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A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

BY

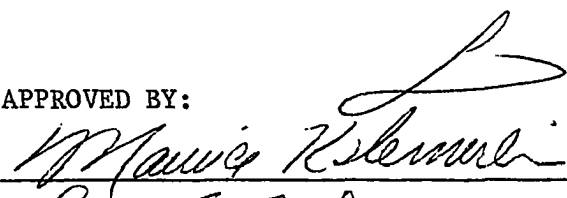
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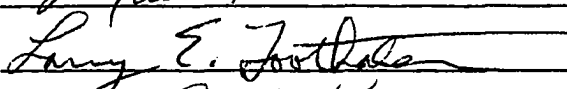
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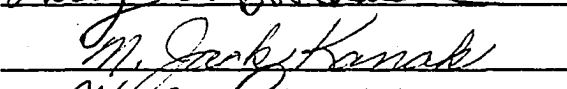
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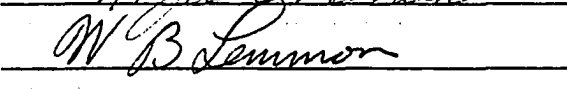
PERSONALITY CHANGE IN EXPERIMENTALLY
NAIVE SUBJECTS: AN ANALOGUE TO PSYCHOTHERAPY

APPROVED BY:









DISSERTATION COMMITTEE

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TABLE OF CONTENTS

	page
LIST OF TABLES.....	vi
PERSONALITY CHANGE IN EXPERIMENTALLY NAIVE SUBJECTS: AN ANALOGUE TO PSYCHOTHERAPY.....	1
INTRODUCTION.....	2
METHOD.....	3
RESULTS.....	6
DISCUSSION.....	12
BIBLIOGRAPHY.....	15
APPENDIX I	
PROSPECTUS: Personality change in experimentally naive subjects: An analogue to Psychotherapy.....	17
INTRODUCTION.....	18
PILOT STUDY.....	19
RESULTS.....	20
DISCUSSION.....	23
FORMAL STUDY PROPOSAL.....	24
APPENDIX II	
Pilot Study Instructions.....	27
APPENDIX III	
Selection Criteria.....	31
APPENDIX IV	
PROSPECTUS: The Revised Instructions.....	33
APPENDIX V	
Post Hour Questionnaires.....	40

BIBLIOGRAPHY..... 48

APPENDIX VI

Tables of Raw Data..... 51

LIST OF TABLES

Table	Page
1. Mean Pre-post t-scores for Experimental-Control Groups.....	8
2. Mean MMPI Experimental-Control t-scores on Pre-post Testing.....	9
3. Mean POI Pre-post t-scores for Experimental-Control Groups.....	10
4. Mean POI Experimental-Control t-scores on Pre-post Testing.....	11
5. Sum (Raw Scores, Squares, and t-scores) for MMPI Experimental Pre-post Comparisons.....	52
6. Sum (Raw Scores, Squares, and t-scores) for MMPI Control Pre-post Comparisons.....	53
7. Sum (Raw Scores, Squares, and t-scores) for MMPI Pre-test, Experimental-Control.....	54
8. Sum (Raw Scores, Squares, and t-scores) for MMPI Post-test, Experimental-Control.....	55
9. Sum (Raw Scores, Squares, and t-scores) for POI Experimental-Control Comparisons.....	56
10. Sum (Raw Scores, Squares, and t-scores) for POI Control, Pre-post Comparisons.....	57
11. Sum (Raw Scores, Squares, and t-scores) for POI Pre-test, Experimental-Control.....	58
12. Sum (Raw Scores, Squares, and t-scores) for POI Post-test, Experimental-Control.....	59

Personality Change in Experimentally
Naive Subjects: An Analogue to Psychotherapy¹

Joseph D. Murray

University of Oklahoma

Summary

In an experimental analogue of psychotherapy five non-self-actualizing Ss interacted individually with the experimenter while five equivalent Ss interacted with five self-actualizing peers. Results suggests that (1) while some changes in personality result from such a therapy analogue situation, the nature and extent of these changes is somewhat equivocal; (2) control Ss achieved positive changes through association with healthy but untrained peers; (3) willingness for self-disclosure appears to be associated with changes in a therapy analogue; and (4) control S changes suggests further research into the use of such Ss as professional mental health workers.

¹ This paper is based on a dissertation submitted to the University of Oklahoma in partial fulfillment for the Ph.D. degree.

Introduction

In recent years there has been increasing emphasis on the process of psychotherapy as opposed to those personal attributes or characteristics of either the therapist or client. Intrinsic to most studies in psychotherapy research has been the use of hospitalized patients or individuals who were actively and voluntarily engaged in outpatient treatment with a qualified therapist. Research has further indicated that expectation and assignment of socio-economic roles markedly influences the process and outcome of therapy including diagnosis and prognosis (Hollingshead and Redlich, 1953; 1954; McDermott, Harrison, Schraeger, and Wilson, 1965; Haase, 1965; and Lee and Temerlin, 1969).

Orne (1962) has clearly demonstrated that there exists a particular relationship between subject, experimenter and experiment. For example, Orne had subjects laboriously adding columns of numbers after which he had these same lists torn-up by the subjects. Later inquiries of the subjects explained their unexpected cooperativeness in terms of their belief in the experimenter and because they felt they were helping science. Similarly, Rosenthal (1966) points out that the subject's motivation is closely tied to his motivation to be a "good subject". As Rosenthal suggests, the implicit desire on the part of the subject to perform well often results in the subject performing as expected and that to the extent that the subject behaves in the experimental situation as he perceives it he unconsciously allays himself with the experimenter to validate the hypothesis. Such subject cooperation is cited as the sum total of those situational variables which equal the demand characteristics (Orne, 1962) of the psychological experiment.

Although the argument may be made that there is a unique relationship between therapist and client the question might also be valid that there are unspecific but implicit variables which suggest the operation of demand characteristics in psychotherapy as in the formal psychological experiment. For example, the client who provides a great deal of dream or sexual material may well do so because of the personal orientation of the therapist. In addition, the prototype of the therapeutic relationship has been portrayed so frequently on television and in the movies to provide even the most psychologically unsophisticated with a minimum idea of the appropriate roles of both therapist and client. Recently, direct evidence for the influence of demand characteristics in psychotherapy has been provided by Trousdale (1969). Using naive college students to portray "what goes on in psychotherapy" she reported that the behavior observed was such to clearly identify a "number of attributes or demand characteristics which emerged in each brief 'psychotherapy' session".

Consideration of the effect of such factors led to the question of what behavioral changes, if any, would occur if the demand characteristics of "psychotherapy-psychotherapist-client" were eliminated and a situation was experimentally created to evaluate therapeutic change under the guide of a psychological experiment in personality change.

It was therefore hypothesized that if Ss volunteered for an experiment in personality change and agreed to try to change some facet of their personality, given an interpersonal situation analogous to psychotherapy but without using such terms, then change would occur.

Method

Prior to initiating the formal study one male S who volunteered for a psychological experiment from a large undergraduate class in psychology was

used. The S was administered the Minnesota Multiphasic Personality Inventory (MMPI), The Personal Orientation Inventory (POI) and the Shipley-Hartford (S-H) and then introduced to the experimental situation. This S was seen by the experimenter, identified as also a student, for eighteen consecutive days after which re-testing was accomplished. Results of the pilot study suggested certain experimental changes, e.g., an increasing from 30 to 40 minutes for each session, facing the S away from the experimenter, and a change in the experimental questionnaire.

Subjects:

The Ss were selected from a class of approximately 600 students in an undergraduate class in psychology. In order to control for possible sex differences only male students were eligible. While all students in the class were tested with the MMPI, POI, and S-H only male student profiles were scored. Actual selection of Ss was based on independent analysis of test profiles by two qualified clinical psychologists (Ph.D. level and practicing in the community). From the total pool of potential Ss ten who presented neurotic (N) MMPI and non-selfactualizing (NSA) profiles on the POI were randomly chosen and assigned to either the experimental or control groups, five in each group. In addition, five healthy (H) and self-actualizing (SA) Ss, as determined by MMPI and POI scores respectively were similarly assigned to the control group thus making five H/SA-N/NSA dyads. The remaining five N/NSA Ss were paired individually with the experimenter making five experimental dyads. In addition, all Ss were administered the S-H indicating a mean experimental group I.Q. of 118 and control group I.Q. of 120.

Experimental Group Instructions:

Each of the Ss was introduced to the experimenter, the latter being "selected" as was his partner, because of his expressed willingness to par-

ticipate in an experiment in personality change. In order to clarify that all Ss understood the nature of the experiment, as well as for ethical reasons, a statement regarding the experiment was read to all Ss and verbal consent obtained. Following this introduction the roles of "free associator" and "facilitator" were assigned to each dyad. Thus, by having each Ss choose a number between one and five it was surreptitiously arranged that the experimenter was the facilitator in each of the five experimental dyads. With the roles assigned, instructions were read to each partner to clarify his role in the experiment. For example, the free associator was informed how personality change is facilitated in a trusting, safe and confidential interpersonal exchange. He was encouraged to say everything that came to mind, without censoring his thoughts, regardless of how irrelevant, embarrassing, or painful it might seem. The facilitator was instructed to assist his partner by being understanding, supportive, and helpful without moralizing or criticizing. In order to control for possible suspicion on the part of the free associator "appointments" were arranged for the facilitator to meet with one of the staff psychologists (the course instructor) for brief but intensive training sessions in facilitative behavior.

Control Group Instructions:

As in the experimental group, control Ss were introduced in dyads, a brief explanatory statement read and verbal consent again obtained. Instructions were that each dyad was to meet at the scheduled time and talk, about anything they wanted, for the duration of the experiment. No further instructions were provided.

Procedure:

Both groups were informed that they were to meet for forty minutes for twenty consecutive days. Each dyad was assigned a sound-proof room and each session was tape recorded. In the experimental dyad, the free associator was

to face the wall in a comfortable reclining chair with the facilitator seated behind the S. In the control dyads no instructions were provided as to the physical arrangement of the room, seating, etc. Following the session the control Ss were free to leave the room. Experimental dyads were asked to remain after each session to complete a questionnaire. The purpose of this additional information was to obtain some measure of the feelings, thoughts and attitudes of the sessions. Different but compatible forms were provided for both partners. Following the completion of the twenty sessions all Ss were re-tested with the MMPI and POI.

Results

T-tests were computed for all possible combinations of test scores permitting an analysis of pre-post changes between groups (Tables I and III) and within groups (Tables II and IV). All test scores are of Ss classified as N/NSA. While 4.4 scores would be expected to reach chance alone from a total of 88 t-comparisons the 18 notes in the tables cannot be considered mutually independent since identical scores were used for cross-comparisons.

Table I demonstrates the degree to which both groups were matched on the MMPI and those profile changes occurring in post-testing. It will be noted on post-testing that there was a significant difference ($p < .01$) on the Sc and Pd variables. This difference is due to an increase on Sc for the experimental group and a corresponding decrease for the control group while Pd differences appear to be related to both a significant difference on pre-testing and a change at post-testing.

Comparison of MMPI results, pre-post testing for respective groups are presented in Table II. Results demonstrate the general decrease in reported symptomatology for both groups, significance being reached on F ($p < .05$), Hs ($p < .01$) and Pd ($p < .05$) for the experimental group and Pd ($p < .05$), Pt ($p < .02$) and Sc ($p < .01$) for the control group.

POI pre-post testing for both groups presented in Table III reveals a significant difference on pre-testing for variables Ex ($p < .05$), Sa ($p < .05$) and C ($p < .02$). It will be noted that on post-testing these differences disappeared, indicating closer agreement on the variables between groups following the sessions. Table IV, however, demonstrates the extent of POI changes within groups suggestive of movement towards or away from increased self-actualization. For the experimental group significance was reached on I ($p < .01$) and for the control group on I ($p < .01$), Ex ($p < .05$), Nc ($p < .05$) and Sy ($p < .05$). Furthermore, it should be noted that of the twelve POI indices, the experimental group moved upward on only four variables while the rest remained the same or decreased (indicated less self-actualizing tendencies). The control group not only reached significance on the four variables noted but also moved upward (towards increased self-actualizing tendencies) on the remaining eight indices.

The post hour questionnaire used in the experimental dyads was primarily designed to measure the following variables.

Reciprocal Regard: Using Truax and Carkuff's (1967) format this scale served as a measure of the free associator's feelings and perceptions of the facilitator's regard based on the latter's comments. Asked to indicate that point of regard for each session each S marked one of the five indicated responses which consisted on (1) No regard (2) Little regard (3) Some Regard (4) Deep regard or (5) Very deep regard. The mean score for all five Ss was 3.44.

Self Perceived Feelings: Based on a list of ten positive and ten negative adjectives, identical for both free associator and facilitator each member of the dyads indicated personal feelings following each session. Mean scores indicated .89 (positive) and .11 (negative) for the facilitator and .76 (positive) and .24 (negative) for the free associator.

	Pre-testing					Post-Testing				
	Experimental		Control		t	Experimental		Control		
	\bar{X}	s.d.	\bar{X}	s.d.			\bar{X}	s.d.	\bar{X}	s.d.
L	2.8	1.093	2.8	1.093	0.000	2.0	2.449	2.8	1.095	-0.666
F	4.4	1.673	4.6	2.966	-0.131	2.8	2.280	3.2	1.788	-0.308
K	13.8	4.086	10.4	2.880	1.520	11.8	4.324	10.2	2.489	0.716
Hs+.5K	16.4	3.286	13.0	1.732	2.046	14.2	4.086	12.4	1.140	0.948
D	26.8	1.643	27.6	2.073	-0.676	27.4	3.974	25.2	3.898	0.883
Hy	25.6	3.781	23.4	4.098	0.882	24.2	5.263	21.8	4.086	0.805
Pd	30.8	3.033	25.6	2.701	2.862*	28.8	2.863	21.8	3.633	3.383***
Pa	11.6	1.673	13.0	2.000	-1.200	11.8	2.863	11.6	1.673	0.134
Pt+1K	34.6	4.774	35.0	3.535	-0.150	32.2	6.978	30.4	4.827	0.474
Sc+1K	33.9	5.099	31.6	2.509	0.550	35.2	4.147	26.6	3.577	3.510***
Ma+.2K	20.2	1.303	18.6	2.302	1.352	22.6	2.608	18.0	5.959	1.580

(N=5)

*significant at or beyond the .05 level.

***significant at or beyond the .01 level.

TABLE 1

Mean MMPI Pre-post t-Scores for
Experimental-Control Groups

	Experimental					Control				
	Pre-		Post-		t	Pre-		Post-		t
	\bar{X}	s.d.	\bar{X}	s.d.		\bar{X}	s.d.	\bar{X}	s.d.	
L	2.8	0.639	2.0	0.799	1.000	2.8	0.000	2.8	0.000	0.000
F	4.4	0.559	2.8	0.748	2.138	4.6	2.360	3.2	1.536	0.911
K	13.8	0.399	11.8	0.632	3.162 *	10.4	0.039	10.2	0.199	1.000
Hs+.5K	16.4	0.140	14.2	0.374	5.879***	13.0	0.160	12.4	0.400	1.500
D	26.8	2.360	27.4	1.536	-0.390	27.6	1.260	25.2	1.122	2.138
Hy	25.6	1.760	24.2	1.326	1.055	23.4	1.659	21.8	1.288	1.241
Pd	30.8	0.500	28.8	0.707	2.824*	25.6	1.140	21.8	1.067	3.599*
Pa	11.6	0.439	11.8	0.663	-0.301	13.0	1.360	11.6	1.166	1.200
Pt+1K	34.6	1.460	34.2	1.208	0.331	35.0	1.460	30.4	1.208	3.806**
Sc+1K	33.0	2.040	35.2	1.428	-1.540	31.6	0.699	26.6	0.836	5.976***
Ma+.2K	20.2	1.260	22.6	1.122	-2.138	18.6	2.960	19.2	1.720	-0.348

(N=5)

*significant at or beyond the .05 level.

**significant at or beyond the .02 level.

***significant at or beyond the .01 level.

TABLE 2

Mean MMPI Experimental-Control t-Scores
on Pre-post Testing

	Pre-testing					Post-testing				
	Experimental		Control		t	Experimental		Control		t
	\bar{X}	s.d.	\bar{X}	s.d.		\bar{X}	s.d.	\bar{X}	s.d.	
Tc	16.6	3.286	12.4	3.714	1.893	15.8	2.387	13.2	2.168	1.802
I	86.4	19.692	73.2	11.025	1.780	86.0	12.400	83.6	13.012	.844
Sav	20.2	2.588	17.8	3.834	1.160	19.2	3.834	19.8	2.280	-0.300
Ex	22.8	1.923	16.0	5.099	2.790*	20.8	4.438	19.4	4.336	0.504
Fr	15.4	2.302	14.8	3.271	0.335	16.0	4.472	16.8	3.384	-0.303
S	10.6	2.303	11.0	3.464	-0.215	11.8	4.472	11.8	3.701	0.000
Sr	11.8	1.303	8.8	3.564	1.767	12.6	2.191	10.6	2.702	1.285
Sa	17.6	1.342	13.4	3.577	2.457*	17.8	3.194	15.0	4.528	1.129
Nc	12.2	1.788	10.4	1.816	1.578	12.0	1.871	11.4	2.074	0.480
Sy	6.4	.547	5.6	1.673	1.016	6.4	1.816	7.4	1.673	-0.905
A	16.2	3.564	16.6	2.510	-0.205	15.4	3.924	18.4	4.289	-1.946
C	20.6	1.673	14.4	4.278	3.018**	17.2	4.147	18.0	4.242	-0.315

(N=5)

*significant at or beyond the .05 level.

**significant at or beyond the .02 level.

TABLE 3

Mean POI Pre-post t-Scores for
for Experimental-Control Groups

	Experimental					Control				
	Pre-		Post-		t	Pre-		Post-		t
	\bar{X}	s.d.	\bar{X}	s.d.		\bar{X}	s.d.	\bar{X}	s.d.	
Tc	16.6	0.539	15.8	0.734	1.088	12.4	2.840	13.3	1.685	-0.474
I	86.4	9.989	73.2	4.387	5.641***	73.2	11.454	83.6	14.553	-6.150***
Sav	20.2	0.500	19.2	0.707	1.414	17.8	1.500	19.8	1.224	-1.632
Ex	22.8	4.300	20.8	2.074	0.964	16.6	1.260	19.4	1.122	-3.028*
Fr	15.4	1.460	16.0	1.208	-0.496	14.8	1.600	16.8	1.264	-1.581
S	10.6	1.540	11.8	1.240	-0.967	11.0	0.139	11.8	0.373	-2.138
Sr	11.8	0.539	12.6	0.735	-1.089	8.8	0.528	10.6	0.734	-2.450
Sa	17.6	1.839	17.8	1.356	-0.147	13.4	2.259	15.0	1.503	-064
Nc	12.2	0.740	12.0	0.860	0.232	10.4	0.099	11.4	0.316	-3.162*
Sy	6.4	0.500	6.4	0.707	0.000	5.6	0.240	7.4	0.490	-3.674*
A	16.6	0.939	15.4	0.969	0.825	16.6	1.340	18.4	1.157	-1.554
C	20.6	0.860	17.2	0.927	3.666*	14.4	4.460	16.0	2.112	-0.758

(N=5)

*significant at or beyond the .05 level.

***significant at or beyond the .01 level.

TABLE 4

Mean POI Experimental-Control t-Scores on
Pre-post Testing

Free Associator Productivity: Utilizing a five point scale (Simon, 1968) consisting of the following indices (1) Minimal productivity (2) Slight productivity (3) Mild productivity (4) Moderate productivity and (5) High degree of productivity, free associator productivity was rated following each session by the facilitator yielding a mean score of 3.30 for the total sessions.

Discussion

While changes were noted following the experiment, as predicted in the hypothesis, these results tend to be somewhat equivocal. While individual t-tests serve as an indication of changes noted on particular test variables the complexity of measuring subtle personality changes over a short period of time suggests that the more parsimonious evaluation of the data be in terms of profile analysis. In such terms the results clearly suggest that personality change results in both relatively structured and unstructured interpersonal situations. The fact that there appeared to be greater positive changes in the control group rather than the experimental group raises some interesting questions. First, the changes in the control group suggests that talking with a more self-actualizing person about oneself, or about shared interests increases one's approximation to self-actualizing behavior through a process of induced socialization. Such an explanation would appear harmonious with man's social proclivity. On the other hand, psychotherapy involves the exploration of symptoms and their antecedent causes in an attempt to make them explicit and it is usual for the neurotic to become confused and depressed before therapeutic changes occur. As noted from the results of the free associator and facilitator questionnaires, there was a positive mutuality and feeling of regard between the two partners. The fact that the free associator was less than moderately productive suggests a positive relationship but also the existence of resistance in free associating to personal feelings and thoughts. Furthermore, as is typical of all therapeutic relationships, there were sessions

which ranged from minimally to very highly productive. Furthermore, the control Ss, lacking the structure of the task had only to verbalize in an interpersonal exchange those feelings and thoughts expedient to the session while the experimental Ss, encouraged by the facilitator to look more closely at themselves had to delve deeper and thus were experiencing a heightened state of intrapsychic arousal associated with potentially more sensitive material. Defensive maneuvering to escape anxiety would be greater in the experimental Ss. Analysis of test results suggests such an explanation. On the POI, for example, the control Ss were becoming more inner-directed, less rigid in their social values, and demonstrated increased social awareness while the experimental Ss became more other-directed and less comfortable in close, intimate interpersonal relationships.

It will be remembered that a major consideration in the use of an analogue situation was to investigate the extent to which demand characteristics influence the therapeutic relationship. Comments throughout the sessions indicated that the facilitator's cover was successful in that he was ostensibly accepted as a peer. Each of the experimental Ss, however, made reference to the point that they felt they could have been more candid had they been seen in "psychotherapy" with a "professional psychologist". Consideration of such comments suggests that personality changes do occur without the therapist being identified as such but that there is a personal need on the part of the individual to feel that the relationship be a professional one beyond that point wherein willingness to reveal oneself to another reflects the demand characteristics of that relationship.

Considering the nature of the experimental situation the question of demand characteristics is further raised in terms of the stereoptopy of the "therapeutic relationship". The fact that the Ss chair was facing away from the facilitator might well carry with it situational percepts reflecting the typically

portrayed analytic situation. In addition, the fact that the facilitator was perceived as a peer might have special meaning for the particular analogue design of this experiment. Rosenthal (1966) quotes a study by Sarason and Minard (1963) in which experimental prestige was found to interact with another variable . . . "access to visual cues from the experimenter's face. When Ss could not see the experimenter's face and when he was in the low status condition there was a decrease in the effect of his reinforcement on the Ss responses".

Finally the fact that the control Ss appeared to be the most improved suggests two important questions in terms of orientation and training of psychotherapists. Firstly, it may well be greater emphasis be placed on developing healthy interpersonal situations in therapy rather than emphasizing insight. As Coons (1957) suggests ". . . the interpersonal interaction which characterizes both individual and group psychotherapy may, in itself, be the crucial factor in the production of therapeutic change. Secondly, the findings tender support to Rioch's (1953, 1963, 1966) work that carefully selected and mature people can be trained to do effective psychotherapy under limited conditions.

Results suggest then that: (1) while changes in personality result from a therapy analogue situation, the nature and extent of these changes is somewhat equivocal; (2) control Ss achieved some changes in a positive direction through association with healthy but untrained peers; (3) willingness for self-disclosure appears to be associated with changes in a therapy analogue; and (4) the findings were considered of heuristic value in further research of healthy but untrained individuals.

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APPENDIX I

PROSPECTUS

Personality Change in Experimentally

Naive Subjects: An Analogue to Psychotherapy

Introduction

In an attempt to understand the factors underlying the psychotherapeutic process researchers have systematically examined both the process itself as well as the participants involved. The argument as to whether psychotherapy is indeed a working proposition no longer maintains its earlier central position since researchers can defend a position ranging along a psychoanalytic-behavioristic continuum.

Rather, concern is directed toward a greater understanding of "what" changes result from psychotherapy (outcome) and "how" these changes are brought about (process). Attention to the therapist as a variable (Fielder, 1953; Luborski, 1952; Rogers, 1957; Wallach and Strupp, 1960; Brahm, 1961; and Truax, 1963) indicate that the success or failure of the therapeutic venture is correlated with the therapist's personality. Conversely, while it is recognized that the therapist plays an intrinsic role in psychotherapy all theoretical positions hold as a basic tenet that most of the effects of treatment are the responsibility, in the long run, of the client. Evidence investigating such patient variables as expectation (Apfelbaum, 1958; Heine and Trosman, 1960; Lenard and Bernstein, 1960; Goin, Yamamoto, and Silverman, 1965; and Levitt, 1966); motivation or need for change, (Elton, 1950; Lorr, Katz, and Rubinstein, 1958; McNair, Lorr, and Callihan, 1963; and Brandt, 1965); and the interaction between therapist and client (Heller and Goldstein, 1961; Cartwright and Lerner, 1963; Truax, 1963; and Gardner, 1964) indicate that unless there is some commitment between the two parties the therapeutic relationship will be weak.

Intrinsic to most psychotherapy research has been the use of hospitalized patients or individuals who were actively and voluntarily involved in out-patient psychotherapy with an identified personage as a "qualified" therapist. Research on the various demand characteristics involved in psychotherapy clearly indicate that expectation, assignment of socio-economic roles, markedly influence the process and outcome of therapy, including diagnosis and prognosis (Hollingshead and Redlich, 1953; 1954; McDermott, Harrison, Schraeger, and Wilson, 1965; Haase, 1965; and Lee and Temerlin, 1969).

Because of the demand characteristic of "psychotherapy," "psychotherapist," and "patient or client" it seemed likely that the more basic processes of personality change in psychotherapy might be masked by a status relationship. Consideration of this problem led to the question of what behavioral changes might occur if the concepts of "psychotherapy-psychotherapist-client" were eliminated and a situation was experimentally created to evaluate what we call "therapeutic change" under the guise of a study in personality change. It was hypothesized that if someone volunteered for an experiment in personality change and agreed to try to change some facet of their personality, given an interpersonal relationship analogous to psychotherapy but without using such terms, then certain changes would occur.

Pilot Study

Prior to formalizing the actual design for the study a pilot study was conducted to evaluate the proposed design.

Procedure

The subject was an eighteen year old caucasian male who volunteered from an undergraduate class in psychology. He thought that he was volunteering

for an experiment in psychotherapy since the instructor had not, as of yet, clarified in class what was meant by "psychotherapy". While no formal pre-test selection criteria was used data on a data sheet provided by the subject suggested that he was clearly neurotic, e.g., all those who volunteered identified their sex as either male or female with the exception of our subject who used the term "boy".

The subject was introduced to a "graduate student in business" (actually the experimenter). The "experimenter" for this initial study was a practicing female psychologist in the community. She read an introductory statement (Appendix II) to both participants and then on a chance basis assigned the subject the role of "client" and the experimenter that of "therapist". Following this assignment the initial statement was continued, explaining to both participants what a "client" and "therapist" do in psychotherapy. Finally, pre-testing was completed using an abbreviated form of the MMPI (minimult), The Personal Orientation Inventory, and the Shipley Hartford Scale. Eighteen thirty minute sessions were completed. Initially each partner was required to fill out a rather lengthy post-session questionnaire regarding his feelings about himself and his partner during each session. It became quickly apparent, however, that the questionnaire was inappropriate for the purposes of the study and was discarded. After completing the session the subject was re-tested and interviewed by the psychologist who initiated the study. This final interview was designed to evaluate the subject's attitudes about the study.

Summary of Pilot Results

Results of the test-retest Shipley Hartford indicated that the subject was functioning within the superior range of intelligence (126 and 129

respectively). It is interesting to note that while he had such intellectual potential he was actually doing poorly in school, confirming the initial impression of him as neurotic. While no statistical measures were taken on test data an analysis revealed that change on both scales, possibly reflecting changes in personality. For example, changes on the MMPI suggest a lessening of defensiveness (F-K ratio), a decrease in the amount of somatic complaints (Hs-Hy-Pt), and whereas initially the profile suggested a noticeable amount of fantasy with excessive controls prohibiting active expression of the same the final profile suggest a trend towards increasing self-expression (Pd-Ma). Unfortunately there was no Mf scale available on this subject. Data from the interviews indicated that this would have been a most interesting demension on which to measure change. The overall profile analysis demonstrates a weakening of neurotic defensiveness accompanied by some healthier adjustive measures.

On the other hand, the POI raises some interesting questions in that of reflecting a more self-actualing individual, as reflected by the MMPI (less neurotic), the reverse appeared to be true. With the exception of the Sav, Nc, and Sy scores the other scores remained the same or moved away from self-actualizing values. While the data at hand is insufficient to satisfactorily explain these results, a tentative explanation might be that as one experiences changes early in psychotherapy a re-evaluation and awareness of self is accompanied by a transition from neurotic to healthier needs of adjustment. In making this initial transition, however, there might be a period of decreased psychological functioning, e.g., temporary insensitivity to one's own needs, confusion as to self-worth and self-esteem, and difficulty in dealing with warm and intimate interpersonal relationships. Certainly sudden reflection of the "undesirable" or "unacceptable" thoughts and feelings of oneself

will hardly result in a spontaneous increase in self-actualization but rather an attempt to handle such feelings and attitudes, either to allay anxiety or confront it speculatively. Either way, psychotherapy is not usually reported by clients to be a "rose garden". Whether or not such a tentative argument is acceptable can only be tested by further research. It may well be that a "deterioration effect" as proposed by Bergin (1966) is what is being observed.

A second problem, related to the above, was a time variable. While it is well known that clients often produce relevant material at the very end of a session in order to preclude investigation of the same it seemed in the pilot study that the subject more frequently than usual utilized this technique. Strong consideration must be given to the possibility of lengthening the session since thirty minutes apparently does not allow for the subject to "loosen up" as it were.

Finally, analysis of the post-session questionnaire revealed that the subject felt the "therapist" to be passive, aloof, and uninterested although he "communicated a positive respect and concern for my feelings, experiences, and potentialities". He felt direct questioning would have helped as well as having the "client's" chair facing away from the "therapist". While relating a psychological distance existed between himself and the "therapist" he further related that he was sorry that he was not going to see "his therapist" again, that he enjoyed the experience, and that, in a way, he wished he could continue.

It would seem that transference effects were present, resistance dissipating, content was becoming less evasive and more germane, and the subject seemed more willing to share his personal attitudes and feelings with the "therapist".

Discussion

In general, the results of the pilot study suggest that personality changes could occur in an experimental analogue of psychotherapy when the prestige and demand characteristics of a "therapist-expert" are replaced by a facilitative peer, as in self-help groups as Alcoholics Anonymous or Synanon. Still, the very concepts of "psychotherapy-therapist-client" connote untold meaning and precipitate a set which is, in itself, influential in dictating what happens. The terms "personality change-facilitator-free associator" appear to be less loaded. Also, if visual cues are, in fact, as suggested by the subject distracting then facing the subject away might encourage greater spontaneity and freedom in his productions. Finally, during the first couple of sessions the subject questioned the "therapist's know-how" (a business student?). A control for this unexplainable level of psychological sophistication might be to have the subject be made aware of the fact that prior to the beginning of the sessions the "therapist" (facilitator) would be given training from a bona fide psychologist in some of the basic techniques of facilitative behavior.

Formal Study Proposal

Approximately 600 students enrolled in an undergraduate class in psychology will be asked to take a battery of psychological tests (Mini-Mult, POI, Shipley Hartford) as a prelude to a class presentation on psychological and personality measurement. In a later class period the students will be asked if they would be interested in volunteering for a study in personality change. It will be explained that not all of the students will be able to participate but that the selection of those volunteering will be on a random basis, thus giving each volunteer a chance of being selected. Of those students who volunteer only male students will be selected in order to control for sex differences. Following the scoring of the test protocols the class will be divided into categories according to their test results (See Appendix III). Classification will be according to the dimensions of healthy or self-actualizing (H/SA), neutral or average, and neurotic or non-self-actualizing (N/NSA). From the available subject pool five H/Sa and ten N/NSA subjects will comprise subjects for the study

Experimental Group

Each of the five N/NSA subjects in this group will be individually paired with the experimenter. In order for the problem encountered by having a "business student" in the study the experimenter will attend the same psychology class as the subjects. Upon being selected each subject will be contacted by telephone by the same psychologist who served as "experimenter" in the pilot study. The purpose of the telephone contact will be to solicit the potential subject's cooperation and to arrange a meeting. During this

initial meeting each subject will be introduced to his partner (the experimenter in the experimental group). No subject will be aware of the experimental conditions of the others.

Control Group

The remaining subjects, five H/SA and five N/NSA Ss will comprise the control group. These subjects will be randomly paired to make up five dyads. As above, each pair will be ignorant of the conditions of the other subjects.

Instructions: Experimental Group

The initial statement and instructions may be found in Appendix IV. The format is designed to encourage spontaneous and productive free association. All references to "psychotherapy-therapist-client" have been replaced by "personality change-facilitator-free associator".

Instructions: Control Group

Instructions to the control group consists of the initial statement requesting verbal permission to participate in the study, a statement about confidentiality, and specific instructions. These may also be found in Appendix IV.

Procedure

In the experimental group, following the pairing of subjects and the reading of the introductory comment the roles of facilitator and free associator will be assigned on ostensibly a chance basis (pick a number between one and five) but with a rigged design so that the experimenter is always assigned the role of facilitator and the subject the role of free associator. As noted in the instructions, the possibility of a confounding variable resulting from any "unusual psychological sophistication" on the part of the facilitator will be handled by telling the free associator his partner will

be given training in facilitative behavior. Similarly, to reduce the amount of distraction that might result from a face to face setting, the free associator's chair will face away from the facilitator.

In the control group there will be no such "division of labor". The subjects will be asked to meet for twenty forty minute sessions and to talk about anything they want.

Each dyad is to meet for a total of twenty sessions. Following each session the partners in the experimental group will be asked to complete a post-session questionnaire (Appendix V) and at the end of the study an interview will be conducted by the "examiner". No such demands will be made of control subjects. Finally, all subjects will be retested on the Mini-Mult and POI.

APPENDIX II

PILOT STUDY INSTRUCTIONS

PILOT STUDY

INSTRUCTIONS TO SUBJECTS

You have, to get to this point, volunteered to be subjects in a psychological experiment. However, we do not want you to continue until you fully understand as much as possible about the research program. In other words, we want your informed consent. However, it is very difficult really to inform you because no one has ever done this type of research before. In our opinion, participating in the experiment could help you. On the other hand, it could hurt you. We simply do not know. If you participate in it you will of course be helping scientific research, but you might be taking some chances since you could be hurt by the experiment, although it is unlikely. Because we are asking you to take a chance, we have arranged with your respective professors in psychology and finance to raise your grade one full letter grade if you participate in and complete the full twenty hours we are asking you to work. You may rest assured that we will observe the experiment carefully and stop it if we think it might be harmful to you. Are you willing to continue? If yes, please sign here.

What we want you to do today is take some paper and pencil tests, which will take you a little over an hour. Before you do that however, I want to clear with you a regular time for you to come here every day, five days a week, for the next four weeks, starting next Monday. (Set up schedule, keeping Thanksgiving weekend in mind). Remember that it is crucial that you work five hours a week -- and to get your grade increased you must show up for all twenty sessions.

Before you start on the test let me tell you a little bit about what we want you to do. Starting Monday, for the first half hour of your time we want you to behave as if you are in psychotherapy. For the second half of each hour we will ask you to fill out some questionnaires. Now we realize that neither of you know anything about psychotherapy, so we will tell you what people do in therapy. First, let's flip a coin to decide who will be the "therapist" and who will be the "client". Starting Monday then, you will be the "therapist" and you will be the "client".

(To the therapist): Now here's what we want you to do. A therapist tends to make supportive types of responses which encourage the client to talk -- to free associate -- as much as possible. Do you understand? Your job is to encourage him to free associate without interpreting what he says. Don't reject him, criticize him, or moralize over anything he says, simply encourage him to say whatever comes to his mind in as warm and supportive a way as possible.

(To the client): What clients do in therapy is to free associate, that is, to say everything that comes to their mind. It doesn't matter what you say, the important thing is to say it. Free-associating is sometimes called the stream of consciousness. What we want you to do is to work hard as you can in keeping the stream of consciousness flowing. In other words -- and you may hear this repeated many times -- the client is supposed to say everything that comes to mind regardless of how trivial, embarrassing, irrelevant, painful or confused it may seem. This is not as easy as it sounds, for this may include angry thoughts, sexual feelings, hostile ideas and so forth. Please say these things anyway. We will protect your confidence and you will not be criticized in any way. The important thing is for you to say everything that occurs to you.

Now, as you can see, these sessions will be tape-recorded. Let me assure you once again that everything you say will be held in the strictest confidence, as in actual psychotherapy. No one but professionals will hear your tapes, and they will be erased at the conclusion of the study. We want you to come in each day at the scheduled time, seat yourselves (to client) you work at free associating (to therapist) you work at encouraging free association for thirty minutes. It will be your job as "therapist" to open this room every day, set up the tape recorder, and time the sessions. I will show you how the tape recorder works next time. We want this to be as much like actual psychotherapy as possible. I will give you this key -- please be careful with it; it is University property and checked out to me.

At the end of each thirty minute session you (to therapist) call time, then, as I mentioned we will have you fill out these questionnaires. Please do so at the end of every session. Then drop the completed forms in this locked box before you leave. Be sure to put your name, the date, and the name of your partner on each form.

One more thing. We would like you not to discuss this experiment with anyone, including each other, for the course of the sessions. If you run into one another on campus it may be tempting to talk about your experience, but please do not. I will be here Monday, I will go over the instructions with you again and answer any questions you may have. My telephone number is posted here and while I encourage you to save your questions until the end of the twenty hours, call if it is appropriate, such as if you are sick and need to arrange for a make-up session. Any other questions now? If not let's get started with the tests. (Administer the Shipley-Hartford, MMPI, and POI).

APPENDIX III

SELECTION CRITERIA

SUBJECT SELECTION PROCEDURE

I. Eliminate:

- a. All females.
- b. Any invalid MMPIs (on L, F, or K scales).
- c. Any MMPI with a -- direction answer to items #50 or #74.

II. Independent MMPI profile sorts (MKT and JBT):

- a. Non-self-actualizers:
 1. MMPI with 4 scales greater than 70; if not possible, 4 codable high points.
 2. MKT and JBT 100% agreement, inter-judge-self-actualizer.
 3. If possible, MMPI with + direction answer to item #25.
- b. Self-actualizers:
 1. Normal MMPI profile.
 2. MKT and JBT 100% inter-judge-agreement-actualizing.
 3. POI greater than average on Time Ratio and Support Ratio.
- c. Mid-group (Normal or average);
 1. Unremarkable other MMPI profiles.
- d. Undecided:
 1. Category to be used in sorting only when there is a question in the mind of the judge. Subject will be then discussed by both judges and sorted into one of the other three categories. Final Ss to be drawn randomly from categories a., b., and c.

APPENDIX IV
PROSPECTUS: THE
REVISED INSTRUCTIONS

Instructions to Subjects

First of all let me thank you for coming today. As I mentioned to you on the phone, you were selected on a stratified random basis to represent a category of students, and we very much need your help in a study we are conducting. We are trying to understand personality change, particularly the ways in which people can change themselves and actually wanting to change themselves. Let me illustrate: Most people have characteristics they would like to change. They may have personality characteristics that they want more of, for example, forthrightness, more courage, more spontaneity. And they may have characteristics that they would like to have less of, for example, anxiety, tension, guilt, fear, or depression.

The way in which most people change the most readily is by becoming closely and intimately involved in an interpersonal relationship. What we want you to do, if you choose to help us out with this, is to take part in one of a series of interpersonal relationships that is designed to facilitate changes you might wish to make. We need your informed consent to take part in this research. It is difficult to inform you of all the details of the research because no one has ever done this type of study before. There is an excellent chance that participating in this study will help you -- it certainly cannot be harmful to you, as no one actually changes unless he wants to do so. Because we are asking you to spend a lot of time at this, and because Dr. Temerlin feels that it will be both beneficial and educational for you, he has agreed to raise your grade one full letter grade in Psychology 91 if you complete the full 22 hours we are asking you to work.

We also need a pledge of confidentiality — that you won't discuss what you talk about here, or any aspect of the study, outside of this room, and we, in turn, will protect your anonymity, destroying whatever data exists with your name on it after the study is over.

Okay. Would you like to go ahead?

And how about you? Fine.

(Set up time schedule.)

As I mentioned a minute ago, the way one changes his personality is on the basis of interpersonal experience, and I'll, tell you more about that in a moment. First, we want one of you to be the person who will try to change himself in the way he wants to change — he will be called the free associator — and the other of you to be the facilitator of personality change. That is, one of you will engage in self-exploration, or free association, as it is sometimes called, and the other will be the helper or facilitator. I should like the roles to be determined by chance. (Have each pick number for free associator and the subject guesses correctly). Okay, you will be the free associator for the next twenty hours, or the one who gets to make changes in himself, and you will be the facilitator.

Let us go on now with more specific instructions. Please feel free to stop me at any time that you don't understand, because of course it is most important that you do understand what we want you to do.

(To the free associator):

This is a protected and confidential situation in which you both have agreed not to talk about what you say here outside of this room. The tapes you will make will be heard only by professionals and they will be erased at the conclusion of the study.

What we want you to do is express yourself openly and freely in this protected, interpersonal situation. What I mean by talk about yourself is for you to express your feelings, ideas, memories, and thoughts without censoring them in any way. Probe your own inner experience and verbalize your feelings or emotions as you experience them. For instance, if you are recalling a memory, express it and the emotion that accompanies it. When I say express yourself openly and freely, I mean say everything that occurs to you -- everything -- that comes to mind, without holding anything back.

Now this is harder than it sounds because as children we become socialized, that is, we are taught not to verbalize our feelings and thoughts without censoring them rather thoroughly first. However, in the protection of this situation, and with your facilitator's help, we want to encourage you to be as open and free as you possibly can.

It is hard work for another reason, too. In the course of saying everything that occurs to you, you will inevitably come upon material that is painful or embarrassing. You will think and feel things that you would rather not say, for example, your sexual feelings, your hostile ideas, negative thoughts about your facilitator, and so forth. Let me emphasize: In this situation it's okay -- say it anyway, whatever it is, neither censoring your words and experience, nor criticizing yourself for what you may be feeling or saying. This will take courage and honesty on your part; on our part, we will protect your confidence and at no time will anyone criticize, condemn, or moralize with you over what you say.

Two things we can do to help you concentrate on free associating. One, I will leave the instructions in this room so that you can refer to them before you begin each session, if you wish. Secondly, your chair will be turned around to face this wall behind you, so that you will not be distracted from

your inner experience, that is, by seeing and reacting to your facilitator. So during every session, you will sit facing away, relaxing as much as possible. Then, for fifty minutes say everything that comes into your awareness without holding back any feelings, ideas, memories, or thoughts.

Now before we go on to the facilitator's instructions, let's talk about this and make sure that I have been clear in my instructions to you.

(To the facilitator):

You will be the facilitator of change for these sessions. Your job is to encourage your partner to say everything that comes to his mind without holding anything back -- without censoring his feelings, ideas, memories, or thoughts. Although we want you to encourage him to explore himself and probe his inner experiences, we want you to do so without telling him what to say or think about.

Always remember that he is working hard, and that open and frank self-expression is often very difficult, so be as warm as you can in whatever you say to him. As a matter of fact, as long as he is talking freely about himself, don't interrupt him. You talk only when he is stopped or when he is talking superficially or in a narrative style, so that what you say will always come at a time when he needs to continue. The remainder of the time your job will be simply to listen, to understand, and to accept. Do not in anyway criticize, moralize, or condemn him for anything he says. On the contrary, do whatever is necessary to encourage him to talk openly and spontaneously about his own inner experience -- his feelings, ideas, memories, and thoughts.

Now this is not particularly difficult, but we can give you some basic instructions in how to be his helper or facilitator. We would like to ask you to meet for several sessions with Dr. Temerlin and me; we have set aside

tomorrow morning at 10 am for giving the facilitators in the study some basic training. I hope you will be able to meet us then.

Now you will keep time, and stop him after fifty minutes. Then we want you each to fill out one of these questionnaires after every session. They are labeled for the free associator and facilitator so be sure that you have the right one.

Have I been clear in my instructions to you? Please tell me if there is anything you are not sure of at this point.

Instructions to Control Subjects

First of all, let me thank you for coming today. As I mentioned on the telephone, you were selected on a stratified random basis to represent a category of students, and we very much need your help in a study we are conducting. What we want you to do, if you choose to help us out on this is to have you take part in a series of interpersonal relationships. We need your informed consent to take part in the research. It is difficult to inform you of all of the details of the research since no one has ever done this type of study before. Because we are asking you to spend a lot of time at this, and because Dr. Temerlin feels that it will be both beneficial and educational for you, he has agreed to raise your letter grade one full letter in psychology 91 if you complete the full 22 hours we are asking you to work.

We also need a pledge of confidentiality -- that you won't discuss what you talk about here, or any aspect of the study outside this room. Okay. Would you like to go ahead? And how about you? Fine. (Set up time schedule).

What we want you to do is this. Each period you are scheduled to meet here will be for fifty minutes. During that period we want you to talk to each other, about anything, we don't care what. It is important that you meet at the scheduled times and remain talking for a full fifty minutes. Are there any questions?

APPENDIX V

POST HOUR QUESTIONNAIRES

FOR

FACILITATOR AND
FREE ASSOCIATOR

Note: Scale A is an adaptation of "The Measurement of Depth of Interpersonal Exploration." (Truax and Carkuff, 1967).

Scale B is an adaptation of The Patient Productivity Scale. (Simon, 1968).

Scale C is an adaptation of "A tentative Scale for the Measurement of Unconditional Positive Regard." (Truax and Carkuff, 1967).

FACILITATOR _____ DATE _____ FREE ASSOCIATOR _____

POST HOUR QUESTIONNAIRE FOR FACILITATOR

Please circle the answer that most nearly describes your feelings about today's session:

1. How did you feel about the free associator today?
a. Liked b. Mostly liked c. Mostly disliked d. Disliked
2. Did he say or do anything that suggested he had strong or unusual feelings about you?
a. Yes b. No If yes please elaborate.
3. Did he say or do anything that suggested that he wanted to avoid further free association or self-exploration?
a. Yes b. No If yes please elaborate.
4. Did he report any dream material?
a. Yes b. No If yes please elaborate.
5. Did he say or do anything that suggested preoccupation with memories about either or both parent?
a. Yes b. No If yes please elaborate.
6. Did he say or do anything which suggested that he was censoring his verbalizations?
a. Yes b. No If yes which areas did he seem to be censoring, and what did he say or do that made you think he was censoring?
7. What other feelings, thoughts, or observations do you have about today's session?

PLEASE GO ON TO THE NEXT PAGE

8. Check the words below to indicate those which best describe how you felt about the free associator during today's session:

Rejecting

Helpful

Critical

Understanding

Uneasy

Comforting

Anxious

Spontaneous

Depressed

Warm

Angry

Close

Embarrassed

Relaxed

Negative

Accepting

Tense

Positive

Guilty

Friendly

Uncomfortable

Thoughtful

Hostile

Admiring

Apprehensive

Open

Confused

Protective

Resentful

Supportive

Other _____

PLEASE GO ON TO THE NEXT PAGE

I I I I I
1 2 3 4 5

Please make an overall rating of today's session. Check this 5-point scale at the number (not midway between any two numbers) which most nearly describes the free associator's typical level of self-exploration during today's session. Please read carefully the definition of each point below before proceeding.

1. The free associator did not discuss personally relevant material, either because he had no opportunity to do so or because he was actively evading the discussion.
2. He responded with personally relevant material but did so in a mechanical manner and without the demonstration of emotional feelings.
3. He introduced with personally relevant material but did so in a mechanical manner without the demonstration of emotional feelings.
4. He introduced personally relevant material with both spontaneity and emotional proximity.
5. He actively and spontaneously engaged in an inward probing to discover new feelings and experiences about himself and his world.

(Scale A)

PLEASE GO ON TO THE NEXT PAGE

Minimal Productivity	Slight Productivity	Mild Productivity	Moderate Productivity	High Degree of Productivity
1	2	3	4	5

Please make an overall rating of today's session. Check this 5-point scale at the number (not midway between any two numbers) which most nearly describes the free associators typical level of productivity during today's session. Please read carefully the definition of each point below before proceeding.

1. The free associator is in high resistance and is not affectively involved. He is not free associating nor exploring his defenses against doing so. He is not integrating or reflecting on whatever material he has produced. He may be using a narrative style rather than an introspective style, with multiple topics emerging.
2. He is making an effort at self-exploration but is unable to be more than briefly productive or reflective. There is a token acknowledgement of his defenses but no exploration of them. He is not emotionally engaged, nor able to integrate his productions.
3. He shows some reflectiveness or productivity and he observes his defensiveness but affective involvement is minimal and the material is not being integrated into the patient's understanding of himself.
4. He is fairly productive and reflective. He attempts to explore his own defenses. There is moderate affective involvement and a serious but not fully successful effort to integrate his productions. Transference feelings are likely to be present and may be explored. Previously repressed material may become conscious.
5. He associates fairly freely and is highly reflective. He observes and explores his own defenses. He is deeply affectively involved and the material produced is integrated into an understanding of himself. Transference feelings are likely to be present, intensely felt and are explored. Previously repressed material appears, and is likely to include childhood memories.

(Scale B)

FREE ASSOCIATOR _____ DATE _____ FACILITATOR _____

POST HOUR QUESTIONNAIRE FOR FREE ASSOCIATOR

Please circle the answer that most nearly describes your feelings about today's session.

1. How completely did you verbalize the content of your awareness?
a. Everything b. Most everything c. Little d. Very Little
2. How did you feel towards the facilitator today?
a. Very close b. Close c. Distant d. Very distant
3. How did your thoughts flow today?
a. Freely b. Fairly freely c. Somewhat restrained d. Restrained
4. Did you think of anything today you had never thought of before?
a. Yes b. No If yes, please elaborate:
5. Did you think of anything today that you had not thought of for a very long time?
a. Yes b. No If yes, please elaborate:

PLEASE GO ON TO THE NEXT PAGE

6. What other feelings, thoughts, or observations did you have about today's session?
7. Check the word (s) which describe how today's session made you feel. You may check as many or as few as you like.

Rejected

Helped

Criticized

Understood

Uneasy

Comfortable

Anxious

Spontaneous

Depressed

Warm

Angry

Close

Embarrassed

Relaxed

Negative

Accepted

Tense

Positive

Guilty

Friendly

Uncomfortable

Thoughtful

Hostile

Admiring

Apprehensive

Open

Confused

Protected

Resentful

Supported

Other _____

PLEASE GO ON TO THE NEXT PAGE

No Regard	Little Regard	Some Regard	Deep Regard	Very Deep Regard
1	2	3	4	5

Please check an overall rating of today's session. Check this 5-point scale at the number (not midway between any two numbers) which most nearly describes the facilitator's typical response to you during today's session. Please read carefully the definition of each point below before proceeding.

1. The verbal and behavioral expressions of the facilitator communicated a clear lack of respect (or negative regard) for me.
2. He responded to me in such a way as to communicate little respect for my feelings, experiences, and potentialities.
3. He communicated a positive respect and concern for my feelings, experiences, and potentials.
4. He clearly communicated a very deep respect and concern for me.
5. He communicated the very deepest respect for my worth as a person and for my potentials as a free individual.

(Scale C)

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APPENDIX VI

TABLES OF RAW DATA

Variable	Sum Raw Scores		Sum of Squares		Sum diff.
	Pre-	Post-	Pre-	Post-	
L	14	10	44	44	4
F	22	14	108	60	8
K	69	59	1019	771	10
Hs+.5K	82	71	1388	1075	11
D	134	137	3602	3817	- 3
Hy	128	121	3334	3039	7
Pd	154	144	4780	4180	10
Pa	58	59	684	729	- 1
Pt+1K	173	171	6077	6059	2
Sc+1K	165	176	5549	6264	-11
Ma+.2K	101	113	2047	2581	-12

(N=5)

TABLE 5
Sum (Raw Scores, Squares, and Differences)
for MMPI Experimental Pre-post Comparisons

Variable	Sum Raw Scores		Sum of Squares		Sum diff.
	Pre-	Post-	Pre-	Post-	
L	14	14	44	44	0
F	23	16	141	64	7
K	52	51	574	545	1
Hs+.5K	65	62	857	774	3
D	138	126	3826	3236	12
Hy	117	109	2805	2443	8
Pd	128	109	3306	2429	19
Pa	65	58	861	684	7
Pt+1K	175	152	6175	4714	23
Sc+1K	158	133	5018	3589	25
Ma+.2K	93	96	1751	1930	- 3

(N=5)

TABLE 6
Sum (Raw Scores, Squares, and Differences)
for MMPI Control Pre-post Comparisons

Variable	Sum Raw Scores		Sum of Squares		Sum diff.
	Exper.	Con.	Exper.	Con.	
L	14	14	44	44	0
F	22	23	108	141	- 1
K	69	52	1019	574	17
Hs+.5K	82	65	1388	857	17
D	134	138	3602	3826	- 4
Hy	128	117	334	2805	11
Pd	154	128	4780	3306	26
Pa	58	65	684	861	- 7
Pt+1K	173	175	6077	6175	- 2
Sc+1K	165	158	5549	5018	7
Ma+.2K	101	93	2047	1751	8

(N=5)

TABLE 7
Sum (Raw Scores, Squares, and Differences)
for MMPI Pre-test, Experimental-Control

Variable	Sum Raw Scores		Sum of Squares		Sum diff.
	Exper.	Con.	Exper.	Con.	
L	10	14	44	44	- 4
F	14	16	60	64	- 2
K	59	51	771	545	8
Hs+.5K	71	62	1075	774	9
D	137	126	3817	3236	11
Hy	121	109	3039	2443	12
Pd	144	109	4180	2429	35
Pa	59	58	729	684	1
Pt+1K	161	152	5379	4714	9
Sc+1K	176	133	6264	3589	43
Ma+.2K	113	90	2581	1762	23

(N=5)

TABLE 8
Sum (Raw Scores, Squares, and Differences)
for MMPI Post-test, Experimental-Control

Variable	Sum Raw Scores		Sum of Squares		Sum diff.
	Pre-	Post-	Pre-	Post-	
Tc	83	79	1421	1271	4
I	342	340	2155	2390	2
Sav	101	96	2067	1902	5
Ex	114	104	2614	2242	10
Fr	77	80	1207	1360	-3
S	53	59	583	765	-6
Sr	59	63	703	813	-4
Sa	88	89	1556	1625	-1
Nc	61	60	757	734	1
Sy	32	32	206	218	0
A	81	77	1363	1225	4
C	103	86	2133	1502	17

(N=5)

TABLE 9
Sum (Raw Scores, Squares, and Differences)
for POI Experimental Pre-post Comparisons

Variable	Sum Raw Scores		Sum of Squares		Sum diff.
	Pre-	Post-	Pre-	Post-	
Tc	62	66	824	890	- 4
I	366	328	525	2396	38
Sav	89	99	1643	1981	-10
Ex	80	97	1384	1957	-17
Fr	74	84	1138	1470	-10
S	55	59	653	751	- 4
Sr	44	53	438	591	- 9
Sa	67	75	949	1207	- 8
Nc	52	57	554	667	- 5
Sy	28	37	168	285	- 9
A	83	92	1403	1734	- 9
C	72	80	1110	1446	- 8

(N=5)

TABLE 10
Sum (Raw Scores, Squares, and Differences)
for POI Control Pre-post Comparisons

Variable	Sum Raw Scores		Sum of Squares		Sum diff.
	Exper.	Con.	Exper.	Con.	
Tc	83	62	1421	824	21
I	342	366	400	525	-24
Sav	101	89	2067	1643	12
Ex	114	80	2614	1384	34
Fr	77	74	1207	1138	3
S	53	55	583	653	- 2
Sr	59	44	703	438	15
Sa	88	67	1556	949	21
Nc	61	53	757	554	9
Sy	32	28	206	168	4
A	81	83	1363	1403	- 2
C	103	72	2133	1110	31

(N=5)

TABLE 11
Sum (Raw Scores, Squares, and Differences)
for POI Pre-test, Experimental-Control

Variable	Sum Raw Scores		Sum of Squares		Sum Diff.
	Exper.	Con.	Exper.	Con.	
Tc	79	66	1271	890	13
I	340	328	2152	2396	12
Sav	96	99	1902	1981	- 3
Ex	104	97	2242	1957	7
Fr	80	84	1 360	1470	- 4
S	59	59	765	751	0
Sr	63	53	813	591	10
Sa	89	75	1625	1207	14
Nc	60	57	734	667	3
Sy	32	37	218	285	- 5
A	77	92	1 225	1734	-15
C	86	90	1502	1726	- 4

(N=5)

TABLE 12
Sum (Raw Scores, Squares, and Differences)
for POI Post-test, Experimental-Control