

COGNITIVE COMPLEXITY AS A VARIABLE IN  
INTERPERSONAL ASSESSMENT

by

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## ABSTRACT

The increasing shortage of trained mental health workers had led to interest in the selection and training of nonprofessionals. One of the best selection techniques devised to date is Goodman's (1969) Group Assessment of Interpersonal Traits (GAIT). However, research in matching of interpersonal variables and therapy outcome has suggested that other therapist characteristics should be investigated in regards to GAIT performance. The present study was an attempt to further refine the GAIT, with specific reference to the role of cognitive complexity. It was hypothesized that matching of cognitive complexity within GAIT groups would effect GAIT ratings.

Forty eight female nursing students were assigned to three conditions of cognitive complexity, high, low and heterogeneous, on the basis of repertory grid scores. Groups of four participated in the GAIT procedure. Each subject then rated herself and every other member of her group on seven interpersonal variables. In addition, each subject rated herself as she thought the other members in the group would rate her.

Results provided partial support for the hypothesis that cognitive complexity would effect GAIT ratings. The implications of these findings for future research are discussed.

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## INTRODUCTION

The shortage of trained mental health workers has become increasingly apparent in the last two decades (Albee, 1959, 1968). Albee (1959) reports that shortages in professionals runs from 25% to 75% below standards for minimal care and suggests that this disparity will become more severe in the future. Professionals in the fields of social work, clinical psychology and psychiatry are not being trained in sufficient numbers to meet the needs of society.

The recently adopted concept of "community mental health" appears to have accentuated this shortage since with the broadening definition of mental health, the demand for professional services also increases (Zax and Cowen, 1972). As large institutions are replaced by scores of community services and primary prevention gains importance, it becomes apparent that the traditional methods and models in the mental health field are not adequate to satisfy increasing social demands for professional workers. In addition, growing interest in social problems--juvenile delinquency, drug abuse, cultural impoverishment, alcoholism and geriatrics, among others--has broadened the scope of traditional mental health professionals and redefined the nature of its clientele.

Another issue in the mental health manpower shortage is that, regardless of the number of available professionals, many of those needing help do not receive it. Large groups go untreated because professionals



tend to choose situations that are most rewarding, preferring to work with individuals who show dramatic changes (Gruver, 1971). In the classic Hollingshead and Redlich (1958) study, the authors observed that therapists' attitudes toward their patients were positively related to the latter's social class. They reported that professionals generally are unable to understand lower-class values and hence are less prone to like persons holding such values. They concluded that therapists had more positive feelings toward patients whose social class backgrounds were similar to their own, and thus preferred to treat such patients.

Other groups lack professional care because professional contact with them has been considered futile. For example, Grosser, Henry and Kelly (1969) noted that professionals have had little success in working with the poor. This is substantiated by the Hollinshead and Redlich paper. Similar lack of success with drug offenders, alcoholics and juvenile delinquents has led to the establishment of self-help programmes (e.g., Synanon, Alcoholics Anonymous and Big Brothers, Reisman, 1969) which are staffed largely by non-professional workers.

Thus, there appears to be a twofold problem in the inadequate supply of professional person power: firstly, we are unable to train sufficient professionals, and secondly, some patient populations have failed to respond to professional intervention.

Since the early 1960's researchers and clinicians have been attempting to partially remedy this situation through the use of essentially untrained mental health workers. High school and college students, housewives, teachers, parents, grandparents, retired men and women, prison inmates, juvenile delinquents, hospital aides, and others have been enlisted as psychotherapeutic agents. Client populations have varied, including institutionalized chronic schizophrenics, dyslexic children, emotionally disturbed children and juvenile delinquents. The volunteers and non-professionals have been employed in the capacity of companions, behavioral technicians, tutors and counsellors or therapists. The current literature suggests that this use of paraprofessionals is not a passing phenomena. As the concept of mental illness is broadened and social issues become more important to the individual in society, the role of the non-professional as a social change agent grows in importance.

#### Programmes Using Non-professionals

One of the pioneering projects in using non-professionals as mental health workers was established by Harvard and Radcliffe undergraduates with chronic patients (Umbarger, Morrison and Breggin, 1962). During a seven year period over 200 student volunteers participated in companion programmes with child and adult patients. Beck, Kanton and Gelineau (1963) reported that 37% of a 120 patient sample seen by the student workers were discharged from hospital, compared to the 3% discharge base-rate for the institution. Although patients seen by the students were most likely less chronic than controls, these results are encouraging.

Several programmes with chronic patients have followed the model of the Harvard-Radcliffe project. Appleby (1963) demonstrated significant improvement in chronic schizophrenics who were treated by hospital aides functioning as lay therapists. Similar findings with institutionalized populations have been reported by Carkhuff and Truaz (1965), Poser (1966), Vernis (1970), Fischer (1970), and Rapaport, Chinsky and Cowen (1971).

Some investigations have utilized parents as therapeutic agents for their own children (Guerney, 1964; Patterson and Brodsky, 1966; Stover and Guerney, 1966; Mira, 1970; and Ryback and Staats, 1970). Stollack (1968) adapted Guerney's techniques to train college students as play therapists for children, while Cowen, Leibowitz and Leibowitz (1968) trained retired men and women to function as mental health aides with primary grade children. In a similar programme, Cowen, Zax and Laud (1966) used student volunteers in an after school daycare programme. Davison (1965) was successful in training undergraduates in behavior modification techniques with autistic children.

Other researchers have attempted to make use of non-professionals indigenous to the environment of the client. Hallowitz and Reissman (1967) successfully used indigenous inhabitants as para-professionals in a neighbourhood service programme. Wahler and Erickson (1969) found that indigenous para-professionals worked well in a community programme in Appalachia, and Staats, Minke and Butt (1970) provided remedial reading to black ghetto children through black therapy technicians.

In another community based project, Beier, Robinson and Micheletti (1971) trained adult lay members and high school students to work with families selected for having problem children in schools or for being under stress.

#### Advantages and Effectiveness of Non-professionals

As previously stated, one of the main advantages in using non-professionals is the supplementing of inadequate professional person power resources. Beyond this major advantage, several researchers have suggested more subtle benefits.

Gordon (1965) has suggested that the lay-professional worker may enjoy many advantages of his/her professional counterpart.

He appears to have greater ability (1) to enter the milieu of the distressed; (2) to establish peer-like relations with persons in need of help; (3) to take an active part in the client's total life situation; (4) to empathize more effectively with the client's life style; (5) to teach the client more effectively, within the client's own frame of reference more successful actions; and (6) to provide the client with an effective transition to higher levels of functioning within the social system. (Carkhuff, 1969, p. 10)

Reiff (1967) reports that the lay-professional can serve as an invaluable bridge between professionals and the target population. He suggests that non-professionals, and especially indigenous ones, are important in that their inter-class communication skills facilitate understanding between professionals and those clients who have traditionally been difficult to reach. Considerable research suggests that non-professionals

have had a great deal of success in working with these traditionally "hard to deal with" groups which have thus been neglected by professionals (Blau, 1969). Thus, there are a variety of unique attributes of the non-professional which may contribute to his or her effectiveness as a mental health worker.

Although various studies suggest that the use of non-professionals is a viable alternative source of person power in the mental health field, (Gruver (1971) has suggested that most investigations reported are so inadequate methodologically that it is impossible to draw firm conclusions about the actual effectiveness of the non-professional. As in traditional psychotherapy research, few of the studies are similar enough in any respect to allow conclusions in any area. Many are without appropriate controls and/or lack pre- or post- measures. Little attention has been given to the selection of non-professionals or to the type of training they receive.

Similarly, Siegel (1973) notes that many of the studies in this area are descriptive and anecdotal rather than empirical in nature. However, he adds that several studies do appear (e.g., Rioch et al, 1965; Poser, 1966; Chinsky, Rapaport and Cowen, 1971) whose methodology is sufficiently adequate to allow researchers to conclude that non-professionals have in fact been therapeutically effective in a variety of settings. However, it is the lack of consistently adequate studies on any one aspect of the use of non-professionals that leaves the area open to further questioning by researchers.

In his criticism of psychotherapy research, Keisler (1966) singled out what he refers to as the "patient uniformity assumption" and the "therapist uniformity assumption" for special attention. Keisler notes that researchers have typically assumed that both patients and therapists are more alike than they are different. He suggests that these clearly unwarranted assumptions have been responsible for the naive manner in which patients and therapists are chosen for psychotherapy research. A similar criticism can be made of the research involving non-professionals. It is reasonable to expect that non-professional workers vary widely on demographic, social and personality indices, yet these differences have received little attention to date.

#### Selection and Training of Non-Professionals

Carkhuff (1968, 1969, 1971) has emphasized that selection and training are essential elements in using non-professional mental health workers. He warns that without the systematic selection and training of the participants, effective programmes cannot be developed and implemented. However, there has been little consideration of selection methods even in those programmes which have included considerable training. In addition, there is little data to describe those who actually volunteer to serve as a non-professional.

Most studies deal with volunteers who are "carefully" chosen but neglect to provide information about their characteristics. Harvey (1964) selected lay therapists for marriage counselling on the basis of

maturity, success and intelligence as assessed in an interview. Davison (1965) accepted volunteers on the basis of faculty recommendations, as did Suinn (1974). Suinn, however, required a thirty minute screening interview as well in order to provide staff with a sampling of the individual's skills. Other researchers (e.g., Rioch, Elkes, Hunt, Udonsky, Neuman and Silber, 1965; Carkhuff and Truax, 1965; and Cowen and Zax, 1966) have done little or no screening. Cowen and Zax (1966) specifically stated that they made little or no attempt to select volunteers on the basis of any set of preconceived personality attributes and that their goal in selection was to weed out students who seemed either flagrantly maladjusted or grossly unsuitable in some other way. One of the few attempts to develop a sophisticated selection technique for non-professionals has been reported by Goodman (1969, 1973). Goodman has developed a structured behavioural technique known as the Group Assessment of Interpersonal Traits, to assess the therapeutic characteristics of understanding, openness, and accepting-warmth.

#### Individual Differences and Therapeutic Effectiveness

Since the 1950's there has been growing interest in the importance of interactional variables in therapeutic outcome. Whitehorn and Betz (1954) initiated interest in the therapist A-B variable. Their finding that outcome with schizophrenics was relatively better for the A-type therapists suggested that interactional variables may be important factors in a successful therapeutic relationship. Betz (1962) suggested that the crucial determinants of therapeutic outcome of schizophrenic patients

lies in certain personal qualities of the therapist. The interpersonal characteristics most frequently cited as being necessary in a therapeutic relationship are understanding, openness and accepting-warmth (Rogers, 1957; Truax, 1967). Rogers, however, qualified his suggestion that these were the essential ingredients by stipulating that the patient must be able to perceive these therapist qualities and that the patient must like and respect the therapist.

Many researchers have tackled the issue of accuracy of perception as a necessary condition for communication and have attempted to delineate the essential criterion involved. One approach to the problem has been the hypothesis that similarity or congruence on various dimensions between client and therapist is necessary to ensure communication. In this regard, various variables have been investigated by researchers. Social psychologist Roger Brown (1965) suggested that to attain some degree of accuracy in perceiving another, the perceiver must be similar to the other on dimensions of personality, attitudes, etc., or he must be highly familiar with the other. Keith-Spiegel (1967) reported that compatible intelligence levels enhanced the perceived helpfulness of others. Welthowitz, Cohen and Ortmeyer (1967) found that congruent value systems of therapist and client, as rated on the Strong Vocational Interest Blank and the Ways to Live Scale, an important variable. Sapolsky (1965) reported that client-therapist compatibility on the FIRO-B enhanced therapeutic outcome.

Luborsky, Chandler, Auerback, Cohen and Bachrach (1971) have recently



reviewed the factors influencing the outcome of psychotherapy. They report that of fourteen studies dealing with some form of similarity between therapist and patient, nine show a positive relationship; greater similarity is associated with better outcome. They conclude that perceived similarity seems to provide a more significant relationship between the therapist and patient, and therefore a better outcome to treatment.

Recent work by Carr (1970, 1971) has indicated that the matching of cognitive complexity is an important factor in the outcome of psychotherapy. Carr reports that cognitive compatibility of the patient and the therapist is essential to positive outcome as perceived by the patient and as evidenced by his reported symptom reduction.

Thus, it can be seen that patient-therapist congruence has been recognized by many researchers as an important factor in therapeutic dyadic interactions. This need for congruence carries with it important implications for the development of selection procedures for both professionals and non-professionals. If such matching does contribute significantly to outcome, as has been suggested, then increasing attention should be paid to these variables in developing selection procedures for volunteers.

One of the better selection techniques developed to date is Goodman's GAIT (1969, 1973). This procedure was developed to screen undergraduate

male applicants for a companionship programme with maladjusted boys.

The GAIT focuses on interaction and communication in dyads within a larger group. Each member of a GAIT group is required to roleplay both a therapist and client with a concern, after which each member of the group rates all other members on variables relating to therapeutic effectiveness.

The purpose of the present study is to investigate a procedure for further refining this selection method. Based on the previously presented data which suggests that similarity between patient and therapist is an important factor in the outcome of psychotherapy (Luborsky et al, 1971) it is assumed that similar factors will operate in a patient therapist role playing situation, such as that of the GAIT. More specifically, it was hypothesised that cognitive complexity, or differentiation, would function as an important variable affecting task performance.

### Cognitive Complexity

Recent research has supported the position that effective psychotherapeutic outcome relies heavily upon a matching of the therapist and the patient. Traditionally, interest has been generally in the direction of training therapeutic skills, rather than in the selection of individuals. In recent years, however, the emerging body of literature supporting they hypothesis that personality variables are crucial to effective therapy has encouraged investigations into other contributory factors. One of the most promising dimensions to be investigated in this regard has

been cognitive factors, and more specifically, the compatibility of cognitive structures between therapist and patient (Carr, 1970).

Carr has suggested that successful communication between two individuals depends to a large extent upon the degree of compatibility in the conceptual systems each uses to explain the world around her or him (Carr, 1971, p. 2). He has suggested that although considerable effort has been directed towards exploring the relationship between such interpersonal factors as empathy or understanding and therapeutic outcome, the psychological processes by which these phenomena occur have had little investigation.

Early researchers (Runkel, 1956; Newcomb, 1958; Triandis, 1960) suggested that successful communication within dyads is based upon similarity of cognitive dimensions. Cartwright and Lerner (1963) and Rogers (1967) argue that successful treatment outcome relates to cognitive similarity and the ability for the therapist to accurately perceive and communicate within the client's cognitive dimensions. Landfield (1971), in a summary of studies on client-therapist congruence concluded that lower degrees of congruency in content and structure of personal constructs are related to premature termination in psychotherapy. More recently, Carr (1970, 1971) has indicated that the degree of cognitive complexity is an important variable in therapeutic outcome. He suggests that successful communication and therapy outcome are dependant upon the degree to which the participants of a dyadic interaction share a similar level of cognitive differentiation.

Carr (1971) defines cognitive complexity as similarity in the degree to which conceptual dimensions are differentiated.

"Two friends may share a common dimension such as 'intelligent-stupid.' For one individual the dimension may be poorly differentiated, allowing him to make few discriminations among a group of mutual acquaintances, while for the other it may be highly differentiated, permitting him to perceive a greater number of differences among the same group of persons. Whether these friends agreed a given person was intelligent or stupid would not necessarily depend upon whether or not they shared a relatively common degree of differentiation of the conceptual dimension. Therefore, the more meaningful 'functional' similarity of their conceptual structure can be distinguished from merely the 'semantic' similarity, and operationally defined in terms of the degree to which the level of differentiation of one approaches the level of differentiation of the other. (Carr, 1971, p. 4).

In a study investigating the outcome of psychotherapy as related to differentiation compatibility of therapist and patient, Carr (1970) reported that such matching resulted in improved outcome. These findings supported the hypothesis that successful therapy outcome requires not only a sharing of semantically common conceptual dimensions, but also similarity in the extent to which stimulus objects are differentiated along these dimensions.

Carr and Whittenbaugh (1969) have suggested that incompatibility of cognitive structures may account for the failure of patient, therapist and observers to agree about outcome and the nature of the therapy relationship. Thus, matching of cognitive constructs could be an important element on the outcome of such selection procedures as the GAIT where

individuals are required to interact on a similar basis as in a therapeutic situation and then to rate each other on the basis of the perceived interaction.

### The Present Study

The present study was designed to examine the hypothesis that conceptual compatibility, or similar levels of cognitive complexity, will affect the ratings of subjects role-playing client-therapists dyads. It was hypothesised that ratings on the dimensions used in the GAIT would be influenced by the degree of compatibility on the cognitive complexity dimension. Thus, group composition with respect to cognitive complexity was manipulated, creating three conditions: high cognitive complexity, low cognitive complexity, and heterogeneous cognitive complexity (an equal division of high and low). It was assumed that in homogeneous GAIT groups communication would be facilitated and thus ratings of those variables essential to a therapeutic relationship would be higher. In addition, it was hypothesised that accuracy of person perception, as measured by the discrepancy between subjects rating of themselves and the ratings by others in the group, would be higher in the homogeneous conditions.

## METHOD

### Subjects

Subjects were selected from female undergraduate nursing students who were taking a psychology course for nurses at the University of British Columbia. Students ranged in age from 18 to 23 years. The class was told by their instructor that as they had been studying personality assessments, they would be given the opportunity to do a paper and pencil test of personality for themselves. Also, the teaching assistant for the course had agreed to run a limited number of groups in which they would have a chance to role play a patient-therapist counselling situation and that those who attended these groups would be able to get feedback from their personality tests.

### Procedure

An adaptation of Kelly's Rep Grid was administered to all students in the class with option of completing it. Seventy-two out of a possible 90 students completed the grid. Twelve forms were invalidated and thus discarded. A total of sixty grids were then scored to obtain a measure of cognitive complexity for each subject.

The scoring of the Rep Grid, as described by Bieri, Atkins, Briar, Leaman, Miller and Tripodi (1966), is an involved procedure. In brief, each subject is presented with a 10 x 10 grid (see Figure 1). Each of the ten columns is identified by a different role type. After the subject



has listed the name or initials of each of the ten persons who best correspond to the ten role types, he is instructed to use a six-step Likert-type scale in rating all ten persons he has listed on the first provided construct. For example, the first construct is "outgoing-shy." Each subject rates each of the persons on a scale of +3 (outgoing) to -3 (shy). Following this, the subject rates all 10 persons on the second construct dimension and so on through all 10 rows. Thus each subject makes ten ratings for each of the role types, for a total of 100 ratings.

Grids were passed out in the class and directions were given by the course instructor. Anyone who did not understand the directions was given the opportunity to ask questions. Approximately fifteen minutes was required to complete the grids.

Cognitive complexity was measured by comparing each rating in a column with the rating below it in all other rows on the matrix. In comparing any two construct rows, a score of one was given for every exact agreement of ratings. This matching procedure was carried out for all possible comparisons, and the frequency of matching comparisons served as a total score. Since there are 45 possible row comparisons in the 10 x 10 matrix, the highest possible score is 450. A score of 450 would indicate that the subject had given the same rating on all bi-polar constructs to all of the role types. Such a subject would be relatively cognitively simple because the construct dimensions are being used in an



identical manner to construe all individuals on the grid. Low scores imply cognitive complexity in that constructs are used differentially in discriminating among people.

Of the 60 students who completed the grid correctly, cognitive measures ranging from 80 to 250 were obtained when the grids were scored in the described manner. Using a median split the subjects were divided into high and low groups. From these subjects three conditions, high cognitive complexity, low cognitive complexity, and heterogeneous cognitive complexity, were formed. Each condition contained four groups of four subjects each. Each group in the heterogeneous condition contained an equal number of subjects who had scored high and who had scored low on cognitive complexity, while subjects in the other two conditions were homogenous with respect to cognitive complexity. A total of 48 of the possible 60 subjects participated, based on their availability.

Subjects provided a time table indicating their available times for the next two weeks and selection of subjects for individual groups was made on this basis. Each subject was contacted by phone and once she had agreed to participate was warned that if she did not appear the group would be unable to run as scheduled as all four people had to be present. In only three cases did one member not arrive and three more groups of four were run to compensate for these.

All groups were held in a small seminar room. Seats were arranged in a circular fashion to facilitate interaction. Each groups of four

subjects participated in Goodman's (1973) behavioural assessment procedure, the Group Assessment of Interpersonal Traits (GAIT). The GAIT procedure is described by Goodman as follows:

"Subjects gather into structured groups, where they perform several interpersonal tasks and prepare systematic descriptions of each other. As they enter the room each subject receives a set of written instructions and a sociometric rating scale, along with a rationale for the entire procedure. During a warm up period, students are invited to ask the group a personal question 'as if' it were an individual. Anyone who wishes can answer the question briefly, and the questions and answers continue around the group until all participants have asked once and answered once. Next, the applicants are asked to think of two immediate interpersonal concerns that they could share with the group and to state them briefly in writing. The self-descriptive statements are used as catalysts to start dialogues between pairs of applicants: one person elaborates or explores his own statement; the other person attempts to understand feelings.

1. The applicants sit in a circle and wear letter tags. Ms. A. begins by reading one of her statements to the group. She is designated as the discloser.
2. Any applicant can spontaneously respond to the discloser and engage her in a five minute dialogue. The applicant who responds is called the understander. Other group members are asked to remain silent.
3. In the rare instance where no response is offered to the discloser's first statement within a minute, the discloser is asked to read his second statement.
4. Understanders are asked to avoid giving advice, making judgements, or offering interpretations. Instead they should reflect feelings, disclose their own relevant thoughts or immediate reactions, or simply 'listen very hard' while saying nothing.
5. When the five minute dialogue has terminated, the understander tries a brief (thirty second) summary of the interaction.
6. The discloser then rereads his initial statement. The juxtaposition of initial statement and summary gives the group a sharper view of the understander's grasp of the situation and his success at facilitating the expansion of the problem presented.

7. Ms. B. now becomes the discloser, and anyone except the person who responded to Ms. A. can now respond to Ms B. The group continues to form dyads in this manner until everyone in the circle has performed both tasks.
8. Each applicant is asked to rate the other applicant on the sociometric scales (Table 1) describing such interpersonal traits as understanding, openness, acceptance, rigidity.
9. When scales are completed, the group is open for free discussion. The entire procedure takes about sixty minutes."

Goodman, 1973, page 29-31.

Each GAIT group was supervised and led by the experimenter who remained blind to experimental condition. At the end of the session each member rated the performance of herself and all others on seven point scales, representing dimensions of understanding, depressed, open quiet, accepting-warmth, rigid and relaxed. Each subject also estimated how the group would rate her on these scales. Thus, there were three types of ratings for each subject: Self ratings, Actual ratings (group scores) and Perceived ratings (subject's estimation of how others would rate her). At the termination of each group subjects were encouraged to discuss their feelings about the group.

TABLE 1

## GROUP DESCRIPTION SCALE FOR GAIT

Sociometric Item	Variable Name
1. I feel that she understands what others really mean	Understanding
2. She seems sad, blue, discontented	Depressed
3. She appears honest, frank emotionally open	Open
4. I see her as a mild, reserved quiet person	Quiet
5. She seems warm, patient and accepting	Accepting - warm
6. She appears set in her ways	Rigid
7. I see her as a relaxed, easy going person	Relaxed

## RESULTS

MANOVA

Multivariate analyses of variance were performed to assess the effects of cognitive complexity on each of the three sets of seven ratings. The MANOVA for Self ratings indicated overall significant  $F(7, 2, 36) = 2.09, p < .05$ . Comparisons between high and low conditions resulted in a multivariate  $F(7, 1, 24) = 5.25, p < .05$ . Heterogenous vs. high and heterogenous vs. low comparisons were not significant for self ratings.

Results of the predicted ratings showed a significant  $F(7, 2, 36) = 2.28, p < .05$ . Multiple comparisons were not significant.

Results for the MANOVA for actual ratings showed a significant  $F(7, 2, 36) = 2.49, p < .01$ . Comparisons between high and low conditions resulted on a multivariate  $F(7, 1, 24) = 2.79, p < .05$ .

MANOVA's performed on predicted vs. actual ratings and self vs. actual ratings were not significant.

It appears that much of the variance contributing to the significant multivariate  $F$  is associated with differences between the high and low cognitive complexity conditions. To assess specific rating scales contributing to the multivariate  $F$ 's, a series of univariate  $F$ 's were calculated.

### Univariate Analyses of Variance

A one way analysis of variance was performed for each variable across levels of cognitive complexity. Results of self ratings indicated significant F's on the Open variable,  $F(2, 36) = 2.79$ ,  $p < .05$ , the Quiet variable,  $F(2, 36) = 3.53$ ,  $p < .05$ , and the Rigid variable,  $F(2, 36) = 5.41$ ,  $p < .01$ . Results were not significant for the Understanding, Depressed, Accepting-Warm or Relaxed variables.

Results on predicted ratings yielded a significant F for the Depressed variable,  $F(2,36) = 5.45$ ,  $p < .01$ , and the Rigid variable,  $F(2,36) = 3.48$ ,  $p < .01$ . Analyses of other variables were not significant.

Actual ratings yielded significant F's on the Depressed variable,  $F(2,36) = 4.17$ ,  $p < .05$ , the Rigid variable,  $F(2, 36) = 3.77$ ,  $p < .05$ , and the Relaxed variable,  $F(2, 36) = 3.64$ ,  $p < .05$ .

In summary, level of cognitive complexity had a significant influence on self ratings for the Open, Quiet and Rigid variables. Similarly, level of cognitive complexity influenced the predicted ratings on the Depressed and Rigid variables, and influenced the actual ratings on the Depressed, Rigid and Relaxed variables.

For self ratings, all the significant multivariate comparisons involved the low cognitive complexity condition. Calculating the parallel univariate F's, the low condition Ss differed from the high condition Ss

in that they rated themselves as more Open,  $F(1, 24) = 5.68, p < .05$ , and more Quiet,  $F(1, 24) = 5.90, p < .05$ , than did the Ss in the high condition. Ss in the low condition also rated themselves as less Rigid,  $F(1, 24) = 11.88, p < .01$ , than did Ss in the high condition and less Rigid,  $F(1, 24) = 4.91, p < .05$ , than did Ss in the heterogeneous condition.

The low condition was similarly involved in all significant multivariate comparisons for predicted ratings. Ss in the low condition predicted that they would be rated as more Depressed,  $F(1, 24) = 4.37, p < .05$ , than Ss in the high condition did, and more Depressed,  $F(1, 24) = 9.88, p < .01$ , than Ss in the heterogeneous condition. They also predicted that they would be rated as less Rigid,  $F(1, 24) = 5.14, p < .05$ , than did Ss in the heterogeneous condition.

Actual ratings indicated that Ss in the low condition were rated as less Depressed,  $F(1, 24) = 7.20, p < .05$ , and less Rigid,  $F(1, 24) = 6.06, p < .05$ , than were Ss in the heterogeneous condition. They were also rated as less Depressed,  $F(1, 24) = 4.80, p < .05$ , than were the Ss in the high condition. In the comparison of high vs. heterogeneous conditions, the Ss in the high condition were rated as more relaxed,  $F(1, 24) = 9.09, p < .01$ , than were Ss in the heterogeneous condition.

#### Relationship Between Cognitive Complexity and Ratings

Level of cognitive complexity was correlated with all thirty-five

ratings to determine whether the ratings were determined by the rater's level of cognitive complexity, independent of the experimental manipulation. No significant correlations were found which suggests that ratings were, in fact, not related to the individual levels of cognitive complexity.



TABLE 2

## SELF RATINGS

Condition	MANOVA	Open	Quiet	Rigid
Hetro vs High vs Low	F(7,2,36)= 2.09, p < .025	F(2,36)= 2.79, p < .05	F(2,36)= 3.53, p < .05	F(2,36)= 5.41, p < .01
High vs Low	F(7,1,24)= 5.25, p < .036	F(1,24)= 5.68, p < .05	F(1,24)= 5.90, p < .05	F(1,24)= 11.88, p < .01
Hetro vs High	ns	ns	ns	ns
Hetro vs Low	ns	ns	ns	F(1,24)= 4.91, p < .05

TABLE 3

## PREDICTED RATINGS

Condition	MANOVA	Depressed	Rigid
Hetro vs High vs Low	F(7,2,36)= 2.28, p < .014	F(2,36)= 5.45, p < .01	F(2,36)= 3.48, p < .05
High vs Low	ns	F(1,24)= 4.37, p < .05	ns
Hetro vs High	ns	ns	ns
Hetro vs Low	ns	F(1,24)= 9.88, p < .01	F(1,24)= 5.14, p < .05

TABLE 4

## ACTUAL RATINGS

Condition	MANOVA	Depressed	Rigid	Relaxed
Hetro vs High vs Low	F(7,2,36) 2.49, p < .0075	F(2,36)= 4.17, p < .05	F(1,24)= 3.77, p < .05	F(1,24)= 3.64, p < .05
High vs Low	F(7,1,24)= 2.79, p < .038	F(1,24)= 4.80, p < .05	ns	ns
Hetro vs High	ns	ns	ns	F(1,24)= 9.09, p < .01
Hetro vs Low	ns	F(1,24)= 7.20, p < .05	F(1,24)= 6.06, p < .05	ns

## DISCUSSION

The present findings partially support the hypothesis that matching of cognitive complexity will significantly affect how subjects rate both themselves and others on various interpersonal constructs within GAIT groups. Significant relationships did not occur for the most part on those GAIT variables--Understanding, Open and Accepting-Warm -- which Goodman (1973) suggests are important in a therapeutic relationship. Rather, the Quiet, Rigid and Relaxed dimensions appeared to be the variables most affected by the experimental manipulation. In addition, significant comparisons between conditions were for the most part not between the heterogeneous-homogeneous conditions as had been predicted, but instead between high and low conditions.

Analyses indicated that subjects who scored low on cognitive complexity, matched with subjects similarly rated, tended to perceive themselves as being more Open, more Quiet and less Rigid than did subjects who were rated high on cognitive complexity and matched with subjects with similar ratings. These results are surprising if Carr's (1970) findings are taken into account. Carr reports that therapists whose cognitive structures are highly differentiated are able to accommodate to clients with differing degrees of cognitive complexity more easily than are subjects whose cognitive structures are less differentiated. This would presumably result in low cognitive complexity subjects tending to be less open and flexible. The opposite findings of the present study may be partially explicable in terms of the pro-

cedure followed in the study. Due to the difficulty in obtaining subjects who were free for more than fifty minutes, it was necessary to reduce GAIT groups from the original eight to only four subjects. Thus, although dyads interacted for the same amount of time as in the original GAIT procedure, subjects in the present study experienced the group situation for a shorter period of time. The warm up period that Yalom (1970) and other group researchers suggest is so important to facilitate group process was shortened considerably. Given this time limited format of GAIT interaction, it is possible that high cognitive complexity subjects would have been unable to be as open as they would have preferred to be if given a longer period of time. Thus, high cognitive complexity subjects may have perceived less satisfaction within these time constraints than did the low cognitive complexity subjects. As a result, high cognitive complexity subjects may have viewed themselves as less open in that particular situation than they usually viewed themselves, and therefore rates themselves as such. Low cognitive complexity subjects, on the other hand, may have been more satisfied with their performance in the limited time situation, as according to their own definition their perception of openness would be less differentiated.

Carr (1970, 1971) has reported that matching of cognitive complexity is related to successful outcome in psychotherapy, while other researchers (Rogers, 1957; Truax and Carkhuff, 1967) have stressed the importance of certain interpersonal traits in successful therapy. Therefore it was hypothesized that these two variables would be related to each other. Two lines of evidence in the present research suggests that this assumption is

unwarranted. Firstly, matching of cognitive complexity did not lead to better ratings on those variables which have been suggested to be crucial to therapeutic outcome. Secondly, two additional analyses were done to ascertain the relationship between cognitive complexity and the interpersonal variables. Level of cognitive complexity was not seen to be correlated with ratings on the GAIT, which suggests that ratings were not related to individual level of cognitive complexity. In addition, a second measure of cognitive complexity was derived from each subject's GAIT ratings in the same manner as the original Rep Grid score had been obtained. These two measures of cognitive complexity were not found to be correlated, ( $r(47) = 0.118, p < .05$ ). Thus, these results suggest that although both cognitive complexity and interpersonal variables are important to GAIT performance, and by inference perhaps to psychotherapy, the measures themselves are not related.

The lack of significance of the derived measures of predicted vs. actual and self vs. actual is not surprising due to relative lack of significant differences between groups on the three sets of rating themselves.

#### Summary

Although results do not clearly show a strong relationship between matching of cognitive complexity and rating on GAIT dimensions, they do suggest that a relationship may exist. Taking variations in GAIT procedure into consideration, results do seem to warrant further exploration of the effect of the variable in this type of interaction.

Further investigations should include the original larger GAIT format in order to facilitate the group process. In addition, attention should be directed to the inter-rater variance, which was not controlled for in this study, as several researchers (Kurtz & Grumman, 1972; Rapaport, 1972; Truax, 1972) have suggested that significant differences between raters of interpersonal variables exist. Utilization of trained raters rather than group members would serve to remove some of the variance currently associated with rater differences and allow more reliable indices of the variables in question. Similarly, greater experimenter training specific to this group procedure would ensure greater standardization of the procedure. Sampling from a more heterogeneous population would be more likely to result in significant effects and would allow greater generalizability of results.

Although the GAIT remains one of the better techniques for paraprofessional assessment, present findings do indicate that GAIT performance is related to a wider variety of individual differences than has been assumed to date. The GAIT has been shown to successfully predict paraprofessional performance as measured by therapeutic outcome (Goodman, 1969; Rapaport, 1973). Thus further refinement of the technique is clearly warranted. The present data suggest that exploration of individual differences contributing to performance may prove fruitful.

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