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A Multiple Regression Approach to Affective Sensitivity in Counselor Trainees

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A MULTIPLE REGRESSION APPROACH TO
AFFECTIVE SENSITIVITY IN COUNSELOR TRAINEES

by

Norman R. Sharp

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

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love, concern and constant prodding, this dissertation probably would not have been finished.

Norman R. Sharp

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CHAPTER I
THE PROBLEM

Introduction

Counselor educators generally have not agreed on the selection of candidates for training programs, on the nature of the training itself, or even on the role and function of the individuals who graduate from their programs. Recently, however, they seem to have come to agree on the importance of empathy (affective sensitivity) in the counseling relationship and as an important variable in the training process. While there are some who have not found empathy significantly related to their criteria (Dole, 1964), there is general agreement that empathy is a necessary, but probably not sufficient, condition for effectiveness in a counseling relationship (Truax and Carkhuff, 1967).

For the purposes of this study, empathy is defined as "the ability to experience, however imperfectly, the same emotions and feelings as the client; he, the counselor, senses life from the client's internal frame of reference" (Boy, 1974, p. 429). Although empathy also includes the ability to communicate the understanding, this study does not concern itself with that aspect of empathy.

The evidence for empathy as a critical variable in counseling effectiveness is demonstrable. Truax (1963) found it not only related to process measures of client change but also several different outcome measures. Both normals and hospitalized schizophrenics had better outcomes when high levels of accurate empathy were exhibited. Although there is the possibility that the clients may have acted in ways which indirectly caused the high level of empathy, the data suggest that the level of accurate empathy is in fact determined by the therapist.

In Rogers' (1957) now classic article on the necessary and sufficient conditions for therapeutic personality change, he stressed the importance of empathy as one of the conditions. The counselor needs to go beyond merely experiencing the clients' world as if it were his own; he needs to attempt to communicate his empathic understanding to the client.

Rank (1966) developed a motion picture test of counselor perceptions of counseling interview segments in an attempt to look at changes in trainee perceptions during a practicum. He concluded that empathy is one of several important variables in counseling and that it has relevance in both selection and training of counselors.

That an empathic understanding of a client is more important than an intellectual one is suggested in studies by Fiedler (1950 a). The distinction is more intellectual than real, in the sense that an

empathic understanding also has a heavy intellectual component. Fiedler stressed the importance of the relationship. The importance of empathic understanding appears to be equally true for therapists who are psychoanalytic, non-directive or Adlerian in their approach. Therapists from different schools also do not differ in their description of an ideal therapeutic relationship (Fiedler, 1950). Statements which were responded to often as describing the ideal therapeutic relationship included "an empathic relationship," "therapist is really able to understand the patient," and "therapist really tries to understand the patient's feelings."

Cartwright and Lerner (1963), evaluating nondirective therapy, found that patients have the best chance for successful outcome when the client's high need for change is allowed to interact with the therapist's high ability to accurately understand the way clients see their world. Betz (1962) looked at characteristics of therapists who were successful in treating schizophrenics and those who were not successful. Democratic, nonauthoritarian, noninterpretive and personal approaches were all considered important characteristics of successful therapists, but especially important was the ability of successful therapists to be aware of the personal internal experiences of his clients. Bergin (1963) was unable to get significant differences between experimental and control groups, so he investigated the experimental group from the qualities of the therapist point of view.

If the therapist were high on the therapeutic conditions (high empathy, positive regard, and congruence), the patients improved; if the therapist were low on these conditions, the patient became significantly worse. High empathy is related to client improvement, but low empathy is related to client deterioration (Bergin, 1966).

One possible explanation of better results in therapy for therapists who are high on empathic ability is the relationship between empathic ability and adjustment. Dymond (1950) found better adjusted individuals to be higher on empathic ability than poorer adjusted individuals. In another study (Luborsky, 1952), personality characteristics of psychotherapists at the Menninger Clinic were studied. Therapists who were rated high were more apt to be sensitive to others, and also more "conventionally adjusted," than therapists rated low. Measures of personal disturbance of therapists were negatively related to their level of empathy, at least as measured by ratings of tape-recorded psychotherapy interviews (Bergin and Solomon, 1968).

Empathy, as a central ingredient in counseling, is generally accepted by practitioners in the helping sciences regardless of their point of view. The practical significance of empathic ability, or accurate perception, has also been stressed. For example, Horenstein (1967) found that roommates' ability to get along with each other is related to their ability to perceive emotional expressions in

each other's vocalizations. Dymond (1949) stressed the importance of empathic ability as a prerequisite for success in most social science professions. Cotrell (1950) describes empathic ability as basic to the socialization process, including "...development of a conception of self, in acquiring a role, in the emergence of insight, in communication, in the integration of a group, in the internalization of social norms (p. 706)." Bender (1950) stressed the importance of interpersonal perception in both the practical and professional aspects of the therapists life.

Empathy is nearly universally regarded as an asset, a social skill necessary for success, an attribute that one cannot have too much of. Bronfenbrenner (1958) however, offers a different concept. He suggests that being acutely aware of individual differences in feeling (high empathy) may be a function of the anxiety level of the perceiver; anxiety regarding the consequences of either his own or the other's social behavior.

Statement of the Problem

The problems of the present study can best be stated as follows: First, what variables (interest, personality, ability, etc.) are related to being able to perceive accurately the affective state of another person and second, what variables are related to the ability to improve interpersonal perceptual skills through a specific

training task designed for that purpose?

Characteristics Associated with Empathy

Some therapists have a great deal of empathic ability, others have only a moderate amount and still others have virtually no empathic ability. What accounts for the variation? Truax and Carkhuff (1967), Bergin and Solomon (1968) and Bergin and Jasper (1969) suggest that three factors are related to the empathy level of therapists: (1) therapist personal characteristics; (2) therapist training and experiences and (3) client characteristics. The present study is concerned primarily with the first and second sources of variance, and with the third only tangentially.

Bergin (1969) found negative correlations between therapists' empathy in a live therapeutic process and the Depression (D) and Anxiety (PT) scales of the Minnesota Multiphasic Personality Inventory (MMPI). His data support the contention that personal problems for the therapist interfere with his ability to be empathic and, therefore, effective.

Additional support for the high empathic person to be better adjusted comes from Dymond (1950). She used the Wechsler, the Rorschach, the Thematic Apperception Test (TAT), the California Ethnocentrism Test and the subjects' self-analyses. Individuals high on empathy were described in very positive terms. They are

genuinely interested in other people and although high on "emotionality" the emotions were well controlled. Individuals low in empathy were described in much less flattering terms, generally the opposite of the description of high empathy people. Not only are they rigid and often undercontrolled in emotionality, but also unable to deal in concrete and/or interpersonal relations with any consistent success. Perhaps most importantly, they are characterized as not being concerned with the feelings and thoughts of other people; rather they are content to isolate themselves from those around them.

O'Hern and Arbuckle (1964) found virtually no significant relationships between a large number of descriptive variables (age, sex, education, etc.) and judges ratings of sensitivity from tapes. Students were then rated as most sensitive and least sensitive. Age, educational degree and years of employment at present position were all negatively related to sensitivity, while practicum grades were positively related. The results also supported the contention that counseling effectiveness and sensitivity overlap.

There seems to be a strong relationship between the ability to transmit and the capacity to understand emotion. Mueller and Abeles (1964) found that the most empathic student counselors were judged most accurately by others when their tapes were listened to. The ability of the counselor to be open to his own feelings as a precondition to being able to understand the feelings of others is

stressed. Similarly, Levy (1964) found that the ability to identify emotionality in others is related to the ability to recognize emotion in one's self and to communicate emotions to others.

The behavioral correlates of interpersonal sensitivity are somewhat different for the sexes (Bronfenbrenner, 1958), although a fairly clear pattern does exist for both sexes. Bronfenbrenner (1958) suggests that the sensitive person is both perceptive and responsive to the needs of others, and probably as a result of possessing both of these qualities, tends not to be aggressive in his behavior with people around him. The end result is that the individual does manage to avoid confrontation with others, but is forced to avoid or deny his abilities and potentiality for many leadership positions.

Characteristics Associated with Growth during Training

Two pressing problems in counselor education are: (1) the question of selection - who should be admitted to counselor education programs and what criteria should be used? And (2) the question of the nature of the training program - What do we want the end product to be able to do and what combination of classroom, personal, and professional experiences will get the job done most efficiently and effectively? The present study is not concerned with the former; it deals with the latter in that the study examines a particular short-term training procedure designed to improve interpersonal perception

and evaluates a large number of variables related to interpersonal perceptual skills. It should be remembered that in this study the term "interpersonal perceptual skills" is equivalent to empathy; that is, the ability to experience the same emotions and feelings as the client and to be able to understand the client's internal frame of reference. It is not concerned with the ability to communicate the understanding.

The present state of training programs in the helping professions in general, and in counseling in particular, is inconsistent at best. The isolation of empathy as a critical variable in the counseling relationship has had a tremendous impact on the profession, but the results have been felt more directly in academic areas than at the trainee's personal level. The need, of course, is for training programs which allow trainees to understand what interpersonal perceptual skills are, and then to be involved in procedures which direct them to modify their thinking so that they can become better perceivers.

Presently, there are serious doubts concerning the ability of training programs to improve interpersonal perceptual skills. Crow's (1957) experimental group which received training intended to improve interpersonal relations actually was less accurate after training than before. Crow notes that simply helping the trainee to learn about individual differences may yield a decrease in accuracy, because it encourages discrimination among people before the

acquisition of necessary skills. The lack of feedback about errors gives a false sense of security which allows the process to continue long after the training is completed. Cronback (1955) points out that for training to be effective the trainee should have errors consistently pointed out in order to eliminate biases.

Another study which raised questions about the ability of training programs to improve behavioral predictions is that of Weiss (1963). He found that psychologists predict the behavior of college students better than do physical scientists when only small amounts of relevant data are available, but they do poorer when there is a greater amount of information. It may be, as Soskin (1954a, 1954b, 1959) suggests, that psychologists' familiarity with test data makes them error on the side of maladjustment and therefore decreases their accuracy compared to physical scientists.

That our training programs are not doing the job adequately is pointed out by the work of Carkhuff, Kratochvil, and Friel (1968). They investigated the levels of empathy, regard, genuineness, concreteness, self-disclosure and an over-all level of these conditions of 54 trainees before and again late in the training period. Although the results were not significant, there was a decline in the levels from the first to second rating. It is particularly interesting that trainees were better able to determine accurately the level of these conditions in the tape recordings of their peers as a function of training,

but they were not able to transfer their learning about the conditions to counseling situations.

Professional psychological experience is in many ways synonymous to training. Individuals with more experience would be expected to be more accurate in their perceptions. Cline (1955) found that there is a strong positive relationship between length of professional experience and the ability to predict verbal behavior, but a negative relationship between length of professional experience and accuracy in predicting real-life social behavior. He warns of the danger of becoming less "in contact with reality at the level of social behavior" as professional experience increases (p. 49).

Similar conclusions are reached by Arnhoff (1954). He found a decreased agreement among judges as a function of increased experience. He believes that increased training and experience allow the clinician to develop numerous frames of reference, which may actually impede, rather than promote, accuracy in clinical judgments.

Some investigators (Cottle and Downie, 1960) have concluded that if interpersonal perceptual skills are to be improved, it will be necessary to use some method other than providing information. Bullmer (1972) demonstrated that a direct teaching method alone was sufficient to improve interpersonal perceptual skill, although he was somewhat at a loss to explain why. Although the relationship between knowledge and perceptual accuracy was not previously demonstrated

to be very strong (Baldwin, Lee, 1965; Weiss, 1963), Bullmer concluded that:

...perceptual behavior can be changed through the use of the self-instructional program.. This in itself can prove beneficial to the field of counselor education where a need has long existed for a teaching approach which will quickly enable trainees to ameliorate their interpersonal perceptual skill (1972, pp. 40-41).

A partial explanation for Bullmer's results may lie in the work of Davitz (1964) and Guilford (1929). Both found that giving judges the correct answer during the practice session yielded increased accuracy in the ability to identify emotions by face and voice. Bullmer's programmed test allowed, actually required, that the trainee receive the correct answer during the training program.

In a validation study of the Michigan State Affective Sensitivity Scale (Campbell and Kagen, 1971), Danish and Kagen (1971) were able to validly measure different amounts of change in affective sensitivity as a function of different training procedures. In discussing the question of who can improve on skills like affective sensitivity, they point to the importance of motivation. Further, they suggest that when individuals who are low in the need to change become involved with the traditional methods of improving interpersonal perception, they may feel an even greater need to resist change and the increased defensiveness may result in a decrease in scores.

Cook (1971) cites the lack of empirical research on the value of training for interpersonal perception and suggests that the major reason that so little good research exists is the lack of an adequate criterion. As a result, few definite statements can be made. A trend is discernible, however; procedures which are concrete and planned, and involve knowledge of results and immediate feedback concerning performance tend to get better results than do abstract, unplanned methods, such as clinical training or T groups.

CHAPTER II
REVIEW OF RELEVANT RESEARCH

Types of Variables in Studies of Affective Sensitivity

The variables studied in relation to affective sensitivity are nearly endless. Many of the studies are only descriptive; they list the attributes of good versus poor counselors, where good is defined by peer ratings, self-ratings, faculty or supervisor ratings, etc. Others are predictive; they attempt to explain the variance in the criterion measure by looking at the predictive variables. In the following review, predictive studies are given preference over descriptive, although the latter are often included so that the variable under consideration may be more thoroughly understood. The review is divided into six parts, as follows: (1) Personal characteristic, or personality, with particular emphasis on the Minnesota Multiphasic Personality Inventory (MMPI) and the Edwards Personal Preference Schedule (EPPS), (2) Interest factors, with particular emphasis on the Strong Vocational Interest Blank (SVIB), (3) Authoritarianism and tolerance for ambiguity, with particular emphasis on the Berkeley, (4) Open-mindedness, with particular emphasis on the Rokeach, (5) Intelligence, and (6) Age.

Personality factors associated with empathy

As mentioned previously, the emphasis in this section is on experimental rather than descriptive research. The reader who is concerned with obtaining a more comprehensive understanding of the literature in the area of personal characteristics of counselors is referred to the reviews of Burnett (1954), Cash and Munger (1966), Frochleih (1951), Hill and Green (1960), Stoughton (1957) and Strippling and Lester (1963). The Hill and Green (1960) and Cash and Munger (1960) reviews are particularly informative.

There are few areas of psychological research in which more work has been done than in personality correlates of counseling effectiveness. Admittedly, empathy is only one of the factors involved in effectiveness, but it does appear to be a central factor. Generally, the research is quite consistent in pointing out the relationship between good mental health (or lack of pathology) and effectiveness or sensitivity. Before exploring that body of knowledge, however, let's look at the few isolated studies where either no relationship was found, or the results point in the opposite direction.

General adjustment, ability, values and interests were all investigated in relation to supervisor's ratings of counselor trainees in terms of their professional promise (Abeles, 1958). General adjustment and ability were found to be of very little value, whereas

values and interests of trainees were much better predictors.

When the criterion is variations of subrole behavior in the counseling interview, the personality of the counselor appears to make very little difference. Campbell (1962) found support for two of his four hypotheses concerning the background of the counselor, but none of his six hypotheses concerning personality characteristics reached statistical significance.

Several investigators have used the MMPI and found it poorly suited to their purposes. Wasson (1965) used the MMPI, EPPS, SVIB and other measures toward four criteria. Of all the correlations, the only MMPI or EPPS scales reaching significance were: (1) A high negative correlation between MMPI - Schizophrenic and staff ratings; (2) A high positive relationship between EPPS - Nurturance and counseling segment ratings; and (3) A moderately high positive relationship between EPPS - Heterosexuality and peer ratings. Wasson concluded that the client-counselor relationship variable measured by the Wisconsin Relation Orientation Scale "... is essentially uncorrelated with the intellectual personality and interest measures in this study (p. 91)." Sechrest and Jackson (1961) report a similar finding. They report no significant relationship between differential accuracy of perception and MMPI scales.

McGreevey's (1967) factor analytic study suggests that the MMPI has little or no value in discriminating among counselor

candidates who received high ratings from faculty members. As an instrument used to predict who will not be able to achieve grades satisfactorily in a counselor education program, the MMPI does have predictive validity.

Open-mindedness, tolerance for ambiguity, general mental health, personal-social interest and peer evaluations were studied in relation to supervisor rankings of counseling candidates following the introductory counseling practicum (Mendoza, 1968). The MMPI was used to measure general mental health. The results were generally negative; of all the predictive variables only peer group ranking was found to have predictive value.

Despite the above, the evidence for the relation between adjustment, or mental health, or lack of anxiety and various measures of counseling effectiveness or empathic ability is overwhelming. Cline (1955), for example, found judging ability significantly related to lower scores on MMPI scales for Hypochondriasis, Dissimulation, Paranoia, Schizophrenia, Psychopathic Deviate, Prejudice, and F (validation) and to high scores on MMPI scales for Social Status and Intellectual Efficiency. After breaking down the results separately for each sex, Cline concluded that the ability to make accurate judgments of other people cannot be explained by a single factor.

The adequacy of therapists' adjustments has been related to therapeutic change in patients. Bergin (1966) found that "those

therapists who are most anxious, conflicted, defensive or unhealthy are least likely to promote change in their cases (p. 240).'' Building on counseling effectiveness and its relation to personal adjustment of the therapist, he goes on to suggest that candidates for the interpersonal therapies be chosen for admission at least partially on the basis of personal adjustment. Luborsky (1952) found that therapists at the Menninger Clinic who received good ratings were more apt to be "conventionally adjusted" than therapists who received poor ratings. Ratings of empathy levels correlate negatively with measures of the therapist's degree of personal disturbance (Bergin, 1966), and measures of personality strength correlate positively with the degree of "live" (real) empathy. Bergin also found a negative relationship between the therapists' anxiety level and therapeutic ratings. Apparently, a high anxiety level interferes with counseling effectiveness, regardless of the therapists' ability to understand his anxiety. Bandura (1956) found that insight alone concerning the anxiety does not alleviate the barrier to effectiveness. On the other hand, Taft (1955), in summarizing the characteristics related to the ability to judge lists "insight into one's status" and "good emotional adjustment," among others.

Snyder (1955) investigated the personality of clinical students. He found that the MMPI generally differentiated good from poor students; the poorer students received higher MMPI scores. The

attitudes which differentiate good students from average students". . . more aggressive, independent, unconventional, intellectual and social, and they are less religious, less neurotic, and less prone to feelings of inferiority than their peers (p. 51)."

Evidence that the ability to make accurate judgments of others is affected by the way an individual feels about himself is presented by Omwake (1954). She found that individuals who are not able to exhibit a high level of self-acceptance tend to have problems relating effectively with other people, and that they tend to project; if they reject themselves, they tend to see others as also self-rejecting.

Using the MMPI, Arbuckle (1956) asked students to choose from among their peers who they would want as a counselor. Those students with healthier profiles were most chosen. The following MMPI scales were all significantly lower for the chosen students: Hypochondriasis, Depression, Paranoia, Hysteria, Schizophrenia, Social Introversion-Extraversion and Psychasthenia.

Johnson, Shertzer, Linden and Stone (1967) used the California Psychological Inventory (CPI), EPPS, Guilford-Zimmerman Temperament Survey, MMPI, and the Strong Vocational Interest Blank (SVIB) to investigate the relationship between inventoried interests and personality characteristics and judged counselor effectiveness. The results were presented separately for each sex, but effective counselors, both male and female, are described in very healthy terms. For example

terms used to describe effective counselors include confident, accepting, satisfied with self, efficient, capable (for males) and outgoing and efficient, confident, person-oriented and able to work well with others (for women). Noticeably by their absence were such characteristics as nurturance, affiliation and intraception. These results are supported by Dymond (1950). Although she used different instruments, including projective techniques, she came to basically the same conclusions as Johnson et al. (1967).

Bergin and Jasper (1969) support the contention that the personality characteristics of the therapist are important determinants of the outcome of therapy. They used both the MMPI and the EPPS and obtained results with the former but not with the latter. MMPI - Depression (D) and Anxiety (PT) are negatively related to a "live" measure of empathy. Two possible explanations are given for the lack of EPPS correlations with empathy: (1) The general limited validity of the instrument and (2) The EPPS lesser relevance to therapeutic phenomena.

No clear cut pattern of EPPS needs and measures of perception, sensitivity or counseling effectiveness exist. Chance and Meadors (1960) used the EPPS to investigate the relationship between needs and interpersonal perception. They found that inaccurate judges scored much higher on succorance and aggression ($p = .01$), and much lower on affiliation ($p = .02$). In addition, inaccurate judges

scored higher on intraception ($p = .05$) but lower on dominance ($p = .05$). Steffler, King and Leafgren (1962) used the EPPS to investigate the characteristics of counselors judged effective by their peers. High scores on deference and order were characteristic of the chosen counselors, as well as low scores on abasement and aggression.

Not only is adjustment related to empathy and thus to counseling effectiveness, but also particular personality characteristics have their effect in counseling situations in certain patterns. Bandura, Lipsher and Miller (1960) found that the tendency of the therapist to express hostility directly was related to the encouragement of the same behavior in their patients, but that for therapists who were high on the need for approval, there was a corresponding tendency to discourage verbalization of hostility by patients.

It is not difficult to understand why individuals who are poorly adjusted have problems getting therapeutic change in their clients. Their anxiety about their concerns interfere with their ability to listen empathically and to communicate their understanding. Healthy individuals respond to threatening situations by attempting to work through the threat (Chodorkoff, 1954), but less healthy people, in attempting to avoid the threat, tend to distort, deny or misperceive. Lack of self-insight contributes to the process of distortion in the perception of clients (Tyler, 1961).

The evidence for good personal adjustment of the therapist as a necessary condition for empathic understanding and good therapeutic outcome is so overwhelming that it is difficult to conceive of a counter-argument. One can make the argument, however, as Tyler (1961) does, that despite the global relationship between adjustment and counseling outcome (and empathy), the literature does not suggest a particular personality type which is the only type which gets good therapy results. Counselors may be very different in terms of personality characteristics and still get favorable outcomes with clients, even with the same client. What appears to be more important is the absence of maladjustment (in a global sense) in the therapist.

Interest factors

The literature on the relationship between inventoried interests and sensitivity and/or counseling effectiveness is not nearly as prolific as that of personality characteristics, and the results are somewhat mixed. A number of studies found little or no predictive value in the SVIB or other similar inventories. For example, Dole (1964) attempted to predict the effectiveness of counselors in school settings, using a wide range of ability, personality and interest (SVIB) measures. He used principal's ratings as the criterion and found no support for any of the instruments used, including the SVIB. Mendoza (1968) used the personal-social interest (Group V) of the SVIB

and found it virtually unrelated to her measure of counselor effectiveness. Wasson (1965) was not able to find significant relationships between individual SVIB scores and any one of his four criteria measures.

Wrenn (1952) acknowledged graduate programs' responsibility to admit to training only those individuals who exhibited some evidence of potential for being trained. In speculating about the vocational interests of such individuals, he suggested high patterns of interest in Science (Group I), Social-Service-Human Relations (Group V) and possibly Verbal-Linguistics (Group X).

Evidence for interest inventories in prediction comes from Abeles (1958), who found interests more important than ability for counselor trainees. Foly and Proff (1965) compared National Defense Education Act (NDEA) enrollees with vocational rehabilitation counselors. He used measures of cognition (MAT), affect (MMPI and EPSS), and interest (SVIB) and found the SVIB discriminated the best between the two groups. Dole (1963) compared school counselors to graduate students, teachers, etc. He used a variety of intellectual, personality and interest measures and found that the groups hardly differed at all, except that the school counselors had a higher mean score in the social service category of the SVIB.

Steffler, King and Leafgren (1962) used the SVIB in determining the characteristics of counselors judged effective by their peers.

Unfortunately, they only used two groups, Social Service (Group V) and Sales and Business Contact (Group IX). All the significant differences between the chosen and rejected counselors were in the Social Service Group. They interpret their results as support for the use of the SVIB in selection of trainees and suggest that there may be a "good student" activity associated with high scores on Group V of the SVIB.

In a similar study, Arbuckle (1956) had students select from their peers another student who they thought would be a good counselor. Using the Kuder Preference Record, he found significant differences between the scores of students and the individuals they chose on: (1) Social Service (2) Persuasive (3) Literary and (4) Scientific. Chosen counselors were significantly higher on each of these scales.

One of the few studies which investigated the SVIB in relation to outcome with schizophrenic patients is that of Whitehorn and Betz (1960). Their results suggest that good therapists differ from poor therapists in certain characteristic patterns of SVIB scores. For example, good therapists have interests resembling those of lawyers and poor therapists have interests resembling those of printers. The former have a problem-solving approach to life which they take into their therapy sessions; the latter tend to dichotomize, seeing people as good/bad, right/wrong, etc.

Authoritarianism and tolerance for ambiguity

Before describing the correlates of authoritarianism and tolerance of ambiguity, it is necessary to give some description of the variables. Scodel and Mussen (1953) point out that:

...authoritarian personalities have been described as rigid, extroceptive, repressed, conforming, stereotypical in their thinking, and intolerant of ambiguity... Since he cannot tolerate ambiguity, the authoritarian tends to think of people in rigidly stereotyped categories such as in-group... His own security is dependent on his in-group status and loss of such status is threatening. His perception of others is restricted because of his selective inattention to those behaviors which might set him apart from the in-group. His approach to others is conventional, nonpersonalized, and essentially lacking in insight. In a social situation with a member of a peer group he maintains his security by assuming that the values and attitudes of others are similar to his own (p. 181).

Jones (1954) also found authoritarians more insensitive than nonauthoritarians, at least concerning their perception and judgments of other people. This finding seems to hold even when the need for personal power is controlled.

The ability to deal adequately with ambiguous cues in a counseling situation seems to be a function of successful counselors. Brams (1961) found support for the hypothesis that counselors who are able to tolerate ambiguous material tend to create successful communicative counseling relationships. Conversely, low tolerance for ambiguity leads to behaviors which impede therapy. Reiwald

(1964) investigated the relationship between counselor tolerance for ambiguity and his counseling behavior. The results suggest that counselors who are low on tolerance for ambiguity are more likely to act in controlling ways. They are low on facilitative conditions and tend to be judgmental. Similar results are reported by Jones (1962). He found that individuals who scored high on the F scale (low tolerance for ambiguity or high authoritarianism) tend to have rejecting attitudes toward patients, to be overly concerned with structure to the point of becoming advice-givers instead of counselors, were judgmental and directive, and were not as warm and empathic as the non-authoritarian.

In the original conception of tolerance of ambiguity as an emotional perceptual variable, Frenkel-Brunswick (1949) considered lack of tolerance of ambiguity "as related to reluctance to think in terms of probabilities and a preference to escape into whatever seems definite and therefore safe (p. 130)." To attempt to avoid ambiguity is to attempt to simplify life; the end result has to be negative, both in therapy and in daily life activities. She also posited a strong relationship "between the strength of hostility, of power orientation, of externalization, and of rigid stereotyping, on the one hand, and intolerance of ambiguity on the other (p. 141)."

How well do scores on the F scale correspond to actual behavior in therapy? Vogel (1962) found high correlations between F

scale scores and ratings of behavior in therapy situations. The relationship was strong enough for Vogel to consider F scale scores as "a relatively reliable representation of authoritarianism (p. 107)." Although support was found for the F scale score being related to authoritarian behavior in therapy for therapists, a similar relationship was not observed for patients.

Words of warning concerning interpretation of F scale scores are sounded by Titus and Hollander (1957) in their review of the literature on the F scale during the period 1950-55. Contrary to Vogel's (1962) findings, Titus and Hollander point out that the F scale tends to correlate more systematically with other real-life observable behavior. They also suggest two explanations of some of the correlations found between the F scale and the variables that it has been correlated with, either or both of which may account for the significance of the r 's. First, intelligence and educational level both are inversely related to F scale scores, and general intelligence factor may be accounting for much of the common variance. Second, response sets of individuals taking the F scale may be influencing scores, and thus correlation with other variables.

The negative relation between F scale scores and intelligence is substantiated by Cohn (1952). He suggests that intelligence may allow a person to better understand what the F scale is measuring and as a result be in a better position to fake good.

If an individual had the intelligence to understand what the F scale was measuring and the response set to try to fake good, would he have an accurate stereotype of authoritarianism? Stotsky (1955) suggests that people are learning a neurotic stereotype of authoritarianism. He had students complete the F scale three times under the following conditions: (1) personal opinion; (2) neurotic individual; and (3) normal person. He concluded that the sample had somehow learned to view authoritarianism in a very narrow way, as "bad."

Open-mindedness, dogmatism and cognitive flexibility

The importance of open-mindedness, lack of dogmatism and cognitive flexibility as important therapeutic variables had been recognized before Rokeach (1960) wrote The Open and Closed Mind, but most of the important work in this area had come since 1960. Psychological openness as an important principle in personality organization has been recognized by Rogers (1961), Bruner (1962), and Barron (1963). Psychological openness helps the counselor understand the person he is working with (Bakan, 1956; Katz, 1963; Schafer, 1959). The openness of the counselor is related to his effectiveness in counseling (Allen, 1967; Butler, Rice and Wagstaff, 1962; Halkider, 1958; Jourard, 1964; Kagan, 1961; Truax and Carkhuff, 1965).

Rokeach (1960) describes dogmatic thinking on an open-closed

dimension; the extent to which an individual can perceive, understand, and behave toward a stimuli based on the actual properties it possesses and disregard all other factors is a measure of openness. There are differences in the way high and low dogmatic individuals approach new situations. Kemp (1961) found highly dogmatic people "defensive, insecure, and more threatened. They are inclined to ignore, rationalize, project, distort or narrow their attempt to deal with its new experience (p. 663)." Rokeach (1960) concluded that they tend to develop strong cognitive defenses.

Cognitive flexibility is a concept which is very much related to open-mindedness. Sprinthall, Whiteley and Mosher (1966) define it as the ability "to respond...to both the content and feeling which the client communicates (p. 190)." The rigid (non-flexible) counselor tends to see the client's problem through the counselor's eyes rather than from the client's point of view; the flexible counselor is better able to respond to the real needs of the client.

Allen and Whiteley (1968) give two general arguments for the importance of psychological openness in counseling. They maintain that it is an "essential precondition to the understanding of the thoughts and feelings of other people" and "an essential factor in the establishment of an interpersonal atmosphere conducive to client exploration (p. IX)." Empirical support was offered for the reliability of psychological openness, as well as for the relationship

between openness and understanding the feelings of the client and counselor openness as an important determinant of the counseling relationship.

Dogmatism as a counseling variable has been studied from the client's and counselor's point of view. Tosi and Carlson (1970) indicate that when clients are highly dogmatic, counseling may be impeded. They found significant negative correlations between client dogmatism and client perceptions of counselor's congruence, empathy and unconditional positive regard.

Steffler, King and Leafgreen (1962) found generally confusing results of personality differences between chosen and rejected counselor trainees, with the exception of the result of the Rokeach Dogmatism Scale. Their hypothesis concerning less dogmatism for chosen counselors was confirmed. Russo, Kely and Hudson (1964) found a strong relationship between measured "open-mindedness" and ratings of counselors. McGreevy (1967) found the EPPS - Change Scale to be important on evaluation of counselors rated by faculty and points out the similarity between EPPS - Change and Rokeach's open-mindedness.

Consistent differences appear between high and low dogmatic individuals. Fillenbaem and Jackson (1961) presented information at variance with existing concepts of their sample. They found open-minded subjects (low dogmatic) better able to "integrate and synthe-

size" the new material, exhibited better coping behavior and better problem solving behavior. Maslow's (1959) psychologically open group was characterized by a "lack of fear of their own insides, of their own impulses, emotions, thoughts..." while the psychologically closed group"...walled off through fear much that lay within themselves. They controlled, they inhibited, they repressed and they suppressed. They disapproved of their deeper selves and expected that others did too (p. 88)." Kemp (1961) found that low dogmatic individuals not only have fewer personal problems than high dogmatic individuals at the beginning of counseling, but also responded better (had the number of problems reduced) to short term counseling. Open-minded individuals did a better job in working critical thinking problems (Kemp, 1960).

The level of dogmatism of counseling students at different levels of a graduate program was investigated by Mordock and Patterson (1965). They found dogmatism to be significantly lower at the more advanced level (the supervised practicum) than at the lower levels (the beginning courses). Although the study was not longitudinal and therefore does not allow us to make firm statements about the effect of graduate training programs on level of dogmatism of trainees, it does point out that the changing pattern of dogmatism scores as students move through a program, regardless of explanation, needs to be controlled.

Unlike tolerance for ambiguity, open-mindedness does not appear to be significantly related to intelligence. Russo, Kely and Hudson (1964) reviewed other studies in which the Ohio Psychological Examination, the Wonderlic and the American Council on Education Test were used as measures of intelligence and correlated with measures of open-mindedness. The correlations were not significant.

One study (Passons and Olsen, 1969) attempted to investigate the relationship between empathy and open-mindedness. Two criteria were used: (1) Empathic sensitivity exhibited to practicum clients and (2) Empathic sensitivity offered to a filmed client. Although other variables (peer ratings and cognitive flexibility) correlated significantly with one or the other criteria, there were no significant relationships between open-mindedness and either criterion. It is indeed difficult to explain why cognitive flexibility, which overlaps to a large extent with open-mindedness, is related to an empathy measure, but open-mindedness is not. The authors suggest as possible explanations the test sophistication of the subjects (NDEA graduate students) and the possible reduction in the validity of the Rokeach Dogmatism Scale as a function of the response set.

Intelligence

The literature in the area of intelligence factors in relation to

sensitivity or counseling competence does not allow one to come to any definite conclusions. One of the difficulties is the distinction between the satisfactory completion of a training program and actually being sensitive. Another difficulty is the lack of standard criterion. Let's look first at evidence which suggests little or no relationship between intellectual factors and sensitivity and/or effectiveness, followed by evidence suggesting the importance of such variables.

There is no available evidence indicating a negative relation between intellectual factors and the ability to perceive the feelings of others, but there are a number of studies which suggest that it is not an important variable. Fiedler (1950a) stresses that for therapists in psychoanalytic, nondirective and Adlerian schools of thought it is an empathic understanding, rather than an intellectual one, which is central to a good therapeutic relationship. This point has been dealt with previously (p. 2). Simply passing qualifying exams and getting acceptable grades seems not to be enough to predict effectiveness in counseling situations (O'Hern and Arbuckle, 1964). Wasson (1965) was unable to find significant correlations between intellectual measures and ratings of the relationship. Allen (1967) investigated both psychological openness and "refined estimates of academic aptitude" in relation to effectiveness. The former has predictive value, the latter does not. Intelligence (at least as rated by peers) is not significantly related to differential accuracy in inter-

personal predictions, or to stereotype accuracy (Sechrest and Jackson, 1961). Bergin and Jasper (1969) studies the correlates of empathy in psychotherapy. They used grade average (Diagnostic Practicum), Grade Average (Academic) and Graduate Record Exam (GRE) - Psychology, GRE - Qualitative, and GRE - Verbal as predictor variables. No support was found for a relationship between the academic/intellectual measures and empathy. Whiteley, Sprinthall and Moser (1967) obtained results which indicate almost no relationship between supervisors' ratings and the two instruments most commonly used in selection of students to graduate programs, the GRE and the Miller Analogies Test.

Both Bergin and Jasper (1969) and Whiteley, Sprinthall and Mosher (1967) offer explanations for their lack of significant correlations. Bergin and Jasper (1969) find their results consistent with the common sense notion that intellectual qualities are not necessary to effectively establish a good therapeutic relationship. They also go on to point out that academic ability may be important in other aspects of therapy (decision making, diagnostics, etc.) and suggest that the graduate student's limited range on the intellectual measures may account for the lack of significant correlations. Whiteley, Sprinthall and Moser (1967) acknowledge the distinction between the intellectual ability necessary to progress through a graduate program versus the ability to be an effective counselor. They conclude that the MAT and

GRE probably have some value in predicting the former, but not the latter.

On the other hand, there is a fair amount of information which stresses the importance of intellectual factors, both in relation to academic success and to various measures of sensitivity or counseling effectiveness. The American Personnel and Guidance Association (1963) and the Association for Counselor Education and Supervision (1964) both acknowledged the importance of academic skill in relation to selection criteria. Snyder (1955) found that one of the factors which characterized good clinical students was their intellectual attitude. Steffler, King and Leafgren (1962) were somewhat surprised to find five out of their seven academic aptitude and performance variables significantly differentiated between chosen and rejected counselors. The variables were: (1) Knowledge of guidance - Pretest (2) Knowledge of guidance - Post-test (3) GPA - Graduate, Pre-Institute (4) GAP - Institute, Field Work (5) GPA - Institute, Class Work. The means of the other two variables, MAT and undergraduate GPA, did not reach significance but were in the expected direction. Polmantier (1966) reviewed the literature concerning the selection of trainees and found consistent support for the importance of intelligence, particularly as it relates to success in graduate programs.

Superior intellectual ability does seem to be related to perceptual

skills as well as academic success. Cline (1955) found intellectual ability as a significant correlate of judging ability. Cook (1971) indicates that it is related to many of the components of judgment tasks and he lists trait rating, recognition of emotion, empathy and judgment of strangers. The correlations tend to be low, but are consistently positive. The limited range of intellectual ability of the subjects, most often college students, may explain why the correlations are not higher. Cognitive complexity, or the ability to have many concepts to describe a person, is related to accuracy in predicting behavior (Bieri, 1955). Smith (1966) reviewed twenty studies in which intellectual measures were related to a measure of sensitivity. Although all the studies reported positive correlations, they tend to be quite low, accounting for only about 10% of the variance. Verbal reasoning and verbal comprehension are the important aspects of intelligence which have been partialled out; rote memory ability (Witroyl and Kaess, 1957) and speed of perception (Grossman, 1963; Newbigging, 1957) seem not to be measures of sensitivity. Smith (1966) finds the literature in this area consistent with the idea that the more intelligent one is, the better able he is to make accurate judgments of others and to get accurate feedback about his perceptions in the future. Intelligence seems to be a necessary, but not sufficient, prerequisite to good interpersonal judgments.

Age

The literature on age and sensitivity is quite limited. A few studies which have investigated the effect of age on measures of sensitivity are available. For example, O'Hern and Arbuckle (1964) found no relationship between age and judges ratings of sensitivity. Dymond, Hughe and Roabe (1952) studied changes in empathy as a function of age. They found a direct relationship between age and empathic ability for children between seven and eleven years. Little (1968, 1968a) found both sex and age differences in the types of descriptions (psychological, physical, etc.) people used to describe others. Thirteen or fourteen years old seemed to be significant in the increase of the use of psychological terminology. Cook (1971) reports that children get better at recognizing facial and vocal expressions of emotion as a function of age. And Bronfenbrenner (1958) points out it may not be age per se that is the important variable, but the developmental stage of the individual, or even more specifically, the momentary felt needs. Finally, Taft (1955) indicates that the age of the judge may not be as important as the similarity between the age of the judge and the subject. People tend to be more accurate in their judgments of people who are close to their own age.

Perception

The present study is concerned with determining the personality correlates of (1) interpersonal perception and (2) the ability to improve on a measure of interpersonal perception after undergoing a short training procedure designed for that purpose. The measure of empathic ability is a perceptual task. The following discussion and review of the literature in the area of perception is not intended to be complete; rather, its purpose is to give the reader some basic understanding of some of the more important aspects of perception, especially as they relate to the present investigation.

It is generally recognized that social perception is not a singular, unitary ability, but rather is comprised of at least two skills which may or may not be related. Bronfenbrenner (1958) distinguishes between "sensitivity to the generalized other" and "sensitivity to individual differences" or "interpersonal perceptions." In tasks which require sensitivity to the generalized other, the perceiver is asked to judge the attitudes, values, or behavior of a group and therefore does not have to make predictions based on individual differences. Examples of this skill are predictions of voting patterns of newly registered voters or the prediction of the percentage of right and wrong answers on a college examination.

Sensitivity to individual differences requires the perceiver to recognize how individuals either differ from each other, or from some

average or norm. Examples of this skill include tasks in which the perceiver is asked to judge which of many individuals is the most sensitive, most intelligent, etc. The task in the present study, the judgment of how a client feels about himself and about his counselor, is a sensitivity to individual differences type of ability. Bronfenbrenner (1958) recognizes the tenuousness of the relationship between these two types of abilities and indicates that individuals who possess one type of ability may be quite deficient in terms of personality characteristics and behavior from individuals who possess the other type of ability.

As mentioned above, sensitivity to the generalized other and sensitivity to individual differences are two different aspects of interpersonal perception. From a different point of view, it is possible to conceptualize three other types of skills in interpersonal perception: (1) Social sensitivity (2) Predictive skill and (3) Role-taking (Bronfenbrenner, 1958). Social sensitivity involves recognizing the affect or behavior of another person in a real life situation. Predictive skill involves sensitivity of others through indirect observation: through one-way mirrors, movies, or video-tape. Role-taking involves the ability to imitate the feelings of another person. The three skills are viewed as independent, but interrelated. Bronfenbrenner (1958, p. 97) indicates "...a person's sensitivity may be increased by the fact that he is able to foresee what may happen

(predictive skill) through his ability to experience for himself the feelings of another person (role-taking).¹¹ By this classification, the criterion in this study (Michigan State Affective Sensitivity Scale) requires a predictive skill, which hopefully will lead to increased sensitivity as outlined by Bronfenbrenner (1958).

Judges can be asked to respond to different types of content. Four classifications of content are suggested by Bronfenbrenner (1958). In first person predictions, the judge is asked to predict what some other person thinks of him. Second person predictions require the judge to estimate what the other person feels about himself. Third person predictions require the judge to predict what other people think about the person being perceived. Nonpersonal predictions require the judge to predict the actual behavior of the person being perceived. The perceptual task in the present study does not fall neatly into any of these categories; it comes closest to the second person predictions in that it requires what the other person feels about himself but does not include the requirement that the judge also predict how the person (client) feels about another person (counselor). This latter requirement is like third person predictions in reverse; not what other people think about the person being perceived, but what the person being perceived (client) feels about other people (counselor).

An additional differentiation of interpersonal perceptual tasks is offered by Bronfenbrenner (1958). He distinguishes among four

aspects of the social situation as follows:

- (1) Physical: overt physical characteristics of the person, such as dress, complexion, facial features, body proportions, etc.
- (2) Actional: overt behavior of the other person - his posture, his movements, what he does or says.
- (3) Characterological: properties of the other person which, while they may be rooted in physical characteristics or behavior, in addition reflect the person's impact as a social stimulus: eg. , he is seen as amusing, over-bearing, irritating, awe-inspiring, etc.
- (4) Experiential: properties that represent internal psychological states of the other person, his thoughts, feelings, desires, etc. (p. 98).

The MSASS requires the judge to make predictions concerning the experiential aspect of the social situation.

Gage (1953) breaks down social perception into its components. He suggests that all social perceptual tasks have four aspects: (1) the person who does the perceiving, (2) the person perceived, (3) the stimuli available to the perceiver (input), and (4) some judgment (out take). Also, he presents evidence which indicates that accuracy in perceiving strangers is related to accuracy in predicting effectiveness in interpersonal relationships with non-strangers.

Judgments (out take) can also be divided. Taft (1955) stresses the importance of looking at the type of judgment required by the perceiver and indicates a two-fold system. Analytic judgments are characterized by conceptualization and quantification of specific

characteristics. Non-analytic judgments do not require the process of inference as do analytic judgments; they allow the judge to respond in a more global way. The MSASS does not fit neatly in either category. It is probably closer to analytic in that it requires the judge to make inferences about the perceived person based on words and physical behavior.

In any study in the area of perception, there is an implied assumption that accuracy of perceptions is a function of ability to make good perceptual judgments. Sometimes other variables interfere with this ability. Motivational level of the judges are an example. Bronfenbrenner (1958) points out that for some reason the motivation to use perceptual abilities is higher for some judges than others. This reason alone, and not the personality characteristics of the people involved, may account for differential accuracy. Further, when input data are scarce and the judge has no framework to fall back to, "...accuracy becomes a function of the judges' own attitudes toward the social object and content, specifically: (1) The more favorable the judges' orientation toward the person or group being judged, the more likely he is to predict that the attitudes or perceptions of this person or group toward a particular content will be similar to his own; that is, the more likely he will assume similarity (Bronfenbrenner, 1958, p. 69)." We can see, then, that under these conditions, judges may be more or less accurate primarily

because they may be more or less like the persons being judged.

Difficulties in perceptual accuracy may not reflect poor judgment as much as poor observation. Cronbach (1949) gives four explanations of variance in perception as related to observation. He indicates that the sample of behavior may not be adequate, the judge may be selective in what he observes, the judges may differ in what they consider significant, and the observer may misinterpret an event. Rank (1966) adds a fifth source of variance; the total capacity for accurate perceptions may differ from person to person.

Sex differences in perception

The question of differential perceptual abilities for the sexes and different personality correlates of perceptual accuracy for men versus women has been investigated by numerous investigators. The results generally are inconclusive, although some discernible patterns do seem to be emerging.

Bronfenbrenner (1958) indicates that sex may be an important variable in perception in that a judge may be accurate in perceiving one sex but not the other. He gives an example of a woman who was brought up almost exclusively by women, would be expected to be accurate in judging women, but probably not accurate in judging men. He found support for the contention that both men and women tend to be more sensitive to members of their own sex, and that this

phenomenon was more true for women than for men, although the differences were not statistically significant.

Apparently the behavioral correlates of interpersonal sensitivity differ for men and women. Bronfenbrenner (1958) found that for men the highest correlations with general interpersonal sensitivity for both sexes was in the area of "ability to relate." The following adjectives were found to be descriptive of sensitive men: "considerate, not annoying, warm, constructive, not uneasy, interesting, reasonable and imaginative" (Bronfenbrenner, 1958, p. 65). For women, the correlates of accurate sensitivity to both sexes include: "... socially retiring, ill at ease, somewhat lacking in spontaneity, but at the same time... able to effect viable interpersonal relationships (not domineering, considerate, accepting, reasonable, not annoying)" (Bronfenbrenner, 1958, p. 66).

It may be that the sexes differ not in perceptual ability per se, but in some pre-perceptual attitudes or abilities. For example, Little (1968, 1968a) found that men and women differ in the way they describe other people. Men tend to be more concrete, describing others in terms of (more or less) physically observable characteristics, such as physical appearance, achievement, and role. Women tend to be more abstract, using personality and interpersonal terms in describing others.

Witryol and Kaess (1957) quote earlier studies in which women

were found to perform better than men on two social recall tasks. They added recognition as a variable and found that women did do considerably better than men on all the social memory tasks. Intelligence was controlled and does not account for the differences. The authors concluded that women's superior performance on social memory tasks can be explained by the greater emphasis on social skills in development of female sex roles.

Evidence for sex differences in counselor candidates comes from Bernos (1966), who did separate factor analyses for men and women. He found that although there were both similarities and differences in the criterion for man and woman, there was a strong tendency for the female sample to exhibit more complex criterion phenomena than the male sample. On the other hand, Mendoza (1968) using personality variables, found that she was able to predict her criterion (peer group ranking) more completely for women than for men.

Another study in which women were found to have consistent, but not statistically significant, higher judging ability is that of Cline (1955). The behavioral correlates for women who were good judges included "...social skills and interest, less compulsiveness in ideational and behavioral processes and artistic discrimination" while for men, they included "...superior intellectual functioning, freedom from paranoid and bizarre cognitive trends, absence of

hypochondriacal self-interest, and freedom from prejudice, bias and authoritarian attitudes (Cline, 1955, p. 197)."

The literature tends to indicate a modest but consistent pattern of superior interpersonal perceptual judgment for women compared to men. Cook (1971), however, feels this conclusion is not really justified. Cook quotes Taft (1955) in which of the nine studies which dealt with recognizing and/or judging emotions, only three found results in favor of women's superiority, one found men to be superior and the remainder found no differences. Cook (1971, p. 114) concludes "...the literature could be accurately summarized by saying that sex differences, when they occur, more usually favor women, but that they do not usually occur."

CHAPTER III
METHODOLOGY

Sample

The sample consists of 40 graduate students who were enrolled in Counseling-Personnel 680 (The Personnel Worker and His Role) during the Summer Session, 1971, at Western Michigan University. Twenty-three are female, seventeen are male. All subjects have been admitted into the Graduate School and are Master's degree candidates in Counseling and Personnel. C-P 680 is the first course in a professional sequence in the program and consequently only three of the subjects had completed as many as six graduate credits in the program. None had completed more than six credits.

Before being admitted to the program, all students completed a screening battery which consists of the following measures:

(1) Minnesota Multiphasic Personality Inventory (MMPI), (2) Strong Vocational Interest Blank, (3) Rokeach Dogmatism Scale, (4) Berkeley Tolerance for Ambiguity Scale.

Procedures

During the first class period of the summer session, 1971, the

subjects completed the Edwards Personal Preference Schedule and the Wonderlic (a short paper and pencil measure of intelligence) during regular class time. In the second session, they completed the Michigan State Affective Sensitivity Scale (Kagen and Krathwohl, 1967), which was viewed on closed-circuit television and responded to according to the standard instructions (see Appendix E). During the same class period, they were exposed to and asked to respond to Bullmer's (1970) programmed text, Improving Your Interpersonal Perceptual Skills. This text is described in the following section. The subjects were told that they would be quizzed on the material in the text and that if they understood the quizzes at the end of each chapter, they should have no trouble with the in-class quiz. The in-class quiz, administered in the third class session, was the final proficiency test from the text, and a score of 90% was considered satisfactory. Thirty-eight of the forty subjects passed the quiz the first time, the other two passed it two days later. Subjects were allowed one hour of class time during the second class period to begin to study the text and were told that on the average 7-8 hours of intensive study were needed to master the concepts. There were two sections of the class; one section had six days to study for the quiz, the other had seven. Following satisfactory completion of the quiz, the MSASS (post) was administered a second time during the fourth class session.

The procedures can be summarized as follows. A pre-admission screening battery consisting of the MMPI, SVIB, Rokeach, and Berkeley was followed by administration of the EPPS and Wonderlic during the first class session. The second class period provided scores on the MSASS (pre) and exposure to the programmed text. The third class session contained the quiz on the information in the programmed text and in the fourth class period the MSASS (post) was administered again.

Instrumentation

The two major instruments to be used in this study are the Michigan State Affective Sensitivity Scale (MSASS) and the programmed text, Improving Your Interpersonal Perceptual Skills (Bullmer, 1970). Brief descriptions of each follow.

The MSASS consists of sixty-seven segments of actual counseling interviews to be viewed on closed-circuit television. Reliability and validity studies are available and the results are considered acceptable for this type of instrument (Kagen and Krathwohl, 1967; Campbell and Kagen, 1971). After viewing each segment the subjects were asked to decide which response accurately describes what the client is actually feeling either about himself or the counselor he is with. Here is a sample item:

Client I - Scene I**Item I**

- (1) This exploring of my feelings is good, it makes me feel good.
- (2) I feel very sad and unhappy.
- (3) I'm groping and confused; I can't bring it all together.

The score on the MSASS is the number of correct responses on the multiple choice answer sheet.

The text, Improving Your Interpersonal Perceptual Skills (Bullmer, 1970), is programmed and self-instructional. The principles advocated by Skinner (1954) are used and it uses a linear format (Homme and Glaser, 1959). Each of the six chapters is followed by a proficiency test and a final proficiency test covering all the material appears at the end of the text.

The subject matter of each unit is summarized as follows:

Unit I: Interpersonal Perception: The major concepts in this section are perception, interpersonal perception and the influence of implicit personality theory on interpersonal perceptions.

Unit II: Sources of Error in Interpersonal Perception: Stereotyping, trait attribution and assumed similarity are identified as the three major sources of error in interpersonal perception. Self-analysis is encouraged.

Unit III: Identifying Emotions: There are three parts in this

unit:

- (1) Definitions of human needs, motives, and emotions and explanations of their relationships.
- (2) Descriptions of specific emotions (anger, pride, shame, love, fear, etc.).
- (3) Examples to which the learner is to identify the emotion from verbal statements.

Unit IV: The Perceptual Approach to Understanding Others:

The perceptual approach to understanding others is explained and there is additional opportunity to practice interpreting statements and evaluating the "true meaning."

Unit V: Identifying Hidden Meaning: The focus of this unit is the identification of anxiety and defense mechanisms. Practice in identifying defense mechanisms from verbal statements is provided.

Unit VI: Summary: This unit is more than a mere review of the previous units. It incorporates the concepts of "non-arbitrariness" and "substantiveness" so that the material becomes meaningful to the learner.

Limitations of the Study

The present study is primarily descriptive; it attempts to describe characteristics which are related to the ability to perceive affect accurately. The limitations of the study can be divided into

two major categories: (1) Assumptions and (2) Methodological problems.

Assumptions

Cronbach (1949) and Rank (1966) offer explanations of variance in perception which suggest the following assumptions for this study:

- (1) The MSASS adequately represents the behavior to be judged.
- (2) The preconceived notions of the subjects did not influence what the judges "saw."
- (3) The MSASS does not exceed the "gross volume of perceptions of which any one person is capable (Rank, 1966, p. 360)."

Methodological problems

There were two sections (classes) of the sample which have been combined for statistical purposes. Although a t test indicated that the groups did not differ significantly from each other on either the Pre-MSASS or the Diff-MSASS, there were some important differences. One section had about one extra day with the programmed text. More important, however, was the psychological atmosphere of cooperation between the subjects and the experimenter. One section had the study built into the course requirements, and as a result of seeing the programmed text on their class syllabus during

the first day of class, was very cooperative. The other section, however, took part in the study above and beyond the requirements of the course they were enrolled in. The attitude of the instructors toward the study and method of presenting the fact that the subjects would be involved in the study as part of a class experience were not controlled. Informal feedback from subjects and others suggest that, unfortunately, this may have been a contaminating variable.

CHAPTER IV
ANALYSES OF DATA

A correlation matrix for each major instrument (EPPS, SVIB, and MMPI) was computed and included both criterion measures. The pre-test MSASS is always the first dependent variable; the Diff-MSASS, which is the difference between the pre and post test scores on the MSASS, is the second dependent variable. In addition, a series of step-wise regressions were computed. A summary of the analyses to be presented in this chapter is as follows:

- (1) Correlation Matrix for EPPS variables and Pre-MSASS and Diff-MSASS (N = 40)
- (2) Regression for EPPS on Pre-MSASS (N = 40)
- (3) Regression for EPPS on Diff-MSASS (N = 40)
- (4) Correlation Matrix for SVIB variables and Pre-MSASS and Diff-MSASS for Males (N = 17)
- (5) Regression for SVIB on Pre-MSASS for Males (N = 17)
- (6) Regression for SVIB on Diff-MSASS for Males (N = 17)
- (7) Correlation Matrix for SVIB variables and Pre-MSASS and Diff-MSASS for Females (N = 23)
- (8) Regression for SVIB on Pre-MSASS for Females (N = 23)
- (9) Regression for SVIB on Diff-MSASS for Females (N = 23)

- (10) Correlation Matrix for MMPI variables and Pre-MSASS and Diff-MSASS (N = 40)
- (11) Regression for MMPI on Pre-MSASS (N = 40)
- (12) Regression for MMPI on Diff-MSASS (N = 40)
- (13) Correlation Matrix for Wonderlic, Rokeach, Berkeley and Pre-MSASS and Diff-MSASS (N = 40)
- (14) Regression for Wonderlic, Rokeach, and Berkeley on Pre-MSASS (N = 40)
- (15) Regression for Wonderlic, Rokeach, and Berkeley on Diff-MSASS (N = 40)

A correlation matrix is simply a table of correlations of each variable with every other variable. Table I includes the correlations for all EPPS variables and both criteria measures (Pre-MSASS and Diff-MSASS). A single asterisk indicates that the correlation is significantly different from zero at the .05 level of confidence and a double asterisk indicates that it is significantly different from zero at the .01 level. "Neg" following a word indicates a negative correlation. Of particular interest in Table I are the significant correlations between subscales and the EPPS and each of the dependent variables. Order (neg) and heterosexuality are significantly correlated with Pre-MSASS at the .01 level. Abasement (neg), deference (neg) and change are significant at the .05 level. Four subscales are significantly correlated with Diff-MSASS at the .05

Table I

N = 40

Correlation Matrix for EPPS Variables and Pre-MSASS and Diff-MSASS scores for Total Group

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. ACH	1.00	.01	.03	.29	.29	-.50	.03	.04	.21	-.13	-.47	-.15	-.22	-.17	.02	-.17	.22
2. DEF		1.00	.40	-.10	-.12	-.22	.02	.06	-.05	.34	-.17	-.28	.17	-.31	-.23	-.31	.12
3. ORD			1.00	-.01	-.33	-.37	-.11	.01	-.27	.24	-.16	-.21	.39	-.41	.00	-.48	.08
4. EXH				1.00	.18	-.11	-.47	-.10	.40	-.10	-.40	-.21	-.06	.05	.24	-.03	-.04
5. AUT					1.00	-.38	-.10	.13	.13	-.12	-.18	-.07	-.34	.32	.05	-.00	-.04
6. AFF						1.00	-.11	-.12	.10	-.28	.54	.21	-.10	.12	-.26	.33	-.28
7. INT							1.00	-.20	-.08	-.02	.09	.09	.17	-.26	-.26	.22	.00
8. SUC								1.00	-.09	-.15	-.07	.14	-.43	.22	-.05	-.16	.34
9. DOM									1.00	-.25	-.23	-.19	-.28	.01	.01	.09	-.04
10. ABA										1.00	.11	-.30	.45	-.52	.24	-.36	.18
11. NUR											1.00	.09	.13	-.24	-.21	.04	-.33

Table I continued

Variable	1	2	3	4	4	5	7	8	9	10	11	12	13	14	15	16	17
12. CHG												1.00	-.21	.28	-.25	.31	.01
13. END													1.00	-.46	-.10	-.04	-.32
14. HET														1.00	-.00	.40	.09
15. AGG															1.00	-.17	-.12
16. Pre- <u>MSASS</u>																1.00	
17. Diff- <u>MSASS</u>																	1.00

level. They are succorance, nurturance (neg), endurance (neg), and affiliation (neg). No subscale was significantly correlated with both dependent measures.

Table II is a summary table of the regression for EPPS scores on the Pre-MSASS score for the total group.

Table II

N = 40

Summary Table for EPPS Scores for Total
Group on Pre-MSASS Scores

Step #	Var #	Multiple R	RSQ	F Value (DF)	Increase in RSQ	F Value (DF)
1	3(ORD)	.48	.23	11.94(1,38)*	.23	11.94(1,38)**
2	10(ABA)	.55	.30	8.08(2,37)*	.06	3.45(1,3)
3	13(END)	.62	.38	7.62(3,36)*	.08	4.95(1,36)*
4	14(HET)	.65	.42	6.39(4,35)*	.03	2.04(1,35)
5	7(INT)	.67	.45	5.76(5,34)*	.03	2.24(1,34)
6	5(AUT)	.69	.48	5.10(6,33)*	.02	1.49(1,33)
7	12(GHG)	.69	.48	4.37(7,32)*	.00	0.48(1,32)
8	4(EXH)	.70	.49	3.84(8,31)*	.00	0.56(1,31)
9	6(AFF)	.71	.50	3.42(9,30)*	.00	0.50(1,30)
10	9(DOM)	.71	.50	3.00(10,29)*	.00	0.11(1,29)
11	2(DEF)	.71	.50	2.64(11,28)*	.00	0.01(1,28)
12	15(AGG)	.71	.51	2.33(12,27)*	.00	0.04(1,27)
13	1(ACH)	.71	.51	2.11(13,26)	.00	0.03(1,26)
14	8(SUC)	.71	.51	1.86(14,25)	.00	0.03(1,25)
15	11(NUR)	.71	.51	1.67(15,24)	.00	0.01(1,24)

It contains the following information: (1) Step Number; (2) Name of the variable; (3) Multiple R; (4) Multiple R squared (RSQ); (5) F value and degrees of freedom (DF) to determine if Multiple RSQ

differs significantly from zero; (6) Increase in RSQ; (7) F value and degrees of freedom (DF) to determine if the increase in RSQ is significantly different from zero.

Before reviewing the results of Table II, a few words about multiple regression are necessary. Of course, the first variable entered will always be that variable with the highest correlation (regardless of sign) with the criterion. In Table I, the highest correlation with Pre-MSASS (#16) is variable #3, Order. The correlation is $-.48$. But the variable with the second highest correlation will probably not be the second variable entered in the multiple regression. The variable that goes in second in regression is that variable which is highly correlated with the criterion, but has low correlations with the variable which is already in. For the third step, we are looking for the variable that has a high correlation with the criterion variable, but a low correlation with both variables that are already in.

It is possible to have an F value significant for Step 1, followed by an F value which is not significant for Step 2, followed by an F value which is significant for Step 3. Of course, other combinations, such as significant for Step 1, not significant for 2, 3, 4, and 5, and then significant for Step 6, are also possible. If Step 1 is significant, this indicates that knowing the distribution of scores on that variable significantly reduces your uncertainty about the de-

pendent variable. If Step 2 is not significant, this indicates that knowing both variable 1 and 2 in relation to each does not significantly reduce your uncertainty about the criterion variable. If Step 3 is significant, this indicates that knowing variable 1, 2, and 3, and their relation to each other, does add significantly to the ability to predict the criteria. In Table II we see that Order was the first variable entered, followed by abasement. Abasement had a high correlation with the Pre-MSASS (-.36), but only a moderate correlation with Order (.24). The Multiple RSQ is significant (.05) down to the twelfth step; 51% of the variance is accounted for at that point. The F value for increase in RSQ is significant for Step 1 (Order), not significant for Step 2 (Abasement), significant for Step 3 (Endurance), and not significant for the remainder of the variables. Order and Abasement have negative beta weights, Endurance a positive one, indicating that a combination of low scores on Order and Abasement and a high score on Endurance predict high Pre-MSASS scores.

In this section, a statistically significant F value for increase in RSQ will be considered practically significant only if it has a correspondingly statistically significant F value for Multiple RSQ. For example, in Table II, the F value of 4.95 for Step 3 indicates that the Increase in RSQ (.08) is significantly different from zero. If the corresponding F value (7.62) were not significant (in this case

it is), indicating that the Multiple RSQ does not differ significantly from zero, there would be practically no real value in having the third variable added.

Table III is a summary of the regression for EPPS variables on the Diff-MSASS for the total group.

Table III

N = 40

Summary Table for EPPS Scores for Total
Group on Diff-MSASS

Step #	Var #	Multiple R	Multiple RSQ	F Value (DF)	Increase in RSQ	F Value (DF)
1	8(SUC)	.34	.117	5.02(1, 38)*	.11	5.02(1, 38)*
2	11(NUR)	.46	.216	5.08(2, 37)*	.09	4.65(1, 37)*
3	10(ABA)	.53	.290	4.91(3, 36)*	.07	3.81(1, 36)
4	13(END)	.61	.383	5.42(4, 35)*	.09	5.22(1, 35)*
5	5(AUT)	.65	.432	5.17(3, 34)*	.05	2.96(1, 34)
6	7(INT)	.67	.449	4.48(6, 33)*	.01	1.01(1, 33)
7	14(HET)	.67	.460	3.89(7, 32)*	.01	0.64(1, 32)
8	1(ACH)	.69	.487	3.68(8, 31)*	.02	1.65(1, 31)
9	3(ORD)	.70	.499	3.31(9, 30)*	.01	0.68(1, 30)
10	12(CHO)	.71	.505	2.96(10, 29)*	.00	0.36(1, 29)
11	2(DEF)	.71	.507	2.12(11, 28)*	.00	0.13(1, 28)
12	15(AGG)	.71	.510	2.33(12, 27)*	.00	0.11(1, 27)
13	6(AFF)	.71	.510	2.08(13, 26)	.00	0.02(1, 26)

The variables not included in the table are exhibition and dominance.

They have been excluded because they did not add more than .001

to the increase in RSQ. This procedure of excluding variables from

regression tables if they do not add at least .001 will be followed throughout this section.

In Table III, the Multiple RSQ is significant (.05) down to the twelfth step, with about 51% of the variance accounted for. The F value for increase in RSQ is significant for Step 1 (Succorance) and Step 2 (Nurturance), is not significant for Step 3 (Abasement) but does reach significance again at Step 4 (Endurance). Succorance has a positive beta weight, Nurturance a negative one, Abasement a positive one, and Endurance a negative one, indicating the following combination of scores predicts a high Diff-MSASS score: high Succorance, low Nurturance, high Abasement, and low Endurance.

In Table IV, the correlation matrix for SVIB variables and Pre-MSASS and Diff-MSASS for males is presented. The data for the SVIB is presented by sex only because the inventory is really a different instrument for men and women and therefore scores cannot be combined. The small sample size of 17 and 23 respectively make interpretations of SVIB data very tentative.

Only two scales are significantly correlated with the Pre-MSASS measure at the .05 level, Cultural-Aesthetic and physical science. No SVIB scale is significantly related to Diff-MSASS. Social Science, which might be expected to correlate positively with both criteria measures, yields an $r = -.150$ for Pre-MSASS and $r = .140$ for Diff-MSASS.

Table IV

N = 17

Correlation Matrix for SVIB Variables and Pre-MSASS and Diff-MSASS for Males

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. BS	1.00	.76	.06	-.07	-.37	.24	-.19	-.69	-.72	.07	-.45	.28	.14
2. PS		1.00	-.11	-.32	-.91	.52	.07	-.71	-.67	.36	-.42	.50	.12
3. TS			1.00	.66	-.25	-.67	-.33	.23	-.01	-.79	.49	-.42	.31
4. TT				1.00	-.65	-.71	-.75	.40	.12	-.83	.20	-.25	-.00
5. SS					1.00	.38	.62	.04	.10	.38	.25	-.15	.14
6. CA						1.00	.33	-.62	-.58	.65	-.54	.58	.03
7. CPA-O							1.00	.10	.08	.50	.10	-.07	.15
8. B								1.00	.67	-.44	.65	-.34	.03
9. S									1.00	-.01	.51	-.30	-.27
10. VL										1.00	-.48	.33	-.29

Table IV continued

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
11. PMC											1.00	-.21	-.91
12. <u>Pre-MSASS</u>												1.00	
13. <u>Diff-MSASS</u>													1.00

Table V summarizes the regression analysis for the SVIB scales for males on the Pre-MSASS. The F value for Multiple RSQ is significant through the fifth step, with about 65% of the variance accounted for. The only F value for increase in RSQ which is significant is the first step, cultural-aesthetic. It is interesting to note that although the social science did not reach significance, it is the second variable entered despite the negative correlation with the dependent variable. This can be explained by the very high correlation between the first variable entered (cultural-aesthetic), and the variable with the second highest correlation (physical science) with the dependent variable.

Table V

N = 17

Summary Table for SVIB Scores for
Males on Pre-MSASS

Step #	Var #	Multiple R	RSQ	F Value (DF)	Increase in RSQ	F Value (DF)
1	6(CA)	.50	.25	5.22(1, 15)*	.258	5.22(1, 15)*
2	5(SS)	.63	.40	4.68(2, 14)*	.143	3.33(1, 14)
3	11(PMC)	.73	.54	5.21(3, 13)*	.145	4.16(1, 13)
4	10(VL)	.78	.61	4.77(4, 12)*	.069	2.11(1, 12)
5	7(CPA-0)	.80	.64	4.06(5, 11)*	.035	1.08(1, 11)
6	8(B)	.81	.65	3.17(6, 10)	.007	0.11(1, 10)
7	9(S)	.81	.67	2.61(7, 9)	.015	0.41(1, 9)
8	4(TS)	.82	.67	2.04(8, 8)	.054	0.04(1, 8)

Table VI summarizes the regression analysis for the SVIB scores for males on the Diff-MSASS. None of the F values for Multiple RSQ is significant, nor are any of the F values for the increase in RSQ. Social science, which could be expected to be an important variable of affective sensitivity (Diff-MSASS), is not even computed because it added less than .001 to the increase in RSQ.

Table VI

N = 17

Summary Table for SVIB Scores for
Males on Diff-MSASS

Step #	Var #	Multiple R RSQ		F Value (DF)	Increase in RSQ	F Value (DF)
1	3(TS)	.31	.09	1.62(1, 15)	.098	1.62(1, 15)
2	6(CA)	.45	.20	1.80(2, 14)	.107	1.89(1, 14)
3	8(B)	.50	.25	1.51(3, 13)	.054	0.94(1, 13)
4	1(BS)	.54	.30	1.28(4, 12)	.042	0.71(1, 12)
5	4(TT)	.57	.33	1.10(5, 11)	.034	0.55(1, 11)
6	10(VL)	.62	.38	1.06(6, 10)	.055	0.90(1, 10)
7	11(PMC)	.64	.41	0.89(7, 9)	.021	0.32(1, 9)
8	7(CPA-0)	.65	.42	0.72(8, 8)	.019	0.22(1, 8)
9	2(PS)	.71	.50	0.80(9, 7)	.012	0.10(1, 7)
10	9(S)	.71	.51	0.63(10, 6)	.006	0.07(1, 6)

Technical skills which is the single best predictor of the Diff-MSASS accounts for less than 10% of the variance, but technical skills and cultural-aesthetic combined account for over 20%. Cultural-aesthetic interest seems to be an important variable in predicting both initial level of MSASS as well as the ability to improve on MSASS. Despite

the lack of a single significant F value, knowledge of the 10 scales reported accounts for over 50% of the variance.

In Table VII, the correlation matrix for SVIB variables and Pre-MSASS and Diff-MSASS for females is presented. None of the scales is significantly correlated (at the .05 level) with Pre-MSASS; the only one which is even close is Non-professional (-.367). Only one variable is significantly correlated with Diff-MSASS; Military-Managerial has an $r = .453$. The social science area is virtually unrelated to both dependent variables: $r = .063$ for Pre-MSASS and $r = .048$ for Diff-MSASS. (See pp. 68-69 for Table VII).

Table VIII summarizes the regression analysis for SVIB scales for females on Pre-MSASS.

Table VIII

N = 23

Summary Table for SVIB Scores for
Females on Pre-MSASS

Step #	Var #	Multiple R	RSQ	F Value (DF)	Increase in RSQ	F Value (DF)
1	11(NP)	.36	.13	3.27(1, 21)	.13	3.27(1, 21)
2	5(VS)	.51	.26	3.55(2, 20)*	.12	3.44(1, 20)
3	1(MP)	.55	.30	2.82(3, 19)	.04	1.27(1, 19)
4	6(S)	.63	.39	2.95(4, 18)*	.08	2.27(1, 18)
5	2(HE)	.65	.42	2.48(5, 17)	.02	0.74(1, 17)
6	2(A)	.66	.44	2.15(6, 16)	.02	0.74(1, 16)
7	10(HR)	.71	.50	2.18(7, 15)	.06	0.73(1, 15)
8	3VL)	.73	.53	2.20(8, 14)	.03	0.96(1, 14)

Table VII

N = 23

Correlation Matrix for SVIB Variables and Pre-MSASS and Diff-MSASS Scores for Females

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. MP	1.00	.81	.66	.20	.62	-.48	-.04	-.12	-.42	-.66	-.69	.04	-.15
2. A		1.00	.58	-.16	.69	-.30	-.28	-.14	-.23	-.68	-.68	.01	-.16
3. VL			1.00	.05	.55	-.65	-.06	-.01	-.54	-.84	-.55	.24	-.17
4. SS				1.00	-.01	-.24	.50	.27	-.11	.07	-.01	.06	.04
5. VS					1.00	.02	-.26	-.29	-.36	-.51	-.76	.04	-.16
6. S						1.00	.13	.04	.22	.41	.13	-.21	.02
7. MM							1.00	.70	-.31	-.16	.22	-.21	.45
8. B								1.00	.07	-.23	.46	-.27	.09
9. HE									1.00	.65	.57	-.13	-.01
10. HR										1.00	.52	.08	.07

Table VII continued

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
11. NP											1.00	-.36	.26
12. Pre- <u>MSASS</u>												1.00	
13. Diff- <u>MSASS</u>													1.00

The first F value for Multiple RSQ (variable 11, non-professional) is not significant, indicating that it does not differ significantly from zero. The second F value for Multiple RSQ (variables 11 and 5, non-professional and verbal-scientific) is significantly different from zero. The third F value (variables 11, 5, and 1, non-professional, verbal scientific and music performance) is not significant. The fourth F value (variables, 11, 5, 1 and 6, non-professional, verbal scientific, music performance and scientific) again reaches significance. None of the other F values are significant, either for Multiple RSQ or increase in RSQ. It should be remembered that the first variable, non-professional, is negatively correlated with the criterion. After the fourth step (at the last significant F value for Multiple RSQ), about 40% of the variance was accounted for; all eight steps accounted for about 54% of the variance.

Table IX summarizes the regression analysis for SVIB scales for females on Diff-MSASS. All of the F values for Multiple RSQ are significant. With all variables entered, about 85% of the variance is accounted for. The F values for Increase in RSQ indicate the phenomena whereby adding one variable by itself does not yield a significant increase in RSQ, and even adding another does not yet yield a significant increase, but adding a third in addition to the first two, now yields a significant increase in RSQ. The significant F value for increase in RSQ through the ninth step in-

dicates that the following pattern predicts a high Diff-MSASS: High Military-Managerial, low Business, high Non-professional, high Art, low Social Science, high Verbal-Scientific, low Scientific, high Home Economics, and low Verbal-Linguistics.

Table IX

N = 23

Summary Table for SVIB Scores for Females on Diff-MSASS

Step #	Var #	Multiple R	RSQ	F Value (DF)	Increase in RSQ	F Value (DF)
1	7(MM)	.45	.20	5.42(1, 21)*	.20	5.42(1, 21)*
2	8(B)	.55	.30	4.36(2, 20)*	.09	2.82(1, 20)
3	11(NP)	.64	.41	4.56(3, 19)*	.11	3.76(1, 19)
4	2(A)	.76	.58	6.34(4, 18)*	.16	7.20(1, 18)*
5	4(SS)	.78	.61	5.36(5, 17)*	.02	1.17(1, 17)
6	5(VS)	.80	.64	4.76(6, 16)*	.02	1.30(1, 16)
7	6(S)	.82	.67	4.44(7, 15)*	.03	1.54(1, 15)
8	9(HE)	.87	.77	5.88(8, 14)*	.09	5.89(1, 14)*
9	3(VL)	.92	.84	7.94(9, 13)*	.07	6.36(1, 13)*
10	1(MP)	.92	.85	6.82(10, 12)*	.00	0.33(1, 12)
11	10(HR)	.92	.85	5.85(11, 11)*	.00	0.28(1, 11)

In Table X, the correlation matrix for MMPI variables and Pre-MSASS and Diff-MSASS is presented. None of the MMPI scales is significantly correlated with either dependent variable. The highest correlation with Pre-MSASS is -.228 for Depression: the highest correlation with Diff-MSASS is .184 for Mania.

Table X

N = 40

Correlation Matrix for MMPI Variables and Pre-MSASS and Diff-MSASS Scores for Total Group

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. HS	1.00	.56	.65	.20	.11	.50	.68	.69	.08	-.24	.04	-.17
2. D		1.00	.36	.18	-.05	.22	.45	.41	-.04	.27	-.22	-.08
3. HY			1.00	.56	.08	.39	.74	.68	.25	-.53	-.02	-.02
4. PD				1.00	.24	.11	.42	.46	.38	-.46	-.04	.03
5. MF					1.00	.10	.34	.37	.31	-.13	-.05	.04
6. PA						1.00	.50	.52	.34	-.34	.10	-.12
7. PT							1.00	.84	.19	-.39	-.06	-.01
8. SC								1.00	.30	-.44	.06	-.12
9. MA									1.00	-.44	-.07	.18
10. SI										1.00	-.15	-.06
11. Pre- <u>MSASS</u>											1.00	
12. Diff- <u>MSASS</u>												1.00

Table XI summarizes the regression analysis for the MMPI scales for the total group on the Pre-MSASS.

Table XI

N = 40

Summary Table for MMPI Scores for
Total Group on the Pre-MSASS

Step #	Var #	Multiple R	RSQ	F Value (DF)	Increase in RSQ	F Value (DF)
1	2(D)	.22	.05	2.08(1, 38)	.051	2.08(1, 38)
2	1(HS)	.31	.09	1.96(2, 37)	.044	1.81(1, 37)
3	9(MA)	.33	.10	1.47(2, 36)	.013	0.52(1, 36)
4	6(PA)	.34	.12	1.21(4, 35)	.013	0.49(1, 35)
5	7(PT)	.36	.13	1.04(5, 34)	.012	0.45(1, 34)
6	8(SC)	.42	.18	1.20(6, 33)	.147	1.87(1, 33)
7	5(MF)	.42	.18	1.03(7, 32)	.004	0.16(1, 32)
8	4(PD)	.43	.18	0.88(8, 31)	.001	0.04(1, 31)
9	3(HY)	.43	.18	0.76(9, 30)	.001	0.07(1, 30)

Variable 10 (Social Introversion) did not add .001 or more to increase in RSQ and therefore was not included in the table. None of the F values for Multiple RSQ was significant, nor were any of the F values for Increase in RSQ. The first variable entered (Depression) is negatively correlated with the criterion, suggesting that a low depression score predicts a high Pre-MSASS score. However, step 1 only accounts for about 5% of the variance and all nine steps only account for about 19% of the variance.

Table XII summarizes the regression analysis for MMPI scores

for the total group on the Diff-MSASS.

Table XII

N = 40

Summary Table for MMPI Scores for
Total Group on the Diff-MSASS

Step #	Var #	Multiple		F Value (DF)	Increase	F Value
		R	RSQ		in RSQ	(DF)
1	9(MA)	.18	.03	1.33(1, 38)	.034	1.33(1, 38)
2	6(PA)	.27	.07	1.46(2, 37)	.039	1.57(1, 37)
3	8(SC)	.29	.08	1.11(3, 36)	.012	0.45(1, 36)
4	7(PT)	.36	.13	1.30(4, 35)	.045	1.79(1, 35)
5	1(MS)	.37	.13	1.09(5, 34)	.010	0.37(1, 34)
6	4(PD)	.37	.14	0.90(6, 33)	.002	0.08(1, 33)
7	10(SC)	.37	.14	0.76(7, 32)	.002	0.08(1, 32)
8	2(D)	.38	.14	0.67(8, 31)	.004	0.15(1, 31)

The pattern here is basically the same as the regression on the Pre-MSASS. None of the F values for Multiple RSQ is significant, nor are any of the F values for Increase in RSQ. The first variable entered (Mania) is positively correlated with the criterion, indicating that a high score on MA predicts a high score on Diff-MSASS. The amount of variance accounted for, however, is only about 3% and all eight variables only account for about 15% of the variance. Variables 3(HY) and 5(MF) did not add .001 or more to increase in RSQ and therefore are not included in the table.

Table XIII contains the correlation matrix for the Wonderlic, Rokeach, Berkeley, Pre-MSASS and Diff-MSASS.

Table XIII

N = 40

Correlation Matrix for Wonderlic, Rokeach,
Berkeley, Pre-MSASS and Diff-MSASS

Variable	1	2	3	4	5
1. <u>Wonderlic</u>	1.000	0.042	-.073	.280	-.046
2. <u>RDS</u>		1.000	.556	.033	.290
3. <u>BOQ</u>			1.000	-.217	.021
4. <u>Pre-MSASS</u>				1.000	
5. <u>Diff-MSASS</u>					1.000

None of these measures is significantly correlated with either criterion measure. The measure of intelligence (Wonderlic) is positively related to Pre-MSASS, but virtually unrelated to Diff-MSASS and positively related to Diff-MSASS. The measure of tolerance for ambiguity (Berkeley) is negatively correlated with Pre-MSASS and virtually unrelated to Diff-MSASS. The only significant correlation is the entire table is between Rokeach and Berkeley (.556).

Table XIV summarizes the regression analysis for the Wonderlic, Rokeach, Berkeley for the total group on the Pre-MSASS.

Table XIV

N = 40

Summary Table for Wonderlic, RDS, and BPQ
for Total Group on Pre-MSASS

Step #	Var #	Multiple R	Multiple RSQ	F Value (DF)	Increase in RSQ	F Value (DF)
1	1(WON)	.28	.07	3.23(1, 38)	.07	3.23(1, 38)
2	3(BPQ)	.34	.11	2.45(2, 37)	.03	1.62(1, 37)
3	2(RDS)	.37	.14	1.99(3, 36)	.02	1.06(1, 36)

Again, none of the F values for Multiple RSQ is significant, nor are any of the F values for Increase in RSQ. The first variable entered, Wonderlic, has a positive correlation with the criteria, indicating that a high score on the Wonderlic predicts a high score on Pre-MSASS. The amount of variance accounted for is only about 7% and all three steps only account for about 14% of the variance.

Table XV summarizes the regression analysis for the Wonderlic, Rokeach, and Berkeley for the total group on the Diff-MSASS.

Table XV

N = 40

Summary Table for Wonderlic, RDS and
BPQ for Total Group on Diff-MSASS

Step #	Var #	Multiple R	Multiple RSQ	F Value (DF)	Increase in RSQ	F Value (DF)
1	2(RDS)	.29	.08	3.48(1, 38)	.08	3.48(1, 38)
2	1(WON)	.29	.08	1.76(2, 37)	.00	0.13(1, 37)
3	3(BPQ)	.30	.09	1.18(3, 36)	.00	0.10(1, 36)

None of the F values for Multiple RSQ is significant, nor are any of the F values for Increase in RSQ. The first variable entered (Rokeach) is positively correlated with the criterion variable, indicating that a high Dogmatism score predicts a high Diff-MSASS score. The amount of variance accounted for is only about 8% and all three steps only account for about 9% of the variance.

Table XVI is a summary table of the total amount of variance accounted for (Multiple RSQ) for each instrument and both criteria variables.

Table XVI

Summary Table of the Total Amount of
Variance Accounted for (Multiple RSQ) for Each
Instrument and Both Criteria Variables

	Pre- <u>MSASS</u>	Diff- <u>MSASS</u>
<u>EPPS</u> (N = 40)	.511	.510
<u>SVIB</u> (N = 17)	.673	.514
<u>SVIB</u> (N = 23)	.537	.854
<u>MMPI</u> (N = 40)	.187	.148
Others* (N = 40)	.143	.090

*Others = Rokeach, Berkeley and Wonderlic

The range of Multiple RSQ for the Pre-MSASS is .143 to .673 and the range for Diff-MSASS is .090 to .854. Three of the five

measures account for over half of the variance for both criteria measures. They are the EPPS and both subsamples of the SVIB (male and female). The SVIB was able to account for the largest amount of variance, despite its smaller sample size. The MMPI accounted for relatively little variance, .187 for Pre-MSASS and only .148 for Diff-MSASS. The Rokeach, Berkeley and Wonderlic (combined) did the poorest job of all the predictors, accounting for only .143 and .090 of the variance for Pre-MSASS and Diff-MSASS, respectively. Inspection of Table XVI shows the following pattern: if an instrument has good predictive power (half the variance, or more, accounted for) concerning the initial level of sensitivity (Pre-MSASS), it will also have good predictive power to the ability to improve on the affective sensitivity measure (Diff-MSASS), and conversely, if it has poor predictive power to the Pre-MSASS it will also have poor predictive power to the Diff-MSASS.

CHAPTER V

DISCUSSION OF RESULTS, SUMMARY AND IMPLICATIONS FOR FUTURE RESEARCH

Before discussing the results, a very brief summary of the present study is in order. The purposes of the study are to determine which interest, personality and ability factors are related to the ability to perceive accurately the affective state of another person and also to determine which variables are related to the ability to improve interpersonal perceptual skills. The study used a programmed text, the purpose of which was to help counseling trainees improve their ability to perceive affect accurately. A comprehensive testing battery was administered and correlations (and regressions) between test scores and measures of affective ability were computed. The relative ability of each instrument to predict the criteria was computed.

The procedure in this chapter will be the same as in the previous one: the EPPS will be discussed followed by the SVIB; then the MMPI, followed by Wonderlic, Rokeach, and Berkeley. Next the relative merits of each instrument will be noted. Finally, limitations and suggestions for further research will be cited.

A number of EPPS variables are significantly correlated with each dependent variable. For the Pre-MSASS, abasement, deference and change are significant at the .05 level. Abasement and def-

erence are both negative correlations; change is positive. If we are concerned with predicting individuals who come to our training program with initially high affective sensitivity, we seek persons who experience low levels of social impotence (high levels of social skills) and individuals who do not enjoy taking subordinate roles in individual relationships. It should be remembered that "not taking subordinate roles" is not quite the same as "taking leadership roles." Theoretically, on the EPPS, an individual can score high and/or low on both "deference" and "dominance." Being open to new experience and seeking novelty ("change") is also a good predictor of the Pre-MSASS.

The relationship between order (negative) and heterosexuality and the Pre-MSASS is even more certain (.01 level). That individuals who are concerned with meeting and being with members of the opposite sex should be good "person perceivers" is certainly no surprise: there is a great deal of overlap in these two abilities. The negative relationship between order and Pre-MSASS is somewhat confusing. One would think that the ability to place emphasis on having things in their place, on organization and neatness, would be an asset in terms of the criterion. This appears not to be true, however. It may be that order, at the high end of the scale, is more a compulsive factor, and individuals who exhibit high degrees of order become involved with some small aspect of the task, that they

"lose the forest for the trees."

The EPPS variables related to Diff-MSASS are: (1) Very different from the variables that predict the Pre-MSASS, indicating that the two criteria are, in fact, different abilities; (2) Difficult to reconcile with common sense. Why is a high score on "seeking emotional support from others (succorance), a low score on the ability to give emotional support to others (nurturance), a low score on the ability to stick with a task (endurance) and a low score on need to have numerous personal friendships (affiliations) related to the ability to improve one's interpersonal perceptual ability? Certainly the opposite profile would be more preferred, that is, low succorance, high nurturance, high endurance and high affiliation. The assumption which is being challenged here is "The ability to improve on a measure of interpersonal perception is a function of ego strength or good mental health." Under closer scrutiny the inability of this assumption to gain support should not be so surprising. The treatment in this study, the method by which trainees improved their MSASS scores, was a cognitive method. It involved learning and thinking, and certainly the mentally healthy do not have exclusive abilities in this area.

Concerning the general predictive power of EPPS, it appears to have much more merit for both the Pre-MSASS and Diff-MSASS than any of the other instruments. If the scores for an individual's

EPPS are available, one could reduce the uncertainty about both the Pre-MSASS and Diff-MSASS by more than 50%. Knowing only the scores on order, abasement and endurance accounts for almost 39% of the variance in the Pre-MSASS: knowing only the scores on succorance, nurturance, abasement and endurance accounts for the same. It is concluded that the EPPS has high predictive power concerning the Pre-MSASS and Diff-MSASS, although it must be used separately for each criterion. Its value as an instrument used in screening applicants for admission to graduate counseling programs is reinforced by the present study.

Any statements concerning the value of the SVIB in predicting the criteria are most tentative due to not being able to combine the scores of men and women. This results in small sample sizes, 17 for men and 23 for women. Although the multiple regression analysis is of questionable validity for that reason, the correlations between SVIB variables and the criteria are certainly valid. For men, cultural aesthetic and physical science interests were significantly correlated (at the .05 level) with the Pre-MSASS: no SVIB scores were significantly correlated with the Diff-MSASS. Cultural-aesthetic interest involves a sensitivity to beauty, harmony, etc. and although there is not a personal aspect to it, it comes as no surprise that the ability to be sensitive to beauty is highly correlated with the ability to be sensitive to people. The physical science

interest may be accounted for by the scrutiny to small detail: it may be that men who are interested in physical sciences do fairly well on the MSASS because they have been trained to study the entire organism in relation to its environment and are thus able to translate this ability to the MSASS.

For women, none of the scales is significantly correlated with the Pre-MSASS. The only score significantly correlated with Diff-MSASS is Military-Managerial. This finding is certainly opposite to expectations, which would have predicted Military-Managerial interests to be highly correlated with resistance to change, rather than the ability to change. Perhaps we need to broaden our stereotype of women who are interested in military and/or managerial positions.

The most important result concerning SVIB data is the lack of significance where it is expected. Certainly interest in the social sciences would be expected to be highly correlated with both criterion for both sexes, but for men, the correlations were -.150 and .140 for Pre-MSASS and Diff-MSASS, respectively. For women, the corresponding figures are .063 and .048. This result occurs despite the fact that the candidates took the SVIB knowing that it would be used (in some way) as part of a screening battery. From the other point of view, the "screening battery" aspect of the testing may in fact account for the lack of relationship between social science

interest and the criteria. Inspection of Table B in the appendix shows that for men social science was by far the highest group on the SVIB, and for women it was very close to the top. Further, for both groups, the standard deviation is quite low, indicating little variation in scores. It may be that the social science interest does not predict affective sensitivity and/or the ability to improve on it, not because it is in fact not related, but rather because most students see the obvious relationship between SVIB items and the overt and covert objectives of the department to which they are applying.

The MMPI, as an instrument used to predict the criterion, is almost useless. None of the ten variables is significantly related to either dependent variable at the .05 level, a result which is not even as good as chance (we would expect one out of twenty to be significant at the .05 level by chance alone). This study does not find evidence against the belief that good mental health is related to the ability to perceive accurately, but neither does it find evidence supporting that contention. At any rate, the MMPI has virtually no value in predicting the criteria.

As poor a predictor as the MMPI is, the "others" are poorer yet. The correlations between the Wonderlic, Rokeach, and Berkeley and both criteria are all insignificant. Again, this study has not found evidence that intellectual ability, open-mindedness,

and/or tolerance for ambiguity are liabilities in terms of perceptual ability, but it has failed to support the contention that these traits are good predictors of affective sensitivity.

To summarize this section briefly: The SVIB, MMPI, Rokeach Berkeley and Wonderlic all have virtually no predictive ability concerning the Pre-MSASS. The EPPS has fair to good predictive ability. Different combinations of scales predict well each criteria: for the Pre-MSASS we look for low abasement, low deference and high change, while for the Diff-MSASS we seek high succorance, low nurturance, low endurance and low affiliation.

Implications for Future Research

The major limitations of the present study lies in its basically descriptive nature; even if high correlations had been found to exist between the personality and interest variables and the criteria, the best that could be said is that the variables are related, but few if any statements could have been made about causation. On the other hand, the lack of significant correlations, where one expects to find them, can be of high practical significance in the sense that it fails to confirm previous research results. This study has failed to confirm the traditional relationship between interests, mental health, open-mindedness, tolerance for ambiguity and ability and two specific measures of affective sensitivity. One ob-

vious explanation lies in the choice of criteria. Affective sensitivity and the ability to improve on affective sensitivity are closely related to "counselor effectiveness" and other, commonly used criteria, but they are not the same! To the extent that they are different we should not be surprised at the lack of corresponding significance.

One of the methodological problems of the present study should be corrected in future research in this area. The treatment (Bullmer's text) was approximately one week, but experience with the instrument since the research was completed suggests that the optimal amount of time necessary to completely learn and personally integrate the concepts is about one week per chapter or about six weeks. This effects the criterion of ability to improve and does not concern itself with initial level of affective sensitivity. If the subjects had had six weeks with the treatment instead of just one, I believe that: (1) The treatment would have been more effective; and (2) More significant correlations would have been evidenced. As with most studies of this nature a larger sample size also would have provided more confidence in the statistical procedures and results.

Future research will hopefully: (1) Check the validity of the assumptions referred to on p. 52; (2) Increase the sample size; (3) Vary the length of exposure to treatment. For example, one group could receive only one chapter per week. Another group

could have access to the entire treatment at the beginning and work at their own pace, and perhaps another group could receive a combination of human relations training, 2-3 days of intensive academic work (Bullmer text) and personal processing and personalizing the Bullmer content; and (4) Use other predictor variables.

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APPENDIX A

MEANS AND STANDARD DEVIATIONS FOR MALES, FEMALES AND TOTAL GROUP ON THE EPPS

Variable	Males N = 17		Females N = 23		Total N = 40	
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD
1. (ACH)	54.23	31.60	52.13	27.66	53.04	29.02
2. (DEF)	29.82	29.81	29.52	27.46	29.64	28.11
3. (ORD)	24.76	24.17	21.86	22.03	23.09	22.71
4. (EXH)	56.41	25.68	72.95	18.31	65.92	22.98
5. (AUT)	56.70	27.30	64.69	25.71	61.29	26.36
6. (AFF)	53.11	28.01	50.08	29.92	51.37	28.80
7. (INT)	74.29	31.92	75.17	26.28	74.79	28.42
8. (SUC)	50.94	28.87	51.47	30.54	51.25	28.30
9. (DOM)	63.94	26.82	72.56	21.70	68.89	24.07
10. (ABA)	30.52	21.43	21.21	24.51	25.17	23.43
11. (NUR)	53.05	28.10	32.26	24.79	41.09	27.91
12. (CHG)	72.05	28.32	70.21	31.31	71.00	29.71
13. (END)	31.58	29.75	26.65	27.20	28.75	28.05
14. (HET)	68.17	19.90	84.34	13.66	77.47	18.26
15. (AGG)	54.47	23.00	51.00	28.74	52.47	26.19

APPENDIX B

MEANS AND STANDARD DEVIATIONS FOR
MALES AND FEMALES ON THE SVIB

Variable	Males N = 17		Variable	Female N = 23	
	\bar{X}	SD		\bar{X}	SD
1. (BS)	27.29	7.18	1. (MP)	28.17	7.72
2. (PS)	11.35	6.91	2. (A)	17.91	10.03
3. (TS)	28.29	9.08	3. (VL)	33.30	8.56
4. (TT)	19.88	6.12	4. (SS)	35.00	5.88
5. (SS)	42.70	6.27	5. (VS)	24.73	7.86
6. (CA)	32.11	7.54	6. (S)	20.13	7.09
7. (CPA-O)	24.94	9.99	7. (MM)	31.86	5.62
8. (B)	21.41	8.03	8. (B)	22.78	5.19
9. (S)	30.05	7.94	9. (HE)	35.13	9.43
10. (VL)	29.58	7.27	10. (HR)	35.95	7.57
11. (P-MC)	14.64	6.16	11. (NP)	28.34	8.08

Males

Females

BS = Biological Science	MP = Music Performance
PS = Physical Science	A = Art
TS = Technical Supervision	VL = Verbal Linguistics
TT = Technical and Skilled Trades	SS = Social Service
SS = Social Service	VS = Verbal-Scientific
CA = Cultural Aesthetic	S = Scientific
CPA-O = Certified Public Accountant- Owner	MM = Military-Managerial
B = Business	B = Business
S = Sales	HE = Home Economics
VL = Verbal Linguistics	HR = Health Related
P-MC = President-Manufacturing Concern	NP = Nonprofessional

APPENDIX C

MEANS AND STANDARD DEVIATIONS ON THE MMPI FOR MALES, FEMALES AND TOTAL GROUP

Variable	Males N = 17		Females N = 23		Total N = 40	
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD
1. (HS)	51.00	4.33	48.78	4.20	49.72	4.34
2. (D)	46.23	7.66	45.78	4.22	45.97	5.85
3. (HY)	56.11	5.31	54.00	6.80	54.89	6.23
4. (PD)	57.76	8.60	54.52	6.76	55.89	7.67
5. (MF)	62.58	11.44	48.26*	8.96*	54.34*	12.26*
6. (PA)	54.58	7.64	53.08	7.51	53.72	7.51
7. (PT)	54.47	4.71	49.56	4.89	51.64	5.35
8. (SC)	56.41	6.80	50.86	5.65	53.22	6.68
9. (MA)	62.64	8.11	58.00	7.29	59.97	7.90
10. (SI)	41.05	6.03	43.86	7.81	42.67	7.16

*Note: For females, the MF score was converted by $(50 - x) + 50$ to make it equivalent to the male MF score.

APPENDIX D

MEANS AND STANDARD DEVIATIONS FOR THE WONDERLIC,
ROKEACH, AND BERKELEY FOR MALES, FEMALES AND TOTAL

Variable	Males		Females		Total	
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD
<u>Wonderlic</u>	28.411	6.073	30.173	6.102	29.424	6.075
<u>Rokeach</u>	-29.882	22.805	-28.086	24.977	-28.849	23.793
<u>Berkeley</u>	-68.647	32.182	-59.260	43.351	-63.250	38.822

APPENDIX E

AFFECTIVE SENSITIVITY SCALE

Instructions

You will be viewing short scenes of actual counseling sessions. You are to identify what feelings the clients have toward themselves and toward the counselors they are working with.

Although in any one scene a client may exhibit a variety of feelings, for the purpose of this instrument you are to concentrate on identifying his last feelings in the scene.

On the following pages are multiple choice items consisting of three responses each. Most scenes have two items, but a few have one or three items. After you view each scene, you are to read the items and ask yourself the following question:

If the client were to view this same scene, and if he were completely open and honest with himself, (i. e., if he could identify his real feelings) which of these three responses would he use to describe his feelings?

After you decide which response accurately describes what the client is actually feeling either about himself or the counselor he is with, indicate your choice on the answer sheet.

Here is a sample item:

CLIENT I

Scene I

Item 1

1. This exploring of my feelings is good. It makes me feel good.
 2. I feel very sad and unhappy.
 3. I'm groping and confused; I can't bring it all together.
-

After you had viewed Scene 1 for CLIENT I, you would read these

APPENDIX E continued

three statements (Item 1) and would then decide which one best states what the client would say about his own feelings after viewing the same scene. For example, if you decide number two best states what the client is feeling, you would then find the number 1 on your answer sheet and darken in the space for number two.

1. 1 ==== 2 3 ==== 4 ==== 5 ====

We will only make use of the first three answer spaces following each item on your answer sheet.

Remember you are to concentrate on the latter part of each scene in determining the most accurate description of the client's feelings.

After you view the appropriate scenes, you will have thirty seconds to answer each of the first twelve items. For each of the remaining items, you will be allowed twenty seconds.

CAUTION: The item numbers on your answer sheet go across the page, not down the page as you would usually expect!

APPENDIX F

t -TEST FOR PRE AND POST MSASS

A t-test (paired observation) for Pre-MSASS and Post-MSASS yielded the following results:

$$\bar{X}_{\text{pre}} = 33.87$$

$$\text{SD} = 6.43$$

$$\bar{X}_{\text{post}} = 36.92$$

$$\text{SD} = 6.59$$

$$\underline{t} = 3.7$$

For a two-tailed test, a value of 3.55 is needed for significance at the .001 level. Thus, the t value of 3.7 is significant at the .001 level.