43	12.42	10.28		9.86	13.14	18.85
A ₃	3.82	5.18	5.00		7.72	7.73	11.1
A ₄	6.2	9.7	6.0		12.9	16.9	10.0
Between classes (A) P = .011				Between classes (A) P = .014			
Conditions (B) P = .006				Conditions (B) P = .011			
A x B P = .014				A x B P = .006			

MAACL-State Hostility B (Conditions)				Systolic Blood Pressure B (Conditions)			
	Pre	Stress	Post		Pre	Stress	Post
A ₁	4.11	6.4	5.33		123.3	132.4	121
A ₂	4.57	8.14	9.28		115.4	125.4	115
A ₃	5.27	5.36	5.90		125.8	129.4	120
A ₄	6.7	9.4	6.8		114.4	127	115
Between classes (A) P = .098				Between classes (A) P = .283			
Conditions (B) P = .001				Conditions (B) P = .000			
A x B P = .027				A x B P = .806			

APPENDIX J (Cont'd.)

Diastolic Blood Pressure B (Conditions)				Pulse Rate B (Conditions)		
	Pre	Stress	Post	Pre	Stress	Post
A ₁	74.7	76.7	77.7	84	84	73
A ₂	78.3	76.3	75.4	78	84	88
A ₃	78.7	77.3	79.8	82	85	84
A ₄	68	84.4	75.8	86	95	86
Between classes (A)				Between classes (A)		
Conditions (B)				Conditions (B)		
A x B				A x B		
			P = .80			P = .341
			P = .106			P = .057
			P = .02			P = .05

Digital Sweat Index B (Conditions)			
	Pre	Stress	Post
A ₁	7.9	12.0	11
A ₂	4.6	11.7	9.9
A ₃	6.8	10.5	11.8
A ₄	6.8	11.5	8.3
Between classes (A)			
Conditions (B)			
A x B			
			P = .507
			P = .000
			P = .036

APPENDIX K

Mean Scores of Individual Classes for Part 2 of Source
of Anxiety Questionnaire

To what extent were you bothered by the following during the interview?

	Classes				
	A ₁	A ₂	A ₃	A ₄	B ₁
1. Other students watching you.	1.6	1.7	2.5	2.2	1.5
2. Your instructor observing you.	1.7	2	2.9	2.2	1.4
3. What the client might be thinking about you.	2.6	2.7	2.4	2.4	2.3
4. That you <u>had</u> to do a good job.	2.8	3.6	3.2	3.2	2.8
5. That it would be disastrous if you did a poor job.	2.1	2.3	2.2	2.5	2
6. The probability you might do poorly.	2.1	2.7	2.4	2.9	2.1
7. The possibilities of saying something that might harm the client.	1.8	2	2	2.2	2
8. By the problem the client presented.	1.5	2.1	1.6	1.9	2.2
9. The possibility of being criticized by the client.	1.7	1.7	1.5	1.4	1.1
10. The possibility of being criticized by the instructor or other students.	2.1	2.7	2.4	1.7	1.8
11. How unjust it is that you <u>have</u> to do so many things you think are senseless.	1.2	1.6	1.7	1.5	1.6

To what extent were you aware of the following during the interview?

12. That your heart was beating more than usual	1.3	1.8	1.3	1.6	1.6
13. That your hands were sweaty.	1.9	1.7	1.5	1.8	2.1

APPENDIX K (Cont'd.)

	Classes				
	A ₁	A ₂	A ₃	A ₄	B ₁
14. That your breathing was somewhat irregular.	1.1	1.7	1.2	1.6	1.3
15. That your mouth was dry.	1	1.3	1.6	1.1	1.3
16. That you were perspiring under your arms.	1.3	2	1.2	1.6	1.4
17. That your stomach muscles were tense.	1.6	1.7	1.6	1.3	1.4
18. That the muscles in the back of your neck were tense.	1.1	1.8	1.1	1.3	1
19. That you were biting your lips.	1.1	1.8	1.2	1.3	1
20. That you were coughing and/or clearing your throat.	1.2	1.7	1.5	1.7	1.7
21. That you were blushing on your face and neck.	1.1	1.7	1.7	1.5	1.1
22. That you were moving about on your chair.	2.1	2.6	1.9	3.0	1.8
23. That you stuttered more than usual.	1.5	1.7	1.3	1.4	1.4
24. That your hands were trembling.	1.5	2	1.1	1.3	1.3
25. That your leg muscles were strained and tense.	1.5	1.4	1.3	1.5	1.4

APPENDIX L

Peer Ratings of Pre-Stress Measure

	A ₁	A ₂	A ₃	A ₄	B ₁
	N=9	N=7	N=11	N=10	N=12
MAACL-State Anxiety	.31	.34	-.64*	.28	-.04
Systolic Blood Pressure	-.10	.80	.15	.03	-.03
Diastolic Blood Pressure	-.54	.58	-.11	.52	-.04
Pulse Rate	-.51	.32	.19	.32	-.10
Digital Sweat Index	.32	.80	-.21	-.17	.26
MAACL-State Depression	-.03	.22	-.22	-.45	.26
MAACL-State Hostility	.33	.57	-.50	.04	-.14

Supervisor Ratings on Pre-Stress Measure

	A ₁	A ₂	A ₃	A ₄	B ₁
	N=9	N=7	N=11	N=10	N=12
MAACL-State Anxiety	.08	-.64	-.26	.30	.21
Systolic Blood Pressure	.11	.50	.40	.34	.10
Diastolic Blood Pressure	-.34	.58	.23	-.15	.22
Pulse Rate	.11	.36	.16	.27	.02
Digital Sweat Index	.01	.05	-.37	.08	-.03
MAACL-State Depression	.17	-.16	.33	-.07	-.32
MAACL-State Hostility	.35	.32	.12	.64	-.44

*P < .05

**P < .01

Degrees of freedom = N-1 for each class.

APPENDIX L (Cont'd.)

Peer Ratings on Stress Measure

	A ₁	A ₂	A ₃	A ₄	B ₁
	N=9	N=7	N=11	N=10	N=12
MAACL-State Anxiety	.56	.43	.14	-.39	.39
Systolic Blood Pressure	.42	.191	.22	-.04	-.24
Diastolic Blood Pressure	.160	.18	-.10	.35	-.18
Pulse Rate	-.05	.03	-.20	-.23	.21
Digital Sweat Index	.38	.38	-.36	.07	.15
MAACL-State Depression	.31	.60	-.32	-.35	.63*
MAACL-State Hostility	.64	.90**	-.29	-.38	.03

Supervisor Ratings on Stress Measure

	A ₁	A ₂	A ₃	A ₄	B ₁
	N=9	N=7	N=11	N=10	N=12
MAACL-State Anxiety	.631*	-.236	.44	-.10	.05
Systolic Blood Pressure	.640*	-.28	.11	-.16	-.21
Diastolic Blood Pressure	.37	-.220	.30	-.49	-.27
Pulse Rate	.27	-.70*	.12	-.46	-.54
Digital Sweat Index	.21	-.24	-.20	-.34	.10
MAACL-State Depression	.52	.03	.34	-.09	.08
MAACL-State Hostility	.82**	.25	.27	.12	.02

*P < .05

**P < .01

Degrees of freedom = N-1 for each class.

APPENDIX L (Cont'd.)

Peer Ratings on Post-Stress Measure

	A ₁	A ₂	A ₃	A ₄	B ₁
	N=9	N=7	N=11	N=10	N=12
MAACL-State Anxiety	.04	.30	-.33	-.42	.88**
Systolic Blood Pressure	.20	.41	.25	-.34	-.16
Diastolic Blood Pressure	-.16	.54	-.10	.38	-.12
Pulse Rate	-.28	.41	-.18	.14	.01
Digital Sweat Index	.42	-.09	-.26	-.27	-.04
MAACL-State Depression	-.05	.39	-.07	-.24	.30
MAACL-State Hostility	.56	.64	-.48	-.23	.09

Supervisor Ratings on Post-Stress Measure

	A ₁	A ₂	A ₃	A ₄	B ₁
	N=9	N=7	N=11	N=10	N=12
MAACL-State Anxiety	.32	-.21	-.02	.49	.24
Systolic Blood Pressure	.22	.65	.48	-.05	-.03
Diastolic Blood Pressure	.23	-.03	.17	.29	-.01
Pulse Rate	-.02	-.45	.04	.20	-.01
Digital Sweat Index	.02	.16	.03	.24	.14
MAACL-State Depression	.21	-.41	.18	.31	.23
MAACL-State Hostility	.60	.04	.14	.46	-.15

*P < .05

**P < .001

Degrees of freedom = N-1 for each class.