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COGNITIVE STYLES
PSYCHOSOCIAL COMPETENCE

presented by

Sallie Annelle Norquist

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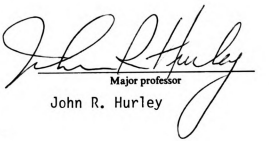

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COGNITIVE STYLES AND

PSYCHOSOCIAL COMPETENCE

By

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ABSTRACT

COGNITIVE STYLES AND
PSYCHOSOCIAL COMPETENCE

By

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This study investigated relationships between psychosocial competence and three aspects of cognitive style: cognitive complexity, perceptual accuracy, and field independence. Data were derived from 53 persons' ratings of self and peers' behavior within small groups of college students that met for about 50 hours during a 10-week period. Psychosocial competence was separately assessed by two methods: (a) the product of peers' mean ratings of each individual's within-group behaviors on measures of Acceptance versus Rejection of self and also of others; and (b) participants' direct interpersonal competence rank-orderings of self and all other members of their small group.

These two measures of psychosocial competence unexpectedly failed to correlate significantly, blurring the meaning of other outcomes. Participants' perceptual accuracy skills on the selected interpersonal variables proved difficult to assess confidently and the derived measures did not link significantly to either psychosocial competence indicator. Cognitive complexity did correlate significantly and positively with the ranking-based psychosocial competence measure, as hypothesized, but not to the rating-based similar measure. The latter, however, did link significantly, as predicted, to moderately low field independence scorers (Level II), while lower field independent persons (Level I) were rated the least competent psychosocially. Level III and IV field independence scorers were

rated intermediately for psychosocial competence. Unexpectedly, the most field independent (Level IV) quarter of this sample tended to be perceived as more psychosocially competent than the more moderately field independent (Level III) quarter, although this difference was not significant.

Notable interactions were observed among some variables. The most cognitively simple persons were perceptually more accurate in rating similarly classified individuals, as expected, but those more cognitively complex were not found significantly more accurate than others in their ratings of other cognitively complex persons. Also, field independence unexpectedly failed to link significantly with degree of acceptance of either self or of others. Albeit nonsignificantly, highly field independent (Level IV) persons tended to score higher in acceptance of both self and others than did their low field independent counterparts (Level I). Several issues of definition and methodology were discussed, but the persistent difficulty in achieving any reasonable consensus on a comprehensive and satisfactory definition for the elusive construct of psychosocial competence emerged as the salient problem.

To John

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INTRODUCTION

Interpersonal effectiveness appears essential for both the individual's psychological well-being and for societal stability. Deficits in the critical psychosocial skills needed to achieve personal goals have been long recognized as contributors to psychological impairment. Hospitalized psychiatric patients, for example, have been found impoverished in social achievement as compared to nonhospitalized individuals from the same socioeconomic strata (Zigler & Phillips, 1960, 1962). Furthermore, shorter institutionalization periods distinguished psychiatric patients who had demonstrated relatively adequate premorbid social functioning from those less adequate in premorbid social functioning (Zigler & Phillips, 1962). In his essay "Sense of Interpersonal Competence," White (1973) suggested that one factor contributing to schizophrenia is "a bad start in eliciting response from the human environment" (p. 522).

Adams (1964) highlighted the fact that the label "mental illness" is arbitrarily applied to certain types of maladaptive interpersonal behavior, or "patterns of conduct with 'symptoms' of a psychosocial rather than a medical nature" (p. 194). As he noted, the most effective "cures" for these illnesses are those which alter these maladaptive psychosocial acts toward greater moderation, versatility, appropriateness, and competence.

Despite the apparent importance of the construct of psychosocial competence for understanding both adaptive functioning and psychopathology, little empirical work has been done in this area. The present study is an investigation of the relationships between various cognitive styles and psychosocial competence. As Shure (1981) noted, psychosocial

competence can be addressed from the perspective of cognition since how one thinks dramatically affects one's actions (see also Ellis & Grieger, 1977). Three major cognitive style variables, cognitive complexity, perceptual accuracy, and field independence, have been selected from social and personality research for use in the current study. These variables offer promise for better understanding psychosocial competence. This work will explore their relationship to a rank-ordering measure of psychosocial competence, and to a pair of variables that have been jointly equated with psychosocial competence: the degree of self-acceptance (ARS) and the degree of other-acceptance (ARO). Derived from observations of individual's behavior during the course of interpersonally oriented groups, each variable's relative importance to psychosocial competence will be ascertained.

REVIEW OF THE LITERATURE

Definitions of Psychosocial Competence

Wine (1981) noted that competence models tend to take an optimistic view of human nature, seeing humans as growing, changing, and learning through interactions with the environment. As compared with the traditional defect-oriented medical model, competence models emphasize positive behaviors and capacities more than deficiencies and pathology. Competence models define the relationship between the individual and the environment as interdependent, fluid, and changeable. Interest in competence-based conceptualizations of human functioning has increased as the circle of critics of the traditional "medical model" approach (see for example, Benjamin, 1981) has grown.

One of the earliest known definitions of psychosocial competence was Socrates' view of competent individuals: "Those who manage well the circumstances they encounter daily, and who possess a judgement which is accurate in meeting occasions as they arise and rarely miss the expedient course of action." Doll (1953), in *The Measurement of Social Competence,* gave a more succinct definition: "the functional ability of the human organism for exercising personal independence and social responsibility" (p. 2).

Three different approaches to the definition of competence were delineated by Goldfried and D'Zurilla (1969). The first was to define competence as the sum total of an individual's social achievements and accomplishments in such areas as education, occupation, marriage, and social activities. In line with this approach, Lanyon (1967) considered college students as socially competent "to the extent that their backgrounds and present lives showed behaviors

or characteristics which indicated social participation, interpersonal competence, achievement, and environmental mastery" (p. 495). The difficulty of this approach is that it is influenced by various external factors, such as availability of money, social prestige, etc. It also leaves unanswered the question of how these social accomplishments have been achieved.

A more operational approach to the conceptualization of competence was referred to by Goldfried and D'Zurilla as the "behavioral-environment interactions associated with effective functioning." In this regard they described three aspects of competence that were reported by Gladwin (1967) at a National Institute of Mental Health (NIMH) conference: (a) the ability to reach a given goal using a variety of pathways, (b) the ability to move within and use the resources offered by a variety of social systems, and (c) effective reality testing. The latter was defined as "not merely the lack of psychopathological impairment, but also a positive, broad, and sophisticated understanding of the world" (p. 32). Goldfried and D'Zurilla summarized the second approach in terms of the individual's "effective response." An effective response was further defined as "a pattern of responses to a problematic situation which alters the situation so that it is no longer problematical, and at the same time produces a maximum of other positive consequences and a minimum of negative ones" (p. 158).

The second approach (i. e., effective functioning) has been more recently defined. Meichenbaum, Butler, and Gruson (1981) presented a model of psychosocial competence which encompassed "the individual's meaning system, overt behavior, and cognitive processes in continuous interaction with one another and the social environment" (p. 55). The authors viewed this entire chain of events as a summary of the construct of psychosocial competence.

Personality Correlates of Psychosocial Competence

The final approach to the definition of competence outlined by Goldfried and D'Zurilla, and that which is most relevant for the current study, focused upon the attitudes, motives, personality dynamics, and traits which are the presumed internal antecedents of psychosocial competence. Thus, Foote and Cottrell (1955) regarded autonomy, creativity, empathy, health, intelligence, and judgement to be the essential elements of psychosocial competence. Eisler and Frederiksen (1980) cited early models of interpersonal functioning as postulating traits such as empathy, emotional stability, maturity, and needs for affiliation or affection as forces motivating positive interpersonal functioning. Unsuccessful social functioning by contrast, was associated with traits such as introversion, neuroticism, and dependency.

In 1963, Gorden developed a 90-item measure of interpersonal value orientation, called the *Gorden Survey of Interpersonal Values*. In this measure he defined the psychosocially competent as those who scored above the 60th percentile on Independence, Benevolence, and Leadership, but below the 40th percentile on Conformity, Recognition, and Support. Wine (1981) asserted that psychosocial competence definitions should reflect female subcultural values such as interpersonal sensitivity, altruism, and concern for communal good, thereby taking advantage of women's greater individual and historical experience in the interpersonal realm.

In a study of the antecedents of optimal psychological adjustment, Siegelman, Block, Block, and Lippe (1970) considered the following Q-Sort items to be among the most positively defining: has the capacity for close interpersonal relationships, is socially perceptive of a wide range of interpersonal relationships, appears straightforward, forthright, candid in dealings with others, behaves in a sympathetic or considerate manner,

is compassionate, has warmth, and does not have a lot of hostility toward others. The psychosocial nature of the content of those items suggests a positive relationship between psychosocial competence and optimal psychological adjustment.

One's personal orientation may effect the capability to be psychosocially competent, according to Weinstein (1969). Rigidity or rule-boundedness was one such orientation. Rigidity interferes with psychosocial competence by resulting in a reluctance to supercede the boundaries of the roles one had learned earlier when these roles are no longer effective. Rigidity in certain aspects of one's self-concept may also interfere with competence, for example, when one refuses to ask for assistance because s/he can't bear to be in the position of needing something from someone else. Ironically, Machiavellianism is another orientation suggested as associated with psychosocial competence, according to empirical evidence (Singer, 1964). There are many situations where the willingness to use whatever tactics the situation may require to meet short range goals serves the Machiavellian well in achieving her or his personal ends through social effectiveness. However, this does not mean that in the long run a Machiavellian would be judged as psychosocially competent.

Broader dispositional factors may also influence motivation for psychosocial competence. An internal locus of control would theoretically lead to high motivation for psychosocial competence, in that one would see oneself as capable of having an effect upon the environment. Motivation for achievement through psychosocial competence is reduced to the extent that one is alienated, has an external locus of control, and is oriented toward avoiding failure rather than maximizing success.

Bergin and Garfield (1971) listed the following skills as beneficial to any human interaction: an accurate and sensitive awareness of another person's feelings, aspirations,

values, beliefs, and perceptions, a deep concern for the other person's welfare (without being dominating), and an open, nondefensive, genuine being. According to Weinstein, the ability to take the role of the other accurately, that is, being able to ""correctly predict the impact that various lines of action will have on alter's definition of the situation" (p. 757), is pivotal in psychosocial competence. In other words, psychosocial competence requires empathy.

Empathy and Psychosocial Competence

What are the characteristics of the effective empathizer? Katz (1963) saw the qualities of the good empathizer as similar in many respects to the qualities of the gifted artist. In both there is a "need to involve the emotions, to relax conscious controls, and to permit oneself to be projected onto other objects" (p. 135). He described good empathizers as having an easy and natural appreciation for nuances of feelings in others, being capable of disengaging from their identifications with others, and having flexible ego bounderies. The latter allow the empathizer to alternate between empathic experience and reflective analysis of these experiences. Exercising the above abilities requires a sense of inner security on the part of the effective empathizer. This is derived from a sense of self-acceptance, and allows for feelings of warmth and acceptance towards others. Indeed, acceptance and respect for the other was considered by Katz to be the mark of the good empathizer.

Rothenberg (1970) noted that a positive relationship has often been found between social sensitivity and social adjustment, suggesting that "an understanding of others' feelings towards oneself as well as the reasons for these feelings, are crutial for the development of good interpersonal relations" (p. 336). Smith's (1973) book on training individuals to be

"sensitive" to others defined sensitivity as "the empirical understanding of other people as measured by predictive accuracy" (pp. 9-10). Based partially on others' analyses of the components of sensitivity, Smith identified four constituent abilities. "The ability to look at and listen to another person and remember what s/he looked like and said" (p. 24) was termed Observational Senstivity. Theoretical Sensitivity was defined as the ability to "select and use theories to make more accurate predictions about others" (p. 24). Smith pointed out that sensitivity trainees often used theoretical concepts to interpret a situation to the point of neglecting to carefully observe the facts. The third sensitivity component outlined by Smith was sensitivity to the generalized other (Nomothetic Sensitivity). This involved the ability to "learn about the typical members of a group and to use the knowledge in making more accurate predictions about individuals in that group" (p. 25). Idiographic Sensitivity was the final component and required being able to make increasingly accurate predictions about an individual as one's exposure to and information about the target person increased. Less is known about this component than any other, as few researchers in this area have exposed their subjects to the target person for even one hour. The proposed study will seek individuals' judgements about group colleagues after interacting with them for over 40 hours.

Weinstein (1969) listed several capacities underlying empathy. These were cue sensitivity, perceptual vigilance, and role-taking accuracy. Role-taking accuracy involved the ability to entertain multiple perspectives simultaneously, and required abstract skills that have generally been considered a central component of intelligence.

Current Definition of Psychosocial Competence

If the preceding discussion leaves the reader uncertain of the nature of psychosocial

competence, it is for the simple reason that there is little consensus as to exactly how to define it. After 15 years of experience utilizing the social competence construct, Zigler acknowledged, "it is with the knowledge that has accrued from all these efforts, and with a recognition of their inconsistencies, that we say that we know of no rigorous or even mildly satisfying definition of the construct of the term 'social competence'" (Zigler & Trickett, 1978, p. 794).

Gibb (1964) asserted that "a person learns to grow through his increasing acceptance of himself and others" (p.279). The importance of acceptance of self and other has been noted by others as well. In fact, several investigators (Adams, 1964; Argyris, 1962; Foa, 1961; Hurley, 1976a) have suggested that psychosocial competence is born of the acceptance of both oneself and others. This is the definition that will be used in the current study. As Argyris (1962) noted, an understanding of psychosocial competence requires examining the nature of interpersonal relationships. In systematically presenting this viewpoint, he provided the following postulates:

1) "A basic need of man is to increase his sense of self-acceptance and acceptance of others" (p. 20).
2) "Acceptance is intimately related to awareness, because... we will not tend to perceive that behavior that threatens our self" (p. 19).
3) Therefore, "Awareness and acceptance of self and others are hard to separate" (p. 20).
4) Psychosocial competence tends to increase as individuals "are aware of their impact upon others, and others' impact upon them" (p. 26).

Thus, Argyris suggested that competence stems from a sense of self-acceptance

and acceptance of others. Relatedly, he stated that human growth toward more meaningful relationships is increased to the extent that self-awareness and acceptance of others takes place in any interpersonal relationship.

Other researchers in this field have offered similar conceptualizations. Tyler's three-faceted hierarchical competence configuration model of psychosocial functioning consisted of self-attitudes, world attitudes, and relevant behavioral attributes (Tyler & Getz, 1977). The self-attitude component was similar to acceptance of self, as it involved maintaining a favorable self-evaluation and a "sense that one is causally important in one's own life" (p. 442). Constructive interaction with others involved sustaining a world attitude of basic optimistic trust, which seems akin to acceptance of others. The third facet of Tyler's model was less relevant. It involved behavioral attributes "that serve as organizing, implementing, and fulfilling components" (p. 442).

The appropriateness of self-acceptance and other-acceptance as measures of psychosocial competence was also suggested by Foa (1961). He observed that an "interpersonal act is an attempt to establish the emotional relationship of the actor toward himself and toward the other, as well as to establish the social relationship of the self and the other with respect to a larger reference group" (p. 350) and "the same act states the position of the actor toward the self and toward the other" (p. 350).

The centrality of acceptance of self and acceptance of other to both healthy and maladapted psychosocial behavior has been indicated in a number of studies. Foa (1961) summarized these studies with the statement that the findings "suggest a circumplex around the two orthogonal axes of Dominance-Submission and Affection-Hostility" (p. 352). Adams (1964) added that "The Dominance-Submission axis defines the degree of acceptance or

rejection of self, while the Affection-Hostility axis defines the degree of acceptance or rejection of the other." Thus, "an interpersonal act may be regarded as the Cartesian product of these two sets of values" (p. 195).

The acceptance/ rejection of self (ARS) and acceptance/ rejection of others (ARO) scales used in the current investigation were developed based upon the above evidence (Hurley, 1976a). Psychosocial competence, or acceptance/ rejection of self and others will be assessed in the current investigation within the context of small undergraduate interpersonally oriented groups. This context is well suited for the current investigation in that the group members rate each other on ARS and ARO after more than 40 hours of actual interaction with each other in a group atmosphere which has as one of its primary goals the further development of psychosocial skills.

Cognitive Aspects of Psychosocial Behavior

Given the viewpoint that psychosocial competence can be defined as acceptance of self and other, what are the salient cognitive aspects of psychosocial behavior? In considering the structure of cognitive abilities, Feffer (1966) extended Piaget's concept of "decentering". His interpretation of this concept in the psychosocial domain led to the hypothesis that "effective social interaction is a function of each participating individual's ability to consider (her/his) behavior from more than one perspective simultaneously" (p. 415). He found empirical support for this view using the Role Taking Task (RTT). This seems related to the role-taking capacity earlier mentioned as underlying empathy.

As pointed out by Van Maanen (1979), psychosocial capacity refers to an individual's ability "to engage in social intercourse and, therefore, to potentially share meanings with

others" (p. 25). He delineated three primary mental capacities similar to structural properties of the mind, which allow one to perform effectively in interpersonal interactions. The first was the capacity to produce temporal frameworks. This involved the abilities to recall the past, to be aware of the present, and to plan for the future. The ability to categorize experience was the second underlying mental capacity. This was seen as necessary for recognizing, classifying, and understanding one's experiences. The last set of psychosocial capacities described by Van Maanen is that of interpretive procedures, referring to the mind's ability to construct, interpret, and understand on-going social interaction.

As noted by Zajonk (1968), in social psychology it is the cognitive representation of social stimuli, rather than their objective properties that are assumed to be most important. The characteristic ways that individuals conceptually organize the environment have been referred to by Goldstein and Blackman (1978) as cognitive styles. From this point of view an individual's environment takes on psychological meaning depending on how s/he filters and processes the available objective stimuli. An emphasis on the structure, rather than upon the content of thought, is common to the numerous theories and research endeavors on cognitive style. One of the most prominent of these theories has been Harvey, Hunt, and Schroder's (1961) theory of Integrative Complexity.

Concepts are of prime importance in the theory of Integrative Complexity. A concept is defined as a "schema for evaluating impinging stimulus objects or events" (p. 10), and as such provides a medium through which the individual relates to the surrounding world. The development and functioning of the self is assumed to be inseparable from the development and functioning of a concept. Concepts are seen as on a continuum ranging from concrete to abstract. Individuals can be ordered on this continuum according to their ability to

differentiate and integrate information. Those that function more concretely are more absolutistic and stereotypical in their cognitive processes and responses. Conceptualizing for them is more in terms of black and white or, at most, a minimum of alternatives. As development proceeds toward the abstract end of the continuum, the individual's psychological functioning moves away from concrete functioning toward a stronger differentiation between the self and the social environment, to the development of empathy, and, ultimately, to a balance of affiliative and independent tendencies (i.e., acceptance of self and others).

Personal construct psychology, founded by Kelly (1955), is similar to Harvey, Hunt, and Schroder's theory in that both regard the individual's conceptual organization as a means of understanding personality. These theories differ in that Kelly emphasized the importance of the *content* (Zajonc, 1968) of construal systems, whereas Harvey, Hunt, and Schroder emphasized the *structural* features. Kelly viewed individuals as creators of meaning through taking an active role in the perception, construal, and interpretation of the world around them. His fundamental postulate was that "a person's processes are psychologically channelized by the ways in which he anticipates events" (1955, p. 46). Three principles derived from this postulate have been pertinent to psychosocial relations. The Individuality Corollary asserted that "persons differ from each other in their constructions of events" (1955, p. 12). The Commonality Corollary stated "to the extent that one person employs a construction of experience which is similar to that employed by another, his psychological processes are similar to those of the other person" (Kelly, 1970, p. 20). The third psychosocially relevant principle has been the Sociality Corollary, stipulating that "to the extent that one person construes the construction processes of another, he may play a role in a social process involving the other person" (Kelly, 1970, p.

22). Research on these corollaries has included investigations of how individuals make inferences about other's constructs as a basis for effective communication and mutual understanding, of ways in which we organize information about our social environment, and of the role of similarities between persons (in terms of the content of their personal construct systems) in the development of interpersonal relationships.

From the standpoint of personal construct theory, social development entails systematic changes in the structure and content of an individual's construct system. This involves progressive increases in the number of constructs that an individual uses to describe others (i.e., an increase in complexity) and "is accompanied by a gradual shift of emphasis from primary concern with appearance, social roles, and behavior, to a predominant interest in personality" (Adams-Webber, 1979, p. 200). This seems to reflect a general progression from seeing others mainly in terms of stereotypes, to a more differentiated and individuated view of them as persons (Duck, cited in Adams-Webber, 1979).

A similar view was proposed by Werner (1957). He viewed cognitive development as a process of advancing "from a state of relative globality and lack of differentiation to a state of increasing differentiation, articulation, and hierarchic integration" (p. 127). Thus, maturation was defined as a progression from simple to complex. In terms of coping with the social environment, one's success seems to be in a large part determined by the differentiation (or complexity) of one's cognitive representation of that environment (Zajonc, 1968).

Cognitive Complexity

The concept of cognitive complexity-simplicity was introduced by Bieri (1955)

shortly after the publication of Kelly's *The Psychology of Personal Constructs* (1955). Bieri defined complexity in terms of the relative number of constructs (i.e., differentiation) in an individual's construct system. A more recent definition referred to cognitive complexity as "the number and interrelatedness of rules or schema used for discriminating, encoding, and retrieving information about the social environment" (Bruch, Heisler, & Conroy, 1981). Bieri's method of appraising degree of complexity was derived from Kelly's Role Construct Repertory Test. Essentially, Bieri's method consisted of a matrix or grid on which the subject was asked to name specific persons in her/his life and to rate these individuals on various subjectively generated construct dimensions (e.g., outgoing-shy, adjusted-maladjusted, etc.). Many alternate measures of cognitive complexity have been proposed since Bieri's initial conceptualization. These have included Crockett's Role Category Questionnaire (1965), Carr's Interpersonal Discrimination Task (1980), and Smith and Leach's (1972) hierarchical clustering technique.

Subsequent research has found cognitive complexity to be an important variable in sophisticated psychological functioning. This seems logical, considering that the more cognitively differentiated individual is assumed to have a greater number of dimensions with which to construe the behavior of others. Carr (1980) found that cognitively complex judges made finer interpersonal discriminations. He also reported several studies relating success of social interaction to the degree of compatibility in level of cognitive complexity. Bruch, Heisler, and Conroy (1981) found that women high in cognitive complexity were more assertive in difficult situations and also expressed consideration of the needs of others more often. Sechrist and Jackson (1961) reported a .54 correlation between measures of cognitive complexity and social intelligence.

Cognitive complexity's position within the nomological network has been repeatedly questioned. It has also been questioned as to whether it is relatively stable over time and different stimulus domains (i.e., whether it is a trait). Crockett (1965) asserted that complexity is specific to a particular cognitive domain, while Bieri (1956) provided some evidence of its generality, using both personal and nonpersonal stimuli. Little universality was found by Vannoy (1965) in a study considering 15 potential cognitive complexity measures. More recently, after a review of relevent studies, Goldstein and Blackman (1979) concluded that cognitive complexity scores seemed to be similar across different stimulus domains, but that environmental factors may modify complexity.

One of the major difficulties in cognitive complexity research has been the lack of significant linkages among different complexity measures, and uncertainties about what measures are the most meaningful. In addressing this issue, O'Keefe and Sypher (1981) reviewed research relevant to the evaluation of various complexity measures on the basis of five criteria; high test-retest reliability, association with chronological age across childhood and adolescence, independence from verbal abilites and intelligence, associations with other social-cognitive measures, and associations with other measures of communicative functioning. The two complexity measures used most often have been Bieri's modification of the Rep Test and Crockett's Role Category Questionnaire (RCQ). Research to date indicates that Crockett's RCQ has been satisfactory on the five criteria named above. Bieri's measure, on the other hand, related nonlinearly to age, often had a low test-retest reliability, associated inconsistently with other measures of social-cognitive functioning, and had not been positively associated with high comunicative functioning.

In the present study cognitive complexity will be measured by Crockett's RCQ.

Reckman (1977) found it positively related to social competence as measured by frequency of involvement in social activities, competence in generating interpersoanl action plans, and comfort and satisfaction with peer relationships. In the same study Bieri's measure did not correlate with social competence.

Perceptual Accuracy

Perceptual accuracy, presently defined as the ability to judge others' attributes in relation to others' self-report, is the next variable selected for the study. It should be emphasized here that raters were asked to rate others according to how the raters saw them, rather then according to the rater's prediction of how the ratee would rate her/himself. The criterion for judging accuracy was the degree of agreement between the ratings given by the raters, and the ratee's self-ratings.

The relationship between perceptual accuracy and psychosocial competence seems unexplored. Although person perception was heavily investigated for some time in social psychology, disparate methodologies and artifactual influences produced equivocal, often conflicting, findings (see Filak, 1982 for a review). Nevertheless, perceptual accuracy has emerged as an important psychosocial variable in non-analogue research on extended relationships. For instance, Lucky (1960) found congruence of spouses' perceptions, or perceptual accuracy between spouses to be related to marital satisfaction. Relatedly, therapist's perceptual accuracy of various client personality and symptom indices at the conclusion of psychotherapy was found by several researchers to be related to the success of treatment (Cartwright & Lerner, 1963; Filak & Abeles, 1983; Schrier, 1953).

Based on previous research, it appears likely that perceptual accuracy is not

exclusively a cognitive variable. Rather, the degree of perceptual accuracy in an interpersonal relationship is likely to reflect the quality of that relationship (Filak & Abeles, 1983; Lucky, 1960). In other words, a person's relative degree of accuracy in judging others is likely to reflect that person's sensitivity and attunement to these others, and hence the quality of involvement with others. Perceptual accuracy, therefore, is likely to be useful in assessing participant's adjustment and adaptation to an interpersonally-oriented group. It is hypothesized that participant's perceptual accuracy scores will be positively related to their rated psychosocial competence scores. Interactions between psychosocial competence and perceptual accuracy seems likely, since psychosocial competence is likely to lead to greater perceptual accuracy, but also, greater perceptual accuracy would likely lead to positive feedback from others. This could lead to increased self-esteem and hence increases in self and others' views of one's psychosocial competence.

Methodological considerations are critical in the investigation of perceptual accuracy (Filak & Abeles, 1983). The type of accuracy task, the nature of the task, the type of the person being judged, and the criteria for judging accuracy are all important variables in perceptual accuracy research. Other variables, such as the nature of the relationship and its duration before the accuracy task is given are also influential.

Conceptual versus predictive accuracy have been the two major types of approaches to person perception research. These approaches reflect distinct cognitive operations (Fancher, 1967; Taft, 1955). In the conceptualization approach, the individual is asked to subjectively formulate her/his view of another. The predictive approach, on the other hand, requires that a person try to predict how another would behave, perform, or judge him or herself. The relative importance of each of these variables to psychosocial contexts is not

known, however, the conceptualization approach has been posited to be the more meaningful exercise (Filak, 1982). It is freer of methodological artifacts found in predictor tasks, such as the degree of similarity between the perceiver and perceived (Cronbach, 1955). In the current study, the conceptualization approach is utilized. "Perceptual accuracy" is the term used to refer to scores related to this approach, since the perceiver uses her or his own senses in appraising others.

The nature of the selected task is the judging of personality attributes of others, and the sample involves "normal" college students. Both the perceived individual's self-ratings and her/his ratings of how s/he thinks s/he is seen by others will be the criteria for judging accuracy. Both types of self-ratings are included to explore the relationship between them. Validity for the use of individual's self-report of personality for the criteria for judging accuracy has been found by several researchers (Giedt, 1958; Gottman & Markman, 1978; Markowsky, 1979; Mischel, 1972). Finally, accuracy at the beginning of a relationship has been found to be unimportant to psychotherapy outcome, whereas accuracy in the later part of therapy relationships has been found relevent (Cartwright & Lerner, 1963; Filak & Abeles, 1983; Kurtz & Grummon, 1972). Accordingly, the perceptual accuracy tasks in this study will be given near the end of the 40-hour group experience.

Some research has been done on the relationship between cognitive complexity and the accuracy of perception , but the results seem inconclusive (see Goldstein & Blackman, 1978, for a review). Theoretical predictions based on this research would be difficult because of the different measures of perceptual accuracy and cognitive complexity used in these studies. After a consideration of the final cognitive variable, field dependence, a

model will be proposed to anticipate the relationship between all of the variables in the current study.

Field Independence

The concept of field independence arose from studies of perception of the upright dating back to 1942 (Witkin & Goodenough, 1981). On the basis of large individual differences in perception, Witkin differentiated between persons dependent on the structure of the prevailing visual field (i.e., field dependent) and those who overcame the organization of the field by dealing with it analytically (i.e., field independent). In time, these individual tendencies toward field dependence and field independence were found related to intellectual activities, specifically, a global versus analytical (or articulated) cognitive style. The assumption of field independence as a cognitive style has recently been questioned by McKenna (1984), also by Widiger, Knudson, and Rorer (1980). Using factor analysis, the latter researchers obtained results best interpreted as indicating that the present field dependence-independence measures appraise *ability* rather than cognitive style. As yet, field dependence-independence measures are still commonly cited as indicators of cognitive style.

The concept of psychological differentiation was introduced after global versus articulated differences were found to be related to individual differences in body concept, in the nature of the self, and in the controls and defenses used most often. More differentiated organizations were postulated to show "greater self-nonself segregation, signifying definite boundaries between an inner core of attributes, feelings, and needs identified as the self on the one hand, and the outer world, on the other hand, particularly other people" (Witkin,

Goodenough & Oltman, 1979, p. 1127). A greater connectedness between self and others was characteristic of a less differentiated system.

Persons with a more differentiated, or field independent, mode of cognitive functioning have been found more autonomous in social-interpersonal situations, to have a well developed sense of personal identity, to use specialized defenses (such as isolation, intellectualization, and projection) and to show greater regulation of affective discharge and motor activity. Field dependent individuals, on the other hand, rely more on external means for defining themselves, have a more open, interpersonal orientation, use less specialized defenses (such as repression and denial), and show more diffuse anxiety and impulsivity (Witkin, Goodenough, & Ottman, 1979).

Many researchers have probed relationships of field dependence to interpersonal or psychosocial behavior. Reviewing these findings, Witkin and Goodenough (1977) noted that there are marked psychosocial behavior differences between field dependent and field independent persons. Field dependent people are more attentive to social cues, have a more interpersonal orientation, prefer closeness to others, self-disclose more, have greater eye-contact with others, are more open emotionally, and tend to evaluate others more positively. In short, field dependent individuals show a variety of characteristics that make it likely that they will get along better with others. In contrast to the strong interest in others shown by the field dependent, field independent individuals have an impersonal orientation. They are more autonomous in social relations, show more physical and psychological distancing from others, and prefer nonsocial situations. Characteristics ascribed to field dependent individuals include being warm, affectionate, tactful, accommodating, nonevaluative, accepting, and not likely to express hostility directly. Field independent persons, in

contrast, have been ascribed such characteristics as demanding, inconsiderate, manipulative (to achieve their own ends), cold, and distant in relating. These traits seem antithetical to competent psychosocial behavior within a group of peers.

In relation to psychosocial competence, *psychiatric* nurses who were judged most competent were found to be field dependent, while competent *surgical* nurses were relatively field independent (Quinlan & Blatt, 1972). Also, groups with more field dependent members tended to be relatively more effective in conflict resolution (Oltman, Goodenough, Freedman & Friedman, 1975; Shulman, 1975). Witkin and Goodenough (1981) speculated that the field independent are more limited in psychosocial competence and that their social skills "are likely to represent the application of their restructuring skills to the social domain rather than investment in relations with others" (p. 45). The greater psychosocial skills shown by the field dependent may well reflect a stronger tendency to rely on external referents.

Individuals generally tend to be either relatively high in cognitive restructuring skills (i.e., field independent) or relatively high in psychosocial competencies (i.e., field dependent). Despite this tendency, it is reasonable to assume that, given appropriate life and educational experiences, some persons may develop high level skills in both areas. Witkin designated those who have access to both psychosocial and cognitive restructuring skills as "mobile". The instrument used in the present study to assess field dependence-independence (the GEFT, described in the Method section) was designed to measure the relative presence or absence of cognitive restructuring skills. As such, field dependence is not directly measured. It is possible that any persons in the present study who test as field independent on the GEFT, yet also show psychosocial competence in their group

(as measured by ARS-ARO), are mobile with respect to field dependence-independence. Consequently, in this investigation, those who score low on the GEFT will be referred to as being low in field independence, rather than being field dependent.

Gamble and Ginsberg (1981) disagreed with Witkin's notion of psychological differentiation, which postulated high intercorrelations of perceptive, cognitive, and social differentiation. Instead, they asserted that differentiation in each of these three domains is dependent upon the ecological demands of the culture. Thus, it would be quite possible for individuals to be able to discriminate socially, but not perceptually, or cognitively.

Relatively field dependent and field independent individuals tend to be primarily invested in different domains, resulting in psychological development along different pathways. The field independents' more autonomous functioning is likely to foster the development of greater cognitive restructuring capacities but not psychosocial competence. The reverse is true for field dependent individuals. However, Witkin, Goodenough, and Oltman (1979) have proposed that differentiation *may* develop multilinearly; genuine development taking place along both the psychosocial competence and the cognitive restructuring pathways of lesser and greater differentiation. Therefore, it seems reasonable to postulate that those who are more differentiated along the psychosocial competence pathway could also show relatively high perceptual accuracy skills.

Relationships Between Dependent Variables

No prior work has investigated the relationships among these selected variables. Based on the previously reviewed research, it can be hypothesized that the three dependent variables, cognitive complexity, perceptual accuracy, and field independence will relate

meaningfully to the independent variable, psychosocial competence. There are reasonable grounds for expecting that both cognitive complexity and perceptual accuracy will have a straightforward positive, linear relationship with psychosocial competence. In contrast, neither high nor extremely low field independent scores are expected to relate montonically to psychosocial competence. Rather, midrange field independence scores, especially those falling in the second quartile of the obtained GEFT scores, are expected to be positively associated with psychosocial competence.

The inclusion of the three dependent variables in this study allows for an exploratory investigation of their interrelationships. For instance, cognitive complexity may be an important variable in psychosocial competence, but only when perceptual accuracy is present. While no systematic research can be relied on to generate specific hypotheses (hence this works' exploratory nature) familiarity with the conceptual underpinnings of these variables allows for some general speculations.

The relationship between cognitive complexity and perceptual accuracy is difficult to ascertain. While a general positive association seems likely, puzzles remain. For instance, will the cognitively complex be equally accurate when assessing both other cognitively complex individuals and cognitively simple individuals, or will the cognitively simple be more accurate when appraising cognitively simple individuals? The relationship between field independence and perceptual accuracy seems similarly perplexing. For instance, low field independent individuals, having been hypothesized to be more attuned to others, may be more advantaged in this regard, but may be disadvantaged on the perceptual accuracy task. This is due to the fact that they may be less likely to possess the cognitive skills necessary for accurate judgement. In addition, both the cognitively simple and the field independent may

not be able to differentiate sufficiently between self and other to perceive self and other accurately.

Perceptual accuracy may mediate between both other dependent variables (cognitive complexity and field independence) and the independent variable, psychosocial competence. For instance, the cognitively complex may be more psychosocially competent only when they are perceptually attuned to others. Conversely, cognitive complexity may lead to psychosocial incompetence when the cognitive constructs are too far removed from others' actual behaviors.

HYPOTHESES

The hypotheses in this study concern the interrelationships between the three cognitive style variables; field independence, cognitive complexity, and perceptual accuracy, and the dependent variable, psychosocial competence. Hypotheses are grouped according to independent variables.

Field Independence and Psychosocial Competence

Hypothesis Ia. There will be a significant difference in psychosocial competence between subjects scoring in the different quartiles of field independence.

This hypothesis is based on the prediction discussed earlier that, in general, those individuals who score low on the GEFT should show more psychosocial competence than those who do well on the GEFT. This hypothesis predicts that psychosocial competence will vary with level of field independence. Hypotheses Ib and Ic further specify the variation across levels that is predicted. To test this hypothesis, the scores obtained in the present sample on field independence were divided into four levels ranging from low field independence (Level I) to high field independence (Level IV). A division into quartiles of the range of scores obtained by the present sample was utilized to obtain the four levels. This hypothesis was tested by using analysis of variance.

Hypothesis Ib. Level II field independence scorers will score higher on psychosocial competence than either Level I or Level IV field independence scorers.

The rationale is that individuals whose GEFT scores fall at Level II should be able to make more of a separation between themselves and others than Level I persons, and yet be more attuned to others than the highly field independent scorers (Level IV). A one-tailed *t*-test will be used to test this hypothesis, due to the direction of predicted differences.

Hypothesis Ic. Level III field independence scorers who also score above average on perceptual accuracy will show higher psychosocial competence scores than either Level I or Level IV scorers.

The underlying assumption is that Level III field independent scorers are theoretically less psychosocially oriented and less attuned to others than Level I and II scorers. If they also score high on perceptual accuracy, however, their conceptual skills should enable them to interact more competently with others, due to their more accurate conceptualizations of others. This should be especially true in the present interpersonally-oriented groups, which were geared toward gaining a clearer understanding of how self is perceived by others. This hypothesis will be tested with a one-tailed *t*-test.

Cognitive Complexity and Psychosocial Competence

Hypothesis II. There will be a significant positive relationship between cognitive complexity and psychosocial competence.

This hypothesis stems from Reckman's (1977) results, and the assumption that more cognitively complex individuals will have access to a greater number of dimensions for construing others. Therefore, they should be able to make finer discriminations in coming to an understanding of an individual. I am assuming here that a greater understanding of an individual is likely to be manifested by constructive interactions with that person. Given the interpersonally-oriented nature of the cognitive complexity measure used in this study, it also seems reasonable to assume that individuals among the current sample who score high in cognitive complexity have more experience in relating interpersonally, and that this experience will correlate positively with psychosocial competence. Pearson's r will be used to test this hypothesis.

Hypothesis III. Among high cognitive complexity scorers, those who are more perceptually accurate will have higher psychosocial competence scores.

High cognitive complexity scorers use a greater number of constructs in describing others. Having a larger number of constructs to draw from in conceptualizing others has been hypothesized to be an important factor for psychosocial competence (see Hypotheses II).

Hypothesis III predicts that the perceptual accuracy of the constructs used in conceptualizing about, or interacting with, another is an additional important factor influencing one's ability to be psychosocially competent. Specifically it is hypothesized that those individuals who score high in both cognitive complexity and perceptual accuracy will show greater psychosocial competence skills than those who score high in cognitive complexity alone. "High" scores are defined as those that are above the mean scores obtained by the present sample. Two-way analysis of variance tests will serve to test Hypothesis III.

Perceptual Accuracy and Psychosocial Competence

Hypothesis IV. There will be a significant positive relationship between perceptual accuracy and psychosocial competence.

This hypothesis was derived partially from the information presented in the literature review, along with the rationale that persons regarded as most psychosocially competent by group peers should--over the course of 40 or more hours of working together within these small groups--have come to a clearer understanding of other group members. Pearson's r will be used to test this hypothesis.

Interactions between Variables

In addition to the interactions among the independent and dependent variables listed above (Hypotheses Ic and III), the following interactional patterns are expected:

Hypothesis V. There will be a simple interaction between cognitive complexity of raters and ratees (above average vs. below average), with regard to perceptual accuracy.

In particular, it is predicted that the cognitively complex will be more perceptually accurate in rating cognitively complex individuals, whereas the cognitively simple will be more perceptually accurate in rating other cognitively simple participants. The rationale is that cognitively complex persons theoretically will perceive the cognitively simple in a more complex and differentiated manner than the cognitively simple will perceive themselves. The reverse should be true of the cognitively simple individuals' perceptions of the cognitively complex. If this is true, the above combinations of complexity scores should result in lower perceptual accuracy scores. This hypothesis will be tested using *t*-tests.

Hypothesis VI. Level I field independence scorers will obtain significantly higher scores on Acceptance/Rejection of Others then will Level IV scorers, while Level IV field independence scorers will obtain significantly higher scores on Acceptance/Rejection of Self then will Level I scorers.

This hypothesis is drawn from the theoretical underpinnings of the concept of field independence. The tendency of low GEFT scorers to rely more on external sources for self-definition, to experience a greater sense of connectedness between self and others, to prefer closeness to others, and to evaluate others more positively seems to suggest that

they place a very high priority on acceptance of others. High GEFT scorers, on the other hand, have been characterized as demanding, inconsiderate, manipulative, cold, and distant in relating. These traits clearly do not portray someone who would be seen as highly accepting of others. Rather they suggest that such an individual would be more concerned with pursuing her/his own needs and goals over accommodating to others; an orientation which suggests more acceptance of self than of others. Hypothesis VI will be appraised by one-tailed *t*-tests, due to the specificity of the direction predicted.

METHOD

Participants

Students in an upper level undergraduate psychology course aimed at experiential learning about interpersonal processes served as subjects for the current investigation. The structure of the course was such that students were assigned to small groups of about five to eight members, including one or two facilitators, to meet for two 90-minute sessions per week throughout the 10-week term, plus two 12-hour extended sessions (after approximately the third and the seventh weeks). The purpose of these groups was to explore ongoing interpersonal processes as an aid in developing better interpersonal skills. Required textbook readings and entries in a personal log after each group session were used to help meet the stated purpose. The group process emphasized getting to know each other through here-and-now interactions, rather than bringing outside information about themselves into the group. In forming the groups efforts were made to balance the proportions of male and female members, and friends were not allowed to be in the same group. Facilitators or leaders were former group members selected from volunteers for further training. Data from all group members, including facilitators, from two successive terms (Fall 1983 and Winter 1984) were utilized. A total of 53 individuals participated (29 females and 24 males), thirteen of whom served as facilitators. Information was gathered from a total of ten groups. All members supplied all measures in three groups. Information was gathered from all but one group member in six more groups, and all members but two returned the measures in the final group. Considering only those persons who returned all measures, the size of these groups ranged from four to seven (3 with 4 members, 4 with 5 members,

2 with 6 members, and 1 with 7 members). About three-fourths of the participants were between the ages of 20 and 23, although their ages ranged from 19 to 39. About two-thirds (66%) were psychology majors, followed by majors in the physical health professions (approximately 15%), and communications (approximately 8%).

Measures

Cognitive Complexity. Cognitive complexity was measured with Crockett's Role Category Questionnaire (RCQ). For it, participants were given five minutes each to write an impression of persons fitting two role descriptions. Two descriptions were asked for; one of someone they know and like, and one of someone they know and dislike. Instructions require subjects to describe the person as fully as possible, paying attention to particular habits, attitudes, beliefs, mannerisms, and ways of treating others. The scoring procedure for this measure, as outlined by Crockett, Press, Delia and Kenny (1974), consists of counting the number of constructs used to describe each person. Aspects of the other's personality and behavior are counted, while physical characteristics are not. The sum of the constructs produced in both situations constituted the final score. Thus, the higher the score, the more cognitively complex the subject is believed to be. Interrater reliability correlations for the RCQ commonly exceed .90 (O'Keefe & Sypher, 1981). It has been found positively associated with perspective-taking ability (Hale & Delia, 1976), measures of communicative efficiency and effectiveness (Hale, 1980) and level of persuasive strategy (Delia, Kline, & Burlson, 1979).

Field Independence. Field independence was measured by the Group Embedded Figures Test

(GEFT). The GEFT was modeled after the original individually administered Embedded Figures Test (EFT). Both tests require that the participant find a simple figure which has been incorporated into a more complex one, but obscured perceptually by line patterns. The participant is prevented from seeing both the simple and the complex figure simultaneously, but is allowed to examine the stimulus as often as needed. This is accomplished by having all the complex figures on the right hand side of the booklet pages and the simple figures on the outside back cover. Seventeen of the GEFT's 18 complex figures were taken from the EFT. To administer the GEFT, participants are each given a test booklet including two practice problems, a first section, a second section, and a third section. Two minutes are allowed for the first section, and 5 minutes each for the second and third sections, after which the test booklets are collected. Instructions asked the participants to trace certain simple forms within the more complex figures provided. Scoring is the total number of simple forms traced correctly in the second and third sections. The higher the score, the more field independent the subject. An internal consistency of .82 has been found for both males and females taking the GEFT, using the Spearman-Brown prophecy formula. Witkin et. al. (1971) report correlations between the GEFT and the EFT that seem reasonably high (.82 for men and .63 for women). The GEFT has also been evaluated in terms of its relationship to another measure of psychological differentiation, the degree of articulation of the body concept (the ABC scale). Correlations between the ABC scale and the GEFT yielded .71 and .55 for males and females, respectively, suggesting a reasonable amount of overlap between these two measures of psychological differentiation. Men show a slight but significant ($p < .005$) tendency to outperform women on the GEFT (Witkin, Oltman, Raskin, & Karp, 1971). Lusk and Wright (1981), however, noted that when differences in curricula are taken into

account, performance differentials between men and women disappeared. They also demonstrated that learning occurs during the GEFT, in that scores on the second half of the test are generally higher than scores on the first half. A study by Carter and Loo (1980) aimed at providing further data on the norms for the GEFT found both college males and females were more field independent than those earlier reported in the GEFT manual. They suggested that these differences may reflect differences in educational settings and cultural changes in the past decade.

Perceptual Accuracy. Three measures of perceptual accuracy were obtained. The first was obtained from the use of the Interpersonal Check-List (LaForge & Suczek, 1955), a self-administered adjective checklist consisting of 128 items. It was devised as a set of interpersonal variables listed in a circumplex of 16 or eight segments, each representing characteristic ways of relating to others. Two orthogonal dimensions undergird the ICL; Dominance-Submission (DOM) on the vertical axis, and Love-Hate (LOV) on the horizontal axis. In administering the ICL, each participant was given a booklet and was asked to describe self and specified others by filling in the circle in front of each item as to whether it was or was not descriptive of the person that was being described. Each item was to be identified as either true or false for each target. Participants were encouraged to go with their first impressions and to work quickly. Results of the ICL can be plotted on the diagnostic grid consisting of the eight segments. Support for the validity of the ICL's octant constellations and underlying interpersonal dimensions was provided by Lange's (1970) study. LaForge's manual Using the ICL (1973) gave reliability test-retest correlations ranging from .64 to .77 and cited several studies showing evidence relating to the validity of the ICL. Wiggins

(1982) provided a thorough review of the ICL, along with other major two-dimensional representations of interpersonal behavior. To assess the perceptual accuracy of group members, the discrepancy between the DOM and LOV score given a particular group member and the DOM and LOV score that particular group member gave her/himself on the ICL was determined. As noted earlier, (see page 20) both the DOM and LOV score resulting from the perceived individual's ratings of how s/he sees her or himself and how s/he thinks s/he is seen by others were explored as criteria for judging accuracy. Both types of self-ratings were included for the purpose of exploring the relationship between the two criteria. Participants were asked to use only each member's in-group verbalizations and behavior as a reference for describing that individual. In each perceptual accuracy task, participants were asked to rate each individual according to how the rater saw that particular individual, not according to their prediction of how the ratee saw her/himself.

A second measure of perceptual accuracy was more straightforward and less lengthy than the ICL's. This consisted of asking participants to rate each member of their group (including themselves) on four 9-point scales; Degree of Dominance, Degree of Submissiveness, Degree of Warmth and Caring, and Degree of Hostility (see Appendix A). This second task (the "Interpersonal Scales") was a more direct conceptual-perceptual accuracy task, as opposed to the more verbal and molecular nature of the ICL task. Although the final ICL tabulation yields scores on the axes of LOV, and DOM, these summary scores are the result of the rater's responses to 128 trait adjectives that potentially describe the ratee. The Interpersonal Scales required a more global assessment of where the ratee stands with regard to these four dimensions.

The final perceptual accuracy measure was determined from the scores on both of

the prior perceptual accuracy measures, the Interpersonal Checklist and the Interpersonal Scales. It consisted of the absolute value of the discrepancy between the rater's ratings of the ratee on the Interpersonal Scales (Dominance, Submissiveness, Warmth and Caring, and Hostility) minus the ratee's self ratings on the four dimensions of the ICL (DOM, LOV, SUB, and HATE). For example, if Mary gave Debbie a 7 on the Dominance subscale of the Interpersonal Scales, and Debbie's self-rated ICL DOM score was a 12, then Mary's perceptual accuracy score would be 5; signifying that she was discrepant by 5 points from Debbie's own rating of herself. This final perceptual accuracy measure assessed the discrepancy between the rater's global conceptualization of the ratee along the four dimensions of the Interpersonal Scale measure as compared to the self-rating of the ratee resulting from a tabulation of her/his responses to the 128 descriptive adjectives of the ICL. All three measures were included in an attempt to discern which measure or what combination of these three measures would be the most valid measure of perceptual accuracy.

Psychosocial Competence. Three measures of psychosocial competence were utilized in the present study. The main measure was Acceptance/Rejection of Others (ARO) and Acceptance/Rejectance of Self (ARS) (Hurley, 1976a). (See pages 9-12 for justification of the use of these measures to assess psychosocial competence.) These scales were developed based on the evidence that a broad variety of interpersonal behavior can be represented by two principal independent dimensions (see Hurley, 1976a). Because of the general independence of the ARS and ARO dimensions, they can be depicted orthogonally producing four quadrants. Thus, as Hurley (1978) notes, the theoretical construct of psychosocial competence runs along the diagonal from the low ARS, low ARO quadrant to the high ARS, high ARO quadrant.

To assess the ARS and ARO dimensions, interpersonal perceptions were gathered on nine semantic differential scales which were presented to the participants in a mini-booklet form. The four scales used to assess ARS are: Shows feelings--Hides feelings, Expressive--Guarded, Active--Passive, and Dominant--Submissive. Warm--Cold, Helps others--Harms others, Gentle--Harsh, and Accepts others--Rejects others were the scales assessing the ARO dimension. The ninth scale, which was presented first, was Like--Dislike. It was included in an attempt to minimize the influence of liking or disliking on the eight subsequent scales. Each member was asked to rate self and all other group members on each scale, which ranges from 0 (negative) to 9 (positive). Thus, 36 was the highest obtainable score on ARS or ARO. Group members were asked to use the widest possible range of ratings and to consider only behavior they had directly observed within group sessions as the criterion for rating. Evidence supporting the construct validity and reliability of ARS and ARO has been presented by Hurley (1976b, in particular see Table 3).

Two rank-orderings by group members as to the level of psychosocial competence displayed by each target person within their group also served as measures of psychosocial competence. The first (Rank Ordering Exercise I; See Appendix B) consisted of a sheet of paper with a definition of psychosocial competence followed by enough blank spaces to accommodate every group member. The instructions asked the group member to hierarchically order the members of their group (including self) from most to least psychologically competent in terms of this definition. If they deemed two group members were about equal in their likeness to the definition they still were required to rank them, but allowed to indicate a tied rank. However, no more than two members could be portrayed as tied by any participant.

The second rank-ordering measure (Rank Ordering Exercise II; See Appendix C) was similar to the first with regard to the format and instructions, except members were asked to rank-order everyone in their group (including self) according to their personal definition of interpersonal competence as written out at that page's bottom. Both measures were included to ascertain if there was an appreciable relationship between ratings based on an externally defined versus a more internal and subjectively determined definition of psychosocial competence.

Procedure

As a part of the regular class curriculum, group members were given the ARO-ARS booklet of scales to describe self and all other participants in their group twice during the term; after about 22 hours and 43 hours of group participation. About one week after each administration, every group member received complete feedback about these ratings in the form of a copy of the precise ratings given her/him by each other member plus a graphic display of the discrepancies between self-ratings and those assigned each person by each other group member. Members were encouraged to discuss these discrepancies in the hopes of better understanding these perceptual differences and enhancing both the group process and their own psychosocial skills. Depending in part on the modeling behaviors and persistance of the facilitator(s), these discussions were made more intensive and rich in some groups then in others. Only those ARS-ARO ratings given near the term's end (i.e., after approximately 43 hours of small group interaction) were utilized in the current investigation.

Both the RCQ and the GEFT were administered to participants during their weekly didactic class meetings near the middle of the 10-week term. The Interpersonal Competence

Scales and the two rank-ordering measures of psychosocial competence were given to the participants during class time near term's end to maximize the amount of prior group experience with each other. During this same class meeting the ICL was given out to take home and return the following week. Group facilitators were given all of the measures during their weekly supervision sessions on approximately the same day that group members received theirs in class. Most members and facilitators who were absent the day these measures were given out completed them soon afterwards in the experimenter's office.

Scoring of the Measures

ARS-ARO. A psychosocial competence score was determined from each individual's ARS-ARO scores by multiplying their mean ARS score by their mean ARO score. Only the scores given by others were included in the ARS and ARO means. Scoring the measure in this way gave equal weight to the importance of self-acceptance (ARS) and other-acceptance (ARO) with regard to psychosocial competence. Thus, someone who scored 20 on other-acceptance and 10 on self-acceptance was scored at the same level of psychosocial competence as someone who scored 10 on other-acceptance and 20 on self-acceptance. Although these two individuals might differ markedly in their behavioral style of interacting with others, their functional level of competence within the interpersonal group setting would be the same. The individual who is low in acceptance of others and high in acceptance of self might be more obviously incompetent psychosocially as compared with the mirror opposite, as s/he would be more apt to overtly offend others, be lacking in understanding, empathy and warmth towards others, and tend to disregard others' viewpoints. The mirror opposite individual (high in other-acceptance and low in self-acceptance), however, might

be equally psychosocially dysfunctional within an interpersonal group. The latter person would be apt to have trouble initiating, expressing her or his own opinions, confronting, expressing anger, showing self-appreciation, and interacting in a mutual give-and-take manner with others. In a group whose explicit purpose is to learn about self and others through interacting with them, the individual who is low in self-acceptance would not likely be seen as highly competent psychosocially.

The rank-order psychosocial competence measures were scored by calculating the sum of the ranks given each group member (including self-ratings), then converting the scores obtained for each group into quartiles. This was done to assure uniformity in scores between the groups despite the varying sizes of the groups.

Perceptual Accuracy. Perceptual accuracy as measured by the ICL ratings was determined first by scoring the two principal undergirding dimensions (LOV and DOM) according LaForge's (1973) formula. Perceptual accuracy was then determined by the descrepancy between an individual's ratings of another on the two axes of the ICL, and that other person's self ratings. This was assessed by utilizing the standard formula for determining Euclidian distance: $R = \sqrt{(Dom_1 - Dom_2)^2 + (Lov_1 + Lov_2)^2}$. LaForge (1973) has noted that this procedure is relatively free from the disturbing effects of elevation, scatter, and dependence. There is an almost complete lack of correlation between the two dimensions of Dominance and Love (LaForge, 1973).

The second measure of perceptual accuracy involved direct ratings of each group member (including self) on each of four scales: Dominance, Submission, Love, and Anger-Hostility. Ratings were on a scale of 1 to 9 , in increments of 0.5. Perceptual

accuracy scores here were determined by subtracting self-ratings from the mean ratings received from others. Discrepancy scores consisted of the magnitude of the difference between self-ratings and mean ratings received by others. No attention was paid to the direction of the difference. For example, if person X rated herself as 4.5 on the Dominance scale, and person Y rated her as 7, the discrepancy would be 2.5. To determine person Y's level of perceptual accuracy in rating group members the absolute value of all of his discrepancy scores would be summed then divided by the number of members in the group (excluding himself).

The scoring of the third perceptual accuracy measure was jointly determined from both of the prior perceptual accuracy measures, the ICL, and the Interpersonal Scales. The process for the scoring of this measure, labeled Conceptual Accuracy was delineated on page 38.

Because the conceptual variables of psychosocial competence and perceptual accuracy have not been fully validated, the author followed the principle of Multiple Operationalism (Crano & Brewer, 1973). This principle was based on the likelihood of an imperfect correlation between the conceptual variable and the observed manifestation. It, therefore, involved recognizing that no single observation provides enough information to define a theoretical concept (Crano & Brewer, 1973). To increase the probability of obtaining a valid operationalization of constructs of psychosocial competence and perceptual accuracy in the current investigation, more than one measure was proposed. Based on the statistical properties and face validity of these measures, the author constructed each construct's best operationalization.

Cognitive Complexity. Cognitive complexity was scored according to the specifications in the manual (Crockett et al., 1974). All cognitive complexity data were scored by two raters, after which interrater reliability was determined. Final cognitive complexity scores averaged the scores assigned to each participant by each rater. The final scores were divided into quartiles for use in testing the hypotheses, as no known norms were available.

Field Independence. Scoring of field independence was according to the procedures outlined in the manual (Witkin et al., 1971). College norms obtained on this measure by both Witkin et al (1971) and Carter and Loo (1980) were not utilized to establish the GEFT quartiles. This was due to an unbalanced distribution of the scores obtained by the present sample when they were divided into quartiles according to either of the above-mentioned norms. Instead, the quartiles were established using the range of GEFT scores obtained by the present sample.

RESULTS

I. Preliminary Statistical Analyses

A. Cognitive Complexity

1. Interrater Reliability:

Two raters, the present author and an undergraduate work-study student rated all of the cognitive complexity data provided by the Role Category Questionnaire (RCQ) according to Crockett et al.'s (1974) manual. Each rater had approximately five hours of practice in rating RCQs provided on a different sample before rating the present data. The results of these practice ratings were then discussed jointly and discrepancies were accounted for in an effort to clarify differences in ratings. Interrater RCQ reliability for the current study is presented in Table 1 and was typical of interrater reliability correlations found in other RCQ works (O'Keefe & Sypher, 1981).

TABLE 1

Interrater Reliability for Crockett's RCQ (N = 55)

Rater	Range of scores	Mean	Standard Deviation	Pearson's r
1	7 - 60	21.1	7.42	.90
2	6 - 58	22.8	7.73	

2. Distribution and Significant Correlations of the RCQ:

RCQ scores were obtained for 51 of the 53 participants in the study. The

remaining two were absent from class the day it was given and did not respond to attempts to arrange another administration. The mean score for cognitive complexity was 22.8, with a standard deviation of 8.8 and a range of 6.5 - 59. As no previous RCQ norms could be found, the present scores were divided into quartiles. Cognitive complexity (raw score) was found significantly correlated with sex ($r(51) = .42$, $p < .001$): women ($M = 25.9$) scored well above their men peers ($M = 18.7$).

B. Field Independence

1. Distribution:

General college norms were not used to divide this sample into quartiles because that produced an unequal distribution of scores. Instead, quartiles were determined based on the obtained distribution of scores. As compared to Witkin et. al.'s (1971) college norms, the present sample lacked a sufficient number of person's scoring in the second (less field independent) quartile, and according to Carter & Loo's (1980) later set of college norms this sample lacked scores in the fourth (or most field independent) quartile. The mean, standard deviation, and range of the obtained GEFT scores were 12.3, 4.3, and 2 - 18, respectively. The distribution of the scores across quartiles determined by this sample's data, as well as the established college norms, is presented in Table 2. GEFT scores were obtained from 50 of the 53 participants. The remaining three participants were absent from class the day it was given and did not respond to attempts to arrange another administration. Men and women did not differ significantly in their GEFT scores in this sample.

TABLE 2

Distribution of Group Embedded Figures Test

Across Quartiles Determined by College and Sample Norms

	1st	2nd	3rd	4th
Sample Norms:				
Range of Scores	2-9	10-13	14-15	16-18
N	11	12	11	16
Witkin Norms (N = 397):				
Range of Scores (Male)	0-9	10-12	13-15	16-18
(Female)	0-9	10-11	12-14	15-18
N of Current Sample	15	7	10	18
Carter & Loo (N = 266):				
Range of Scores (Male)	0-11	12-15	16-17	18
(Female)	0-9	10-13	14-16	17-18
N of Current Sample	17	12	14	7

C. Perceptual Accuracy Measures

The following were the final four perceptual accuracy measures used. The first three were derived from the earlier specified perceptual accuracy measures, while the fourth was a composite of these three.

1. ICL Discrepancy (ICL-DISCR):

This measure assessed how accurately a person rated others in her/his group based on the 128-item ICL questionnaire. Both rater and ratee filled out the questionnaire, and the accuracy score was based on the discrepancy between each's LOV and DOM factor score as was more fully described on page 42. As noted on page 37, two types of self-ratings were

used: (a) the ICL score resulting from the target individual's self-ratings (as described above) and (b) another resulting from how the target individual thought others viewed her/him. Both self-ratings were collected to explore their relationship. An investigation of the differences between these measures on the ICL DOM and LOV axes produced nonsignificant findings. Due to a substantial correlation between the two ratings ($r(53) = .72$, $p < .001$) and a need to reduce the number of perceptual accuracy measures, the latter ratings were dropped. There were no significant sex differences on the retained measure.

2. Interpersonal Scale Measure of Dominance and Warmth and Caring (DOM-WC):

This second measure of perceptual accuracy involved participants' direct ratings of self and their group members on the following 9-point scales: Dominance, Submission, Warmth and Caring, and Hostility. Accuracy scores were determined by subtracting each ratee's self-ratings from those given by each other group member. These different ratings across the four scales lacked consistency and included negative intercorrelations between some of the subscales (Hostility versus Dominance; $r(49) = -.22$, ns, Hostility versus Warmth and Caring; $r(49) = -.18$, ns), resulting in participants averaging approximately the same scores. This was resolved by using the mean discrepancy on each subscale for determining the final score, rather than the average discrepancy across all four subscales. Discrepancies on only two of the subscales were significantly positively correlated (Hostility versus Submissiveness; $r(49) = .42$, $p < .001$), and neither of these correlated positively with the other perceptual accuracy measures. After reviewing these correlations, it was decided to combine subscales Dominance with Warmth and Caring for use as the second measure of

perceptual accuracy. This was due to their positive but very weak association ($r = .16$, ns) and especially their significant, although modest, correlations with the other perceptual accuracy measures used in this study (see Table 3, p. 50). Both women and more cognitively complex subjects in the present sample scored as significantly less accurate on this measure ($r(49)=.27$, $p<.05$ and $r(48) = .32$, $p<.01$, respectively). The fact that both were significant may be related to the earlier reported correlation between sex and cognitive complexity ($r(51) = .42$, $p < .001$). Post-hoc examination revealed that sex was significantly related only to accurate ratings of the Dominance subscale ($r(49) = .26$, $p<.05$). Cognitive complexity, however, was significantly related to perceptual accuracy on both the Dominance and the Warmth and Caring subscales considered separately ($r(48) = .23$, $p<.05$; $r(48) = .26$, $p<.05$, respectively).

3. Conceptual Accuracy (CONCEP-AC):

Labeled conceptual accuracy, a third measure assessed the discrepancy between the rater's global conceptualization of the ratee along the four dimensions of the Interpersonal Scale measure as compared with the ratee's self-ratings yielded by a tabulation of her/his responses to the ICL'S 128 descriptive adjectives. There were no significant sex differences on this measure, but a weak although significant positive correlation between conceptual accuracy and GEFT ($r(47)= .23$, $p < .05$) indicated that more field-independent persons were slightly less conceptually accurate in this sample.

4. Composite Perceptual Accuracy Measure (COMB-PA):

The final perceptual accuracy measure aggregated the three measures just

described; ICL Discrepancy (ICL-DISCR), Interpersonal Scales Dominance plus Warmth and Caring (DOM-WC), and Conceptual Accuracy (CONCEP-AC). In light of the weakly positive intermeasure correlations, these three were combined. This represented an attempt to increase the probability of obtaining a valid operationalization of the construct of perceptual accuracy (see the principle of Mulitiple Operationalism, Crano & Brewer, 1973). This was accomplished by first converting each component to a *z*-score, then summing across the measures.

Table 3 shows the intercorrelations among all four perceptual accuracy measures. As with the earlier reported measures, several instances of missing data reduced the sample *N* for this composite.

TABLE 3

Correlations Among Perceptual Accuracy Measures (N= 46)

	DOM-WC	CONCEP-AC	COMB-PA
ICL-DISCR	.29*	.19	.69***
DOM-WC	-	.30*	.74***
CONCEP-AC		-	.69***

* $p < .05$, *** $p < .001$

D. Psychosocial Competence Measures

The two psychosocial competence measures used were:

1. ARS x ARO:

This measure of psychosocial competence was drawn from the acceptance/rejection of self (ARS) and acceptance/rejection of others (ARO) scales developed by Hurley (1976a). As discussed on page 41, ARS x ARO scores were determined by multiplying the mean ARS and ARO scores given each participant by her/his small group members. Mean, standard deviation, and range for ARS and ARO as given by others, and ARS X ARO are presented in Table 4.

TABLE 4

ARS, ARO, and ARS x ARO

Mean, S.D., and Range (N = 53)

Variable	Mean	S.D.	N	Range
ARS (others)	27.0	3.1	53	20.4-33.8
ARO (others)	28.8	2.6	53	24.2-34.6
ARS x ARO	780.1	129.6	53	493.7-1169.5

2. Rank-Order Measure of Psychosocial Competence (RANK):

Participants were asked to complete two rank-order measures of psychosocial competence for this study; the first (RO1) asked them to rank self and all other group members according to a supplied definition of psychosocial competence, while the second (RO11) asked that they rank-order all according to their personal definitions of psychosocial competence (more information on these measures was presented on pages 39-40). Scores for

these measures were determined by calculating the sum of the rank-order scores given each group member, then converting each group's set of summed scores into quartiles. This was done to assure uniformity in scores between the groups despite their size differences. Final rank-order scores were reverse-scored (i.e., so that the fourth quartile was the highest psychosocial competence score and the first quartile was the lowest) for ease in interpretation. Results showed these measures correlated substantially ($r(53) = .74$, $p < .001$), therefore the two measures were combined into a composite "RANK" measure.

Post-hoc analyses calculated in an attempt to explain the unaccountable covariance between these measures yielded differences in each's correlations with sex, cognitive complexity, and other-given ICL DOM scores. Specifically, women and the cognitively complex were ranked significantly higher on ROI ($r(53) = .26$, $p < .05$, and $r(51) = .31$, $p < .01$, respectively), while those ranked highly on ROII tended to be given higher ICL Dominance scores ($r(47) = .28$, $p < .05$).

3. Significant Correlates of RANK:

RANK had several interesting correlates. Group facilitators were seen as significantly more psychosocially competent ($r(53) = .55$, $p < .001$) than group members. This correlation provides some concurrent validity of the RANK measure, in that facilitators were selected for this role partially because of their apparently good interpersonal skills. They were also more experienced than first-time members in the group setting. Another interesting correlation was that of RANK and *self*-rated self-acceptance ($r(53) = .40$, $p < .002$). These results suggested that individuals who were ranked highly on psychosocial competence also tended to rate themselves higher on self-acceptance, which is

partially supportive of the postulate presented earlier; that high psychosocial competence consisted of a high degree of self-acceptance (i.e., high ARS) and a high degree of acceptance of other (i.e., high ARO). Self-rated ARO and ratings of ARS or ARO assigned by others (those scores used in the ARS X ARO measure), however, did not correlate significantly with RANK.

4. Correlations Among Psychosocial Competence Measures:

Table 5 presents the correlations among most of the above-mentioned psychosocial competence measures. The lack of a significant correlation between the two final measures of psychosocial competence, ARS x ARO and RANK, is noteworthy and it's meaning will be explored in the Discussion section.

TABLE 5

Correlations Among Psychosocial Competence Measures (N = 53)

	R02	ARS+	ARO+	ARS x ARO	RANK
R01	.74***	-.00	.00	.01	.93***
R02	-	-.19	.12	-.05	.93***
ARS		-	.52***	.90***	.10
ARO			-	.84***	-.07
ARS x ARO				-	.03

+Scores given by others *** p< .001

II. Results of Hypotheses

A. Field Dependence-Independence and Psychosocial Competence:

1. **Hypothesis 1a**: There will be a significant difference in psychosocial competence between subjects scoring in the different quartiles of field independence.

Hypothesis 1a predicted that psychosocial competence would vary across the quartiles of field independence. Analysis of variance was used to test this hypothesis. Results showed that there was a slight statistical trend for the ARS x ARO measure to be contingent on subjects' field independence scores, but neither ARS x ARO nor RANK was significantly linked to field independence ($F(3) = 2.21$, $p < .10$, ns; $F(3) = 0.47$, ns, respectively).

2. **Hypothesis 1b**: Level II field independence scorers will score higher on psychosocial competence than either Levels I or IV field independence scorers.

In comparison to the above hypothesis, this hypothesis made a more specific prediction between field independence level and psychosocial competence. The assumption here was that persons scoring in Level II of the GEFT would be more psychosocially oriented then the others, and still have a greater capacity for understanding other's viewpoints. Due to the specificity of direction that was predicted, the one-tailed t-test was used here. There were no significant results using the RANK measure of psychosocial competence. On the ARS x ARO dependent measure there was partial support for the hypothesis. Level II field independence scorers were significantly higher than Level I scorers (t (21) = 2.62, $p <$

.01), but they did not score significantly higher than Level IV scorers ($t(26) = .69$, ns) (see Table 6). While not part of the hypothesis, Level II scorers, as would be expected, also scored significantly higher on ARS x ARO than Level III scorers ($t(21) = 1.95$, $p < .05$) (see Table 6).

TABLE 6

Mean Psychosocial Competence Scores

at Four Field Independence Levels

	ARS X ARO	N	Mean	S.D.
	I	11	708.81	95.72
LEVEL:	II	12	832.63	128.78
	III	11	728.49	127.36
	IV	16	795.37	158.25
	RANK			
	I	11	4.82	2.27
LEVEL:	II	12	5.25	2.45
	III	11	5.73	1.95
	IV	16	4.75	2.38

3. **Hypothesis Ic:** Level III field independence scorers who also scored above average on perceptual accuracy will show higher psychosocial competence scores than either Level I or IV scorers.

The underlying assumption here was that although Level III field independent scorers should theoretically be less psychosocially competent than those less field independent,

unusually high perceptual accuracy skills might enable some Level III scorers to be more competent in their interactions with others. The criteria groups selected were Levels I & IV, since level II was still expected to have the highest psychosocial competence scores. The hypothesis was not supported by the data. The results showed mean ARS x ARO scores received by those Level III GEFT scorers who were more perceptually accurate on ICL-DISCR (M = 673.6) were actually lower than Level III field independence participants who were less perceptually accurate on ICL-DISCR (M= 759.8), although to a nonsignificant degree (t (9)= 1.26, ns).

B. Cognitive Complexity and Psychosocial Competence:

1. **Hypothesis II**: There will be a significant positive relationship between cognitive complexity and psychosocial competence.

The assumption here was that more cognitively complex individuals should have the potential for a greater understanding of others, and that this understanding could be manifested in more constructive interactions with others. This hypothesis was weakly but statistically supported for RANK (r(51)= .261, p < .05), but not for ARS x ARO (r (51)= -.056, ns). As mentioned earlier, there was a significant correlation between cognitive complexity and sex (with females scoring higher), but sex linked to neither RANK or ARS x ARO, indicating that sex was not a confounding variable in this finding.

2. **Hypothesis III**: Among high cognitive complexity scorers, those who are more perceptually accurate will have higher psychosocial competence scores.

To test this hypothesis, cognitive complexity scores and the scores of each of the perceptual accuracy measures were dichotomized at the mean. Eight ANOVAS were computed (both of the psychosocial competence measures and RCQ scores by each of the four perceptual accuracy measures). This yielded an *N* of 9 to 13 participants who scored high on the RCQ but low in perceptual accuracy and an *N* of 10 to 14 participants who scored high on both the RCQ *and* perceptual accuracy (depending on the perceptual accuracy measure). None of the results supported this hypothesis.

C. Perceptual Accuracy and Psychosocial Competence

1. **Hypothesis IV**: There will be a significant positive relationship between perceptual accuracy and psychosocial competence.

One of the underlying assumptions for hypothesis IV was that persons viewed as the most psychosocially competent by other group members would have relatively more accurate perceptions of these peers. This hypothesis was not supported, as is apparent in Table 7 below.

TABLE 7

Correlations between Psychosocial Competence and Perceptual accuracy

	RANK	ARS X ARO
LDISCR	-.05 (N = 46)	-.04
DOM-WC	.12 (N = 49)	.06
CONCEP-AC	-.07 (N = 48)	-.03
COMB-PA	-.03 (N = 46)	-.01

D. Interactions between Variables

1. **Hypothesis V**: There will be a simple interaction effect between the cognitive complexity of raters and ratees (above average versus below average) with regard to perceptual accuracy.

More particularly, it was predicted that those scoring highest in cognitive complexity would be more perceptually accurate in rating cognitively complex individuals, whereas the cognitively simple would be more perceptually accurate in rating other cognitively simple participants. Of the four perceptual accuracy variables, significant results were obtained only with CONCEP-AC, where the cognitively simple were significantly more accurate in rating other cognitively simple participants (versus rating cognitively complex participants) ($t(81) = -2.4$, $p < .05$).

However, the cognitively complex were not more perceptually accurate in rating other cognitively complex participants. Instead, the cognitively complex were significantly more perceptually accurate in rating cognitively simple than cognitively complex persons ($t(96) = 2.53$, $p < .01$). The cognitively complex were also significantly more accurate in rating the cognitively simple than the cognitively simple were in rating the cognitively complex ($t(96) = -2.79$, $p < .01$). A post-hoc t-test computed to ascertain whether there was any overall significant difference in accuracy of rating among the cognitively complex versus the cognitively simple was insignificant ($t(179) = -.61$, ns). Sex did not correlate significantly with CONCEP-AC. (It should be noted here that the large degrees of freedoms are due to the fact that each group member's scores were paired with every other group member, resulting in a much larger number of comparisons then the total number of participants.)

2. **Hypothesis VI**: Those individuals who score in Level I of field independence will obtain significantly higher scores on Acceptance/Rejection of Others (ARO) than will those who score in Level IV, while Level IV participants will obtain significantly higher scores on ARS than will Level I participants.

Hypothesis VI was drawn from the theoretical underpinnings of the concept of field independence. Low GEFT scorers were postulated to be more other-accepting, and high GEFT more self-accepting. One-tailed *t*-tests were used to test this hypothesis, due to the specificity of the direction that was predicted. Neither hypothesis was supported, although there were trends, as expected on ARS and contrary to expectations on ARO, for Level IV scorers to be higher than Level I scorers on both measures (see Table 8).

TABLE 8

t-tests, Level I Versus Level IV of GEFT with Regard to Acceptance of Self and Others (Level I $N = 11$, Level IV $N = 16$)

Variables	Mean	S.D.	*t*-Value	Signif.(1-tailed)
ARO				
LEVEL I	27.75	2.2	-1.41	.09
LEVEL IV	29.14	2.9		
ARS				
LEVEL I	25.50	3.0	-1.31	.10
LEVEL IV	27.10	3.0		

DISCUSSION

The present study investigated the relationships between several measures of cognitive style and psychosocial competence. The purpose was to determine whether hypothesized linkages among these constructs could be confirmed. Three major cognitive style variables, field independence, cognitive complexity, and perceptual accuracy, were investigated. Psychosocial competence was measured by participants' rank-orderings of each other along this dimension and by a separate measure that combined peers' ratings of self-acceptance and other-acceptance. Overall the findings were mixed and complicated by the absence of a significant correlation between the two psychosocial competence indicators.

The discussion is divided into three sections. The first discusses features of the variables used in the study that may significantly bear on the results. This is followed by a discussion of the central findings and finally, a summary of the overall findings in this study.

I. Variables Used in this Investigation: Pertinent Factors

A. Psychosocial Competence Measures:

1. Insignificant Correlation between Measures.

Two very different measures of psychosocial competence were utilized. The ARS x ARO measure was less direct in that it represented a presumed manifestation of psychosocial competence: the degree of self- and other- acceptance. The rank-order measure (RANK), on the other hand, asked the rater to directly assess the participants'

psychosocial competence. It was presumed that these two psychosocial competence measures would correlate positively and significantly. Earlier research on the ARS x ARO (Hurley, 1976a, 1976b, 1978) index had found it correlated with variables associated with psychosocial competence. Yet the ARS x ARO index and RANK failed to correlate significantly.

Neither measure fared worse than the other in relating to the three cognitive style indicators. RANK correlated significantly but weakly with RCQ-based cognitive complexity, while ARS x ARO did not. ARS x ARO related to the GEFT scores weakly, but more strongly than did RANK. As a check of the reliability of the psychosocial competency measures, participants' ability to significantly differentiate between group members in their ratings of each other was evaluated. This was calculated for ARS x ARO by analysis of variances for correlated groups, and for the rank-ordering measures with Kendall's coefficient of concordance (W), a measure of the association of ranks (see Kerlinger, 1973, p. 292). A conversion formula to the F-ratio was then used to evaluate W's significance. Both the rank-order measures and ARS x ARO fared well in this reliability check. Eight of the 10 groups demonstrated significant reliability on the ARS x ARO measure (7 at $p < .01$ and 1 at $p < .05$), accounting for an average of 40.4% of the variance (range: 13-72%). Significant results were obtained with 7 of the 10 groups on the first rank-order measure (6 at $p < .01$, and 1 at $p < .05$), which had asked participants to rank all group members according to an explicit definition of psychosocial competence taken from the constructs of self- and other-acceptance. The second rank-order measure, which asked participants to rank each other according to their personal definition of psychosocial competence, also did well. Here all 10 of the groups obtained significant results (8 at $p < .01$, 2 at $p < .05$).

The psychosocial competence variables were also investigated for their linkages to

liking, in an attempt ascertain if either was confounded with liking for others. A substantial linkage was found between ARS x ARO and a scale "Liked - Disliked" ($r = .51$, $p < .001$), while the correlation between RANK and liking was nonsignificant ($r = .11$, ns). These findings suggest that the more liked persons were more likely to be rated highly on self- and other-acceptance. Thus, ARS x ARO scores were linked more to degree of liking for the other than were RANK scores.

There are several other noteworthy differences between the two psychosocial competence measures that may have contributed to their lack of correlation. These concern differences in their confidentiality, different use of self-scores, and the use of a floating reference point with respect to groups for the ARS x ARO scores.

With regard to differences in confidentiality, it will be recalled that ARS x ARO ratings were shared with group members as a regular part of the class format, whereas the instructions for the RANK measures specified that these rankings would be kept confidential. As a consequence, ARS x ARO scores may have been confounded with concerns about how particular group members would react to the ratings given, whereas this was not an issue for RANK. This fact may partially account for ARS x ARO's association with liking.

Another difference between the measures concerns the use of self-ratings. These were explicitly excluded in the ARS x ARO tabulations, under the assumption that they would contribute irrelevant variance to the final scores (i.e., that raters might have a tendency to under- or over-rate themselves due to level of self-esteem or other factors). The RANK scores, on the other hand, included self-rankings. Post-hoc analyses revealed a significant correlation between self-based ARS scores and RANK ($r(53) = .40$, $p < .002$). This was not the case with self-based ARO. However, the correlation between ARS x ARO and RANK was

so low (r = .03), that adding these self-ratings to the ARS x ARO measure would still have yielded a nonsignificant relationship between the two measures. Nonetheless, the significant correlation between self-based ARS and RANK suggests that the inclusion of self-ratings on the ARS x ARO measure may enhance its value, especially as a proposed indicator of psychosocial competence.

A third important difference concerned the use of a floating reference point for the ARS x ARO measure. RANK, it will be recalled, was determined by dividing the scores given within each group into quartiles, whereas ARS x ARO scores were not anchored within each group, but rather, were based on a floating reference point with respect to groups. To assess whether this floating reference point for the ARS x ARO scores affected the results, post-hoc calculations were done using z-scores determined separately for each of the 10 groups. All of these post-hoc comparisons were nonsignificant, suggesting that the measure was not importantly affected by the floating reference point.

In review of post-hoc investigations of the lack of a significant relationship between the two psychosocial competence variables the following can be concluded:

1) Neither fared better in terms of the conceptualized hypotheses.

2) Both measures appeared to be reliable.

3) There were several important and potentially influencial differences between the measures, including:

   a) ARS x ARO scores were more strongly associated with liking.

   b) ARS x ARO scores may have been influenced by the fact that these ratings were fully shared with ratees within each group.

   c) Self-ratings were excluded in the ARS x ARO scores, whereas they were

included in the RANK scores.

d) ARS x ARO was based on a floating reference point, however, post-hoc analyses suggested that this difference was unimportant.

In this study's findings the lack of a relationship between the ARS x ARO measure and a direct measure of psychosocial competence makes it difficult to defend either index as a satisfactory measure of psychosocial competence. It is important to note, however, that the lack of a significant correlation between these two measures does not mean that one or both did not measure psychosocial competence. RANK assessed participants' *conceptualizations* of psychosocial competence. The fact that these conceptions of psychosocial competence did not align with the ratings of self and other acceptance (ARS x ARO) does not invalidate the latter's pertinence to the skills of interacting with others in a competent manner. Had a third measure of psychosocial competence been included in the study, one perhaps better documented as a valid measure of the construct, the question of the validity of these two measures may have been more easily resolved. The difficulty here is that there is no well-accepted definition of psychosocial competence, let alone a recognized measure of it. It was the problem of the lack of a clear and recognized conception of what is involved in psychosocial competence that this study was designed to explore.

Another equally plausable explanation for the lack of significant results in this investigation is that self-selection and 40 hours of training in an interpersonal group setting with the goal of developing better interpersonal skills may have resulted in a restricted range of psychosocial competence scores, thus eliminating the possibility of an adequate test of the hypotheses.

2. Differences between ROI and ROII

As reported earlier (p. 52), post-hoc analyses revealed several differences between ROI and ROII that could account for some of the unaccounted covariance between the two measures. Women and more cognitively complex participants were ranked more highly on ROI while those ranked more highly on ROII tended to have been given higher scores on the ICL Dom axis. The instructions for ROI asked that the participants rank-order according to the individual in their group who "evaluates her/himself most favorably, gets along best with others, and is the most understanding, caring, and aware of her/his impact on others." Traits such as being understanding, being caring, getting along well with others, and being socially aware are suggestive of relationships with others, which has recently been specified as an important defining aspect of women's development (see Gilligan, 1982). It is possible that the definition given for ROI pulled for more sex-biased responses from participants, who then ranked women more highly then men. The high rankings of the cognitively complex on ROI may also be related to the fostering in women in this culture of interests and skills in interpersonal relationships. When participants were asked to rank according to their personal definition of psychosocial competence for ROII, however, the aspect of dominance became more important.

B. Group Embedded Figures Test Scores:

As noted in the Results section, general college norms for the GEFT were not used due to the present sample's uneven distribution of GEFT scores. It is possible that the shifting across the four quadrants through the use of improvised norms may have washed-out real differences between actual scorers in each level. Had it been possible to use general college

norms, the GEFT results may have been different. As compared with the most recent college norms for the GEFT (Carter & Loo, 1980), the present sample -- perhaps due to its preponderence (about 74%) of social science majors -- lacked scorers in the most field independent quartile, Level IV. Field independent skills tend to be more associated with majors in mathematics and physical sciences, which were under-represented (about 15%) here. Future research could expect similar samples if subjects are drawn principally from social science classes.

C. Relationship between Cognitive Complexity and Sex:

As reported earlier, cognitive complexity was found significantly correlated with sex ($r(51)= .42$, $p < .001$). Women scored significantly higher on RCQ cognitive complexity then did men. For any finding related to cognitive complexity, an alternative explanation would have been that the sex variable was a confounding factor. However, sex did not correlate significantly with any of the variables with which significant findings were found with cognitive complexity. This leads the researcher to conclude that cognitive complexity's other linkages were not confounded with sex.

Prior research reporting RCQ sex differences was not found, so this finding was unexpected. It would be interesting to test its stability in additional research; to ascertain if women generally score higher than men on RCQ cognitive complexity. It seems likely that this task's psychosocial character of describing others in as much depth as possible within a limited amount of time may have been less appealing to men than to women in this sample. Sex-role stereotyping for women in this culture has generally tended to foster interests and skills in interpersonal relationships (see Gilligan, 1982).

D. Perceptual Accuracy Measures:

As noted earlier, there is no well-recognized and accepted measure of perceptual accuracy. Therefore, in an attempt to increase the probability of obtaining a valid operationalization of the construct of perceptual accuracy in the current investigation a composite perceptual accuracy measure was improvised. The significant correlations among its components, although generally quite small (median $r = .29$), supported the general construct of perceptual accuracy (see Table 3, p. 50). The initial statistical difficulties with the Interpersonal Scales measure are noteworthy, however (see p. 48-49). It may be recalled that each of these scales involved assessing others on a unipolar subscale (i. e., Dominance, Submission, etc). Scores on several of these subscales correlated negatively with each other, however, and averaging across them resulted in participants obtaining approximately the same scores. This suggests that these perceptual accuracy tasks may have been overly specific and that unipolar scales may not provide adequate measures of the construct. Specific personality features of the rater, rather than a broader trait of perceptual accuracy, may have been related to each task. For example, person A may have been more perceptually accurate in ratings others on the dimension of Dominance but not on Warmth and Caring, whereas the opposite may have held for person B, etc. The findings suggest that, similar to the present investigation of the psychosocial competence construct, the construct of perceptual accuracy should not be gauged on the ratings of single dimensions.

An attempt was made to explore the relationship between the two types of self-ratings on the ICL-DISCR measure (see p. 37) by investigating whether they would differ on the ICL's DOM and LOV axes. This also yielded nonsignificant findings. It is likely, then, that error variance and nonspecific factors accounted for the 48% of each measure's variance not

included in their significant correlation ($r(53) = .72$, $p < .001$).

Both women and the more cognitively complex in the present sample scored significantly less accurate on DOM-WC ($r(49) = .27$, $p < .05$, and $r(48) = .32$, $p < .01$, respectively). In a post-hoc analysis it was found that women were significantly less accurate in rating only on the Dominance subscale. When the post-hoc analyses were applied to cognitive complexity scores, it fared better. Cognitive complexity was significantly related to each scale considered separately. However, neither the cognitive complexity nor the sex finding should be weighed heavily because neither correlated across other perceptual accuracy measures.

II. Discussion of the Findings

A. Psychosocial Competence and Field Independence:

The predicted relationships between the cognitive style variable field independence and psychosocial competence were only partially supported. It was predicted that Level II GEFT scorers would be highest on ARS x ARO and RANK, followed by Level III scorers who scored high on perceptual accuracy, Level IV scorers, and finally, those scoring in Level I. Level II participants did score significantly higher than Level I scorers by the ARS x ARO measure, as predicted, but not by the RANK measure. The prediction that Level II participants would score significantly higher than Level IV scorers on ARS x ARO and RANK was not supported. Perhaps Level IV included some participants who were "mobile" with respect to this variable (i.e., manifesting high skills in both field-independence *and* field-dependence).

The findings also failed to support the hypothesis that Level III participants with better perceptual accuracy scores would obtain higher scores on ARS x ARO and RANK than Level I or Level IV participants. In part this was due to the lack of a significant relationship between perceptual accuracy and psychosocial competence. There was even a trend with ICL-DISCR towards the contrary finding; namely, that the least perceptually accurate Level III scorers were rated more highly on ARS x ARO than Level III participants with above average perceptual accuracy scores. It is not clear to this researcher why these moderately high field independent participants who scored lower in perceptual accuracy scored higher on self and other acceptance then did moderately high field independent participants who scored higher on perceptual accuracy. Perhaps the Level III participants who scored low in perceptual accuracy were more similar to their field dependent counterparts, who theoretically may need to be more accepting of self and others out of dependence on their surroundings (or field) for the cognitive structuring abilities that they lack.

Hypotheses VIa and VIb predicted that Level IV field independent scorers would obtain significantly higher scores on ARS than Level I scorers, while these latter would obtain the higher ARO scores. Making a prediction of differences between these groups appeared sound, although the results did not support the hypothesis. Instead there was a trend for Level IV scorers to obtain higher scores on <u>both</u> ARS and ARO than those obtained by Level I scorers. Level IV scorers in this investigation fared better than predicted on ARS x ARO, obtaining the second highest scores on this measure--scores that were not significantly lower than the scores obtained by Level II participants. It appeared that the cognitive abilities of the highly field independent served them well enough in the interpersonal group setting to be seen as more accepting of self and others than Level I and Level III participants, and not significantly

lower than Level II persons on self and other acceptance. The fact that Level IV participants scored higher than Level I participants appeared reasonable, but this author cannot account for their slightly superior performance over Level III participants, who would be more similar than Level IV to Level II scorers. Although these results are somewhat perplexing, the findings themselves point to the value of investigating this cognitive variable in social interactions.

B. **Psychosocial Competence and Cognitive Complexity:**

The predicted significant positive relationship between cognitive complexity and psychosocial competence was found with the RANK measure of psychosocial competence, but not the ARS x ARO measure. This provides some support for the hypothesized link between cognitive complexity and psychosocial competence. In line with previous conceptions related to cognitive complexity, participants with higher cognitive complexity scores were seen as interacting more competently in an interpersonal group setting, as compared with their less cognitively complex counterparts.

The prediction that the combination of a high degree of cognitive complexity and comparably higher scores on the study's perceptual accuracy measures would increase psychosocial competence abilities (as compared to those who score high in cognitive complexity alone) was not supported. Again, these findings were apparently linked to the lack of a significant relationship between participants perceptual accuracy and psychosocial competence scores.

C. Psychosocial Competence and Perceptual Accuracy:

As mentioned above, the prediction that perceptual accuracy and psychosocial competence would be significantly and positively related was unsupported. These results suggested that accuracy in perceiving or construing others was not related to how accepting they were of self and others, or how competently the participants in this study interacted, as measured by RANK. The lack of support of this hypothesis on all four of the perceptual accuracy variables strengthens these findings.

Significant findings were obtained with the CONCEP-AC measure of perceptual accuracy, however, in predictions about the relationship between perceptual accuracy and cognitive complexity. It was predicted that those scoring above average on cognitively complexity would be significantly more accurate in rating other cognitively complex participants, whereas the cognitively simple (those scoring below average on cognitive complexity) would rate other cognitively simple participants significantly more accurately. Findings supported the prediction that the cognitively simple would rate other cognitively simple participants significantly more accurately, but not the prediction that the cognitively complex would rate other cognitively complex participants more accurately. In fact, the pattern that emerged from the data was that both the cognitively simple *and* the cognitively complex were significantly accurate in rating the cognitively simple, whereas neither the cognitively simple nor the cognitively complex rated the cognitively complex well.

The unexpected low perceptual accuracy scores found for the group of cognitively complex participants in rating other cognitively complex participants may have been due to a tendency to perceive others with *too* much complexity and differentiation. Or perhaps the cognitively complex were more difficult in general to rate due to their greater degree of

differentiation. In spite of the assumed greater complexity and differentiation of the cognitively complex, however, they were able to accurately rate the cognitively simple participants to a significant degree; in fact, as well as the cognitively simple participants. It may be that being requested to rate their perceptions of the cognitively simple participants only on the four dimensions of the Interpersonal Scales, rather than to rate their perceptions of them in a more global and less specifically defined manner, helped restrict distortions that the cognitively complex participants might have made in perceiving the cognitively simple participants.

Whatever the possible reasons, the relationship between levels of cognitive complexity and perceptual accuracy is an interesting area standing in need of further investigation, according to the present data. One possible area for investigation is the effect of the manner of assessment of perceptual accuracy. For example, had the raters been asked to rate their group members according to how they thought each of the members would rate her/himself (as opposed to according to how the raters themselves saw the group members, as was done here), a different, and perhaps more valid measurement of perceptual accuracy might have resulted.

III. Summary:

The most serious limitation in the present investigation was the lack of a significant correlation between the two psychosocial competence measures. This rendered conflicting results, such as those obtained on Hypothesis II, where one of the psychosocial competence

measures was significantly related to cognitively complexity (as predicted), but the other was not. This limits strong conclusions about the relationship between the cognitive style variables used in this study and psychosocial competence. As mentioned in the literature review, part of the difficulty with an investigation such as this is the lack of established agreement and instrumentation on the psychosocial competence construct.

Despite this important reservation, the present work contributed several interesting results to the literature of research attempting to delineate cognitive factors contributing to psychosocial competence. Thus, it was found that (1) as expected, cognitive complexity was significantly, albeit it weakly, related to psychosocial competence ($r = .26$), as assessed by RANK; (2) accuracy in perceiving others, as compared to how those others perceive themselves, proved difficult to assess and the resulting index was unrelated to how competently the present participants interacted with each other. An additional finding with regard to perceptual accuracy was that cognitively simple participants were rated significantly more accurately by both cognitively simple and cognitively complex individuals, while, in contrast, neither the cognitively simple nor the cognitively complex were accurate in rating the cognitively complex; (3) in this sample, as expected, the moderately low field independent individuals (Level II) were the most psychosocially competent, while the extremely low field independent individuals (Level I) were the least competent psychosocially. Level III and IV field independent participants scored between these two extremes on psychosocial competence. Unexpectedly, the highly field independent (Level IV) scored as more psychosocially competent than the moderately field-independent (Level III). An additional finding was that there was no relationship between level of field independence and degree of acceptance of either self or others. Highly field independent participants (Level IV)

in this investigation scored slightly, but not significantly, higher on both self and other acceptance compared to their low field independent counterparts (Level I).

APPENDICES

APPENDIX A

INTERPERSONAL SCALES

APPENDIX A

Name: _____
Facilitators: _____
Date: _____

Interpersonal Scales

Below are four scales, each assessing a different personality trait salient to group interaction. Just above each of these scales is a list of each individual in your group, with a letter beside each name. Rate each group member, including yourself, on each of the four scales by writing the appropriate letter on each of the scales to designate how you see each individual in relation to these traits. Make your decision based on each member's verbalizations and behaviors to date in your group. All answers will be kept confidential.

Names of Group Members:

a_____
b_____
c_____
d_____
e_____
f_____
g_____
h_____
i_____

Example:

a	b	b		
| a |		|	|
b				d
c		a		
	c	d		b
d		c		c
	d			a

9	--	--	--	--	9
8	--	--	--	--	8
7	--	--	--	--	7
6	--	--	--	--	6
5	--	--	--	--	5
4	--	--	--	--	4
3	--	--	--	--	3
2	--	--	--	--	2
1	--	--	--	--	1
	Degree of Dominance	Degree of Submissiveness	Degree of Warmth and Caring	Degree of Hostility	

APPENDIX B

RANK ORDERING EXERCISE I

APPENDIX B

Rank Ordering Exercise I

Please rank-order all the members of your group (including yourself) from "most like" to "least like" the definition stated below. In other words, if you thought "Mary" (hypothetical name) in your group was the person who evaluated herself most favorably, got along best with others, and was the most understanding, caring, and aware of her impact on others, as compared to all other members in your group (including yourself), then write "Mary" in the blank by number 1. It is possible that no one in your group has all of these characteristics, or else has some more than others. It is up to you to rank-order group members as to who best fits the description overall. If you think two group members are about equal in their likeness to the definition, you must still rank them (i.e., put one above the other on the sheet), but you may indicate the you see them as tied by placing a "T" after each of their names and drawing a line to connect the "T's." For example: 3. Mary T_
4. Debbie T_
No more than two members may be portrayed as tied with each other and there can be no more than two groups of ties among all the group members. This task should take approximately 10-15 minutes. All answers will be kept condidential.

Definition for Rank-Ordering:

The individual in your group who evaluates her/himself most favorably, gets along best with others, and is the most understanding, caring, and aware of her/his impact on others.

Most Like Definition

Your Name: _____

1.

Facilitator(s): _____

2.

Date: _____

3.

4.

5.

6.

7.

8.

9.

10.

Least Like Definition

APPENDIX C

RANK ORDERING EXERCISE II

APPENDIX C

Rank-Ordering Exercise II

Please rank-order all the members of your group (including yourself) from most interpersonally competent to least interpersonally competent. If you think two group members are about equal in thier level of interpersonal competence, you must still rank them (i.e., put one above the other on the sheet), but you may indicate that you see them as tied by placing a "T" after each of their names and drawing a line to connect the "T's." For example:
3. Mary T_
4. Debbie T_

No more than two members may be portrayed as tied with each other, and there can be no more than two groups of ties among all the group members. This task should take approximately 10-15 minutes. All answers will be kept confidential.

Most Interpersonally Competent

Your Name: _____

1.

Facilitator(s): _____

2.

Date: _____

3.

4.

5.

6.

7.

8.

9.

Least Interpersonally Competent

What does interpersonal competence mean to you? (i.e., what is your definition of interpersonal competence?) _____

_____

_____

_____

APPENDIX D

RAW DATA TABLE

APPENDIX D

Raw Data Table*

Client Code *	01	02	03	04	05	06	07	08	09	10	11	12
Group *	01	01	01	01	01	01	02	02	02	02	02	02
Sex (0=men, 1=women)	0	0	1	1	1	0	0	1	1	1	0	1
GEFT Score	18	16	09	12	07	10	—	09	08	13	17	16
RCQ Score	18.0	18.0	18.5	24.5	26.5	19.5	21.5	21.5	40.5	15.0	17.0	45.0
ICL-DISCR Score	07.2	13.3	07.6	08.5	07.3	08.3	10.0	08.3	14.7	—	10.6	17.1
DOM-WC Score	1.7	1.7	2.2	3.3	4.0	2.1	3.1	2.6	2.8	—	2.9	3.8
CONCEP-AC Score	11.2	9.34	10.0	9.65	11.3	12.5	10.2	11.7	11.8	—	12.6	13.4
ARS (given by others)	30.2	25.4	24.6	29.6	25.6	26.4	30.2	29.4	26.4	24.8	29.0	23.8
ARO (given by others)	32.4	25.2	29.4	31.2	29.4	28.6	31.8	30.8	26.4	26.6	27.6	25.6
ARS x ARO	976	640	674	923	752	755	960	905	677	659	800	609
RANK	2	3	3	4	8	6	2	3	4	7	8	7

Client Code *	13	14	15	16	17	18	19	20	21	22	23	24
Group *	03	03	03	03	03	04	04	04	04	04	04	05
Sex (0=men, 1=women)	1	1	1	1	0	0	0	1	1	1	0	1
GEFT Score	14	16	15	11	—	16	07	17	09	13	04	08
RCQ Score	15.5	30.5	21.5	19.5	—	17.5	14.0	24.5	26.0	26.0	19.0	14.5
ICL-DISCR Score	11.3	06.4	04.5	10.4	—	09.0	12.9	—	—	19.5	12.9	19.7
DOM-WC Score	1.0	—	2.2	4.2	3.3	1.2	3.7	—	—	2.2	2.5	2.3
CONCEP-AC Score	9.23	10.9	14.8	13.6	—	10.0	10.7	—	—	12.0	12.2	12.7
ARS (given by others)	25.3	23.8	26.0	27.3	30.3	33.8	20.4	28.6	30.0	23.0	28.8	23.0
ARO (given by others)	30.5	29.0	28.5	29.3	31.5	34.6	24.2	30.0	30.0	30.2	27.4	28.0
ARS x ARO	771	690	741	799	954	1169	493	858	900	694	789	644
RANK	4	7	4	8	2	5	2	3	8	6	7	2

Client Code *	25	26	27	28	29	30	31	32	33	34	35	36
Group *	05	05	05	05	06	06	06	06	06	06	06	07
Sex (0=men, 1=women)	1	0	0	1	1	0	1	1	1	1	0	1
GEFT Score	07	18	—	09	17	15	11	15	11	17	12	05
RCQ Score	26.0	11.5	16.0	27.0	13.0	20.5	30.0	28.5	27.5	59.0	23.0	21.5
ICL-DISCR Score	10.4	13.1	—	17.4	12.3	12.2	15.6	12.6	—	09.4	08.5	14.0
DOM-WC Score	2.9	2.0	3.0	4.5	2.7	3.9	3.6	3.3	3.3	3.3	3.3	4.1
CONCEP-AC Score	10.3	12.3	—	10.6	12.0	11.3	11.7	11.1	11.6	11.6	12.8	08.6
ARS (given by others)	27.8	22.5	32.5	31.5	29.2	29.0	26.2	30.5	31.8	24.2	26.5	23.2
ARO (given by others)	31.3	27.0	27.8	33.0	31.5	27.2	28.8	31.5	32.7	27.8	24.5	28.3
ARS x ARO	870	607	903	1039	919	788	754	960	1039	672	649	656
RANK	6	2	6	8	3	3	3	4	8	8	3	6

Client Code *	37	38	39	40	41	42	43	44	45	46	47	48
Group *	07	07	07	07	08	08	08	08	09	09	09	09
Sex (0=men, 1=women)	0	1	0	0	1	0	1	0	0	0	0	1
GEFT Score	18	14	16	15	16	16	17	14	02	12	11	03
RCQ Score	34.5	17.5	21.0	26.0	29.5	18.5	23.0	17.5	19.0	06.5	16.5	27.0
ICL-DISCR Score	10.1	13.7	13.2	09.5	19.0	24.5	18.6	11.7	15.4	14.3	09.7	11.3
DOM-WC Score	3.9	3.6	4.4	2.7	3.9	4.3	2.9	2.8	3.0	2.1	2.7	2.9
CONCEP-AC Score	11.4	9.8	12.3	11.2	12.4	15.6	14.7	17.4	10.7	11.6	12.2	10.1
ARS (given by others)	27.8	26.2	29.7	25.8	25.0	28.5	26.8	20.5	29.2	30.6	25.6	21.6
ARO (given by others)	24.7	29.0	31.5	26.5	28.3	31.0	32.5	24.3	25.4	25.4	30.2	31.0
ARS x ARO	686	760	935	683	707	883	871	498	741	777	773	669
RANK	8	8	6	8	6	2	4	4	3	7	2	4

Client Code *	49	50	51	52	53
Group *	09	10	10	10	10
Sex (0=men, 1=women)	1	1	0	0	0
GEFT Score	13	06	14	08	08
RCQ Score	—	28.0	15.0	26.5	13.5
ICL-DISCR Score	19.4	14.1	13.4	—	10.3
DOM-WC Score	4.3	4.4	1.8	2.4	1.5
CONCEP-AC Score	12.2	10.3	5.01	8.40	10.4
ARS (given by others)	29.6	25.3	22.5	27.8	27.3
ARO (given by others)	29.4	27.5	26.0	27.5	26.3
ARS x ARO	870	695	585	764	718
RANK	8	2	7	3	8

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* COMB-PA is not included as it consisted of a summation of the Z- scores for ICL-DISCR, DOM-WC, and CONCEP-AC.

LIST OF REFERENCES

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Adams, H.B. (1964). Mental illness or interpersonal behavior. *American Psychologist*, *19*, 191-197.

Adams-Webber, J. (1979). Construing persons in social contexts. In P. Stringer & D. Bannister (Eds.), *Constructs of sociality and individuality* (pp. 195-219). London: Academic Press.

Argyris, C. (1962). *Interpersonal competence and organizational effectiveness.* Chicago: The Dorsey Press, Inc.

Benjamin, L.S. (1981). A psychosocial competence classification system. In J.D. Wine & M.D. Smye (Eds.), *Social Competence* (pp. 189-231). New York: The Guilford Press.

Bieri, J. (1955). Cognitive complexity-simplicity and predictive behavior. *Journal of Abnormal and Social Psychology*, *51*, 263-268.

Bieri, J., & Blacker, E. (1956). The generality of cognitive complexity in the perception of people and inkblots. *Journal of Abnormal and Social Psychology*, *53*, 112-117.

Block, J. (1971). *Lives through time.* Berkeley: Bancroft Books.

Bronfenbrenner, U., Harding, J., & Gallwey, M. (1958). The measurement of skill in social perception. In McClelland, D. C. (Eds), *Talent and society* (pp. 29-111). New York: D. Van Nostrand Company, Inc.

Bruch, M.A., Heisler, B.D., & Conroy, C.G. (1981). Effects of conceptual complexity on assertive behavior. *Journal of Counseling Psychology*, *28*, 377-388.

Carr, J.E. (1980). Personal construct theory and psychotherapy research. In A.W. Landfield & L.M. Leitner (Eds.), *Personal construct psychology, psychotherapy and personality* (pp. 233-270). New York: John Wiley and Sons.

Carter, H., & Loo, R. (1980). Group embedded figures test: Psychometric data. *Perceptual and Motor Skills*, *50*, 32-34.

Cartwright, R.D., & Lerner, B. (1963). Empathy, need to change, and improvement with psychotherapy. *Journal of Consulting Psychology*, *27*, 138-144.

Crano, W. D., & Brewer, M. B. (1973). *Principles of research in social psychology.* New York: McGraw-Hill Book Company.

Crockett, W.H. (1965). Cognitive complexity and impression formation. In B.A. Maher (Ed.), *Progress in experimental personality research (Vol. 2)* (pp. 47-90). New York: Academic Press.

Crockett, W.H., Press, A.N., Delia, J.G., & Kenny, C.T. (1974). *Structural Analysis of the organization of written impressions*. Unpublished manuscript, University of Kansas.

Delia, J.G., Kline, S.L., & Burleson, B.R. (1979). The development of persuasive communication strategies in kindergarteners through twelfth graders. *Communication Monographs*, *46*, 241-256.

Doll, E.A. (1953). *Measurement of social competence*. U.S.A.: Educational Test Bureau.

Eisler, R.M., & Frederiksen, L.W. (1980). *Perfecting social skills*. New York: Plenum Press.

Ellis, A. & Grieger, R. (1977). *Handbook of Rational Emotive Therapy*. New York: Springer Publishing Co.

Fancher, R.E. (1967). Accuracy versus validity in personal perception. *Journal of Consulting Psychology*, *31*, 264-269.

Feffer, M., & Suchotliff, L. (1966). Decentering implications of social interactions. *Journal of Personality and Social Psychology*, *4*, 415-422.

Filak, J. (1982). *Congruence of perception on client symptoms and therapy outcome*. Unpublished master's thesis, Michigan State University, East Lansing, MI.

Filak, J., & Abeles, N.A. (1984). Posttherapy congruence on client symptoms and therapy outcome. *Professional Psychology: Research and Practice*, *15*, 846-855.

Foa, U.G. (1961). Convergences in the analysis of the structure of interpersonal behavior. *Psychological Review*, *68*, 341-353.

Foote, N., & Cottrell, L.S. (1955). *Identity and interpersonal competence*. Chicago: University of Chicago Press.

Gamble, T.J., & Ginsberg, P.E. (1981). Differentiation, cognition, and social evolution. *Journal of Cross Cultural Psychology*, *12*, 445-459.

Garfield, S. (1971). Research on client variables in psychotherapy. In A. Bergin & S. Garfield (Eds.), *Handbook of psychotherapy and behavior change*. New York: John Wiley and Sons.

Gibb, J. R. (1964). Climate for trust formation. In L. P. Bradford, J. R. Gibb, and K. D. Benne (Eds.), *T-Group Theory and Laboratory Method*, (pp. 279-309), New York: Wiley.

Giedt, F.H. (1958). Cues associated with accurate and inaccurate interview impressions. *Psychiatry*, *21*, 405-409.

Gilligan, C. (1982). *In a different voice*. Cambridge: Harvard University Press.

Gladwin, T. (1967). Social competence and clinical practice. *Psychiatry, 30*, 30-43.

Goffman, E. (1956). *Presentation of self in everyday life*. Edinburgh: University of Edinburgh Social Science Research Centre.

Goldfriend, M.R., & D'Zurilla, T.J. (1969). Behavioral-analytic model for assessing competence. In C.D. Spielberger (Ed.), *Current topics in clinical and community psychology* (Vol. 1, pp. 151-196). New York: Academic Press.

Goldstein, K.M., & Blackman, S. (1978). *Cognitive Style*. New York: John Wiley and Sons.

Gorden, L.V. (1976). *Revised manual for survey of interpersonal values*. Chicago: Science Research Association.

Gottman, E., & Markman, H.J. (1978). Experimental designs in psychotherapy research. In S.L. Garfield & A.F. Bergin (Eds.), *Handbook of psychotherapy and behavior change: An empirical analysis* (pp. 23-62). New York: John Wiley and Sons.

Hale, C.L., & Delia, J.G. (1976). Cognitive complexity and social perspective-taking. *Communication Monographs, 43*, 195-203.

Hale, C.L. (1980). Cognitive complexity-simplicity as a determinant of comunication effectiveness. *Communication Monographs*, *47*, 304-311.

Harvey, O.J., Hunt, D.E., & Schroder, H.M. (1961). *Conceptual systems and personality organization.* New York: John Wiley and Sons, Inc.

Hurley, J.R. (1976). Two prepotent interpersonal dimensions and the effects of trainers on T-groups. *Small Group Behavior*, *7*, 77-98.

Hurley, J.R. (1976). Helpful behaviors in groups of mental health professionals and undergraduates. *International Journal of Group Psychotherapy*, *26*, 173-189.

Hurley, J.R. (1978). Toward seeing ourselves as others see us. In L.R. Wolberg & M.L. Aronson (Eds.), *Group Therapy* (pp. 105-118). New York: Stratton Books.

Katz, R.L. (1963). *Empathy, its nature and uses.* London: Collier-MacMillan Limited.

Kelly, G.A. (1955). *The psychology of personal constructs.* New York: Norton.

Kelly, G.A. (1970). A brief introduction to personal construct theory. In D. Bannister (Ed.), *Perspectives in personal construct theory.* New York: Academic Press.

Kerlinger, F.N. (1973). *Foundations of behavioral research.* New York: Holt, Rinehart & Winston, Inc.

Kurtz, R.R., & Grummon, D.L. (1972). Different approaches to the measurement of therapist empathy and their relationship to therapy outcome. *Journal of Consulting and Clinical Psychology*, 39, 106-115.

LaForge, R., & Suczek, (1955). The interpersonal dimension of personality: III. An interpersonal check list. *Journal of Personality*, *24*, 94-112.

LaForge, R. (1973). *Using the ICL.* An interim revision of *Research Use of the ICL*, 83 Homestead Blvd., Mill Valley, CA.

Lange, D.E. (1970). Validation of the orthogonal dimensions underlying the ICL and the octant constellations assumed to be their measure. *Journal of Projective Techniques and Personality Assessment*, *34*, 519-527.

Lanyon, R.I. (1967). Measurement of social competence in college males. *Journal of Consulting Psychology*, *31*, 495-498.

Lucky, E.B. (1960). Marital satisfaction and its association with congruence of perception. *Marriage and Family Living*, *22*, 49-55.

Lusk, E., & Wright, H. (1981). Differences in sex and curricula on learning the group embedded figures test. *Perceptual and Motor Skills*, *53*, 8-10.

Markowsky, A. (1979). *Direct assessment of psychopathology.* Unpublished doctoral dissertation, University of Pennsylvania.

McKenna, F.P. (1984). Measures of field dependence: Cognitive style or cognitive ability? *Journal of Personality and Social Psychology*, *47*, 593-603.

Meichenbaum, D., Butler, L., & Gruson, L. (1981). Toward a conceptual model of social competence. In J.D. Wine & M.D. Smye (Eds.), *Social competence* (pp. 36-60). New York: The Guilford Press.

Mischel, W. (1972). Direct versus indirect personality assessment: Evidence and implications. *Journal of Consulting and Clinical Psychology*, *43*, 319-324.

O'Keefe, D.J., & Sypher, H.E. (1981). Cognitive complexity measures and the relationship of cognitive complexity to communication. *Human Communication Research*, *8*, 72-92.

Oltman, P.K., Goodenough, D.R., Witkin, H.A., Freedman, N., & Friedman, F. (1975). Psychological differentiation as a factor in conflict resolution. *Journal of Personality and Social Psychology*, *32*, 730-736.

Quinlan, D.M., & Blatt, S.J. (1972). Field articulation and performance under stress: Differential predictions in surgical and psychiatric nursing training. *Journal of Consulting and Clinical Psychology*, *39*, 517.

Reckman, R.F. (1977). *Social competence and construing peers*. Unpublished doctoral dissertation, University of Cincinnati.

Rothenburg, B.B. (1970). Children's social sensitivity and the relationship to interpersonal competence, intrapersonal comfort, and intellectual level. *Developmental Psychology*, *2*, 335-350.

Schrier, H. (1953). The significance of identification in therapy. *American Journal of Orthopsychiatry*, *23*, 585-604.

Sechrest, L., & Jackson, D.N. (1961). Social intelligence and accuracy of interpersonal predictions. *Journal of Personality*, *29*, 167-182.

Seigelman, E., Block, J., Block, J., & Lippe, A. (1970). Antecedents of optimal psychological adjustment. *Journal of Consulting and Clinical Psychology*, *35*, 283-289.

Shulman, E. (1975). *Conformity in a modified Asch-type situation*. Unpublished doctoral dissertation, City University of New York.

Shure, M. (1981). Social competence as a problem solving skill. In J.D. Wine & M.D. Smye (Eds.), *Social Competence* (pp. 158-185). New York: The Guilford Press.

Singer, J.E. (1964). The use of manipulative strategies: Machievellianism and attractiveness. *Sociometry*, *27*, 120-150.

Smith, H.C. (1973). *Sensitivity Training*. New York: McGraw-Hill.

Smith, S., & Leech, C. (1972). A hierarchical measure of cognitive complexity. *British Journal of Psychology*, *63*, 561-568.

Taft, R. (1955). The ability to judge people. *Psychological Bulletin*, *52*, 1-23.

Tyler, F.B., & Gatz, M. (1977). Development of individual psychosocial competence in a high school setting. *Journal of Consulting and Clinical Psychology*, *45*, 441-449.

Van Maanen, J. (1979). On the understanding of interpersonal relations. In W. Bennis, J.V. Maanen, E.H. Schein, & F.I. Steele (Eds.), *Essays in interpersonal dynamics* (pp. 13-42). Chicago: Dorsey Press.

Vannoy, J.S. (1965). Generality of cognitive complexity-simplicity as a personality construct. *Journal of Personality and Social Psychology*, *3*, 385-396.

Weinstein, E.A. (1969). The development of interpersonal competence. In D.A. Goslin (Ed.), *Handbook of socialization theory and research* (pp. 753-775). Chicago: Rand McNally and Company.

Werner, H. (1957). The concept of development from a comparative and organismic view. In D.B. Harris (Ed.), *The concept of development* (pp. 125-148). Minneapolis: University of Minnesota Press.

White, R.W. (1973). Sense of interpersonal competence. In W.G. Bennis, D.T. Berlew, E.H. Schein, & F.I. Steele (Eds.), *Interpersonal dynamics* (pp. 518-523). Chicago: Dorsey Press.

Widiger, T.A., Knudsen, R.M., & Rorer, L.G. (1980). Convergent and discriminant validity of measures of cognitive styles and abilities. *Journal of Personality and Social Psychology*, *39*, 116-129.

Wiggins, J.S. (1982). Circumplex models of interpersonal behavior in clinical psychology. In P. C. Kendall & J. N. Butcher (Eds.), *Handbook of research methods in clinical psychology* (pp. 183-221), New York: Wiley.

Wine, J.D. (1981). From defect to competence models. In J.D. Wine & M.D. Smye (Eds.), *Social competence* (pp. 3-35). New York: Academic Press.

Witkin, H.A. (1978). *Cognitive styles in personal and cultural adaptation*. Worcester: Clark University.

Witkin, H.A., Dyk, R.B., Faterson, H.F., Goodenough, D.R., & Karp, S.A. (1962). *Psychological differentiation*. New York: Wiley.

Witkin, H.A., & Goodenough, D.R. (1977). Field dependence and interpersonal behavior. *Psychological Bulletin*, *84*, 661-689.

Witkin, H.A., & Goodenough, D.R. (1981). *Cognitive styles: Essence and origins*. New York: International Universities Press, Inc.

Witkin, H.A., Goodenough, D.R., & Oltman, P.K. (1979). Psychological differentiation: Current status. *Journal of Personality and Social Psychology*, *37*, 1127-1145.

Witkin, H.A., Oltman, P.K., Raskin, E., & Karp, S.A. (1971). *A manual for the embedded figures test*. Palo Alto, CA: Consulting Psychologists Press.

Zajonc, R.B. (1968). Cognitive theories in social psychology. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (rev. ed.) (pp. 320-411). Reading, MA: Addison-Wesley.

Zigler, E., & Phillips, L. (1960). Social effectiveness and symptomatic behaviors. *Journal of Abnormal and Social Psychology*, *61*, 231-328.

Zigler, E., & Phillips, L. (1962). Social competence and the process reactive distinction in psychotherapy. *Journal of Abnormal and Social Psychology*, *65*, 215-222.

Zigler, E., & Trickett, P.K. (1978). IQ, social competence, and evaluation of early childhood intervention programs. *American Psychologist*, *33*, 789-798.