

THESIS



DISPAR
LAB

The present
participants' initial
essential measure of
Description Instru
1965, 1966) and the
T-group experience
would shift differ
scores.

Data was
eight-day human r
interpersonal com
obtained from one
both chosen by an
part. Ratings we
within the lab, a
described themsel
occasions, while

ABSTRACT

DISPARATE PERSONALITY SHIFTS AMONG LABORATORY TRAINING SUBGROUPS

By

Fred Wise

The present study investigated relationships between participants' initial prelab scores on a semantic differential measure of interpersonal perception (Person Description Instrument--form X [PDIX]; Harrison, 1962, 1965, 1966) and their subsequent shifts coincident with a T-group experience. It was hypothesized that subgroups would shift differentially dependent on their prelab scores.

Data was collected from 50 participants in an eight-day human relations training lab designed to enhance interpersonal competence. Additional PDIX ratings were obtained from one job colleague and one personal intimate, both chosen by and for the purpose of rating each participant. Ratings were made at five weeks prelab, days 2 and 7 within the lab, and at six months postlab. Participants described themselves on the PDIX scales at all four occasions, while intimates and colleagues provided both

prelab and postlab
group participants
7. Participants w
subgroups accordin
separately for eac
personal Warmth an
Work, and Activity
median percentage
high (30%), middle
all other sources
associates) strong
differences between
each observation.

Results de
indicated an overa
the total group wh
shifts exhibited b
included a decreme
increase within th
to postlab to a po
prelab scores. In
increments at each
only group to show
The ratings by int
provided some exte

The hypoth
influenced subgrou

688629
prelab and postlab descriptions. Additionally, fellow T-group participants described participants on lab days 2 and 7. Participants were divided into high, middle, and low subgroups according to their prelab, self-descriptions separately for each of the three PDIX scales: Interpersonal Warmth and Acceptance, Power and Effectiveness in Work, and Activity and Expressiveness. The approximate median percentage of individuals in these subgroups was; high (30%), middle (40%), and low (30%). Descriptions from all other sources (intimates, colleagues, and T-group associates) strongly confirmed the substantial self-rating differences between the high, middle, and low subgroups at each observation.

Results derived from complex analyses of variance indicated an overall change pattern across observations for the total group which closely resembled the pattern of shifts exhibited by both high and middle subgroups. This included a decrement from prelab to day 2, a moderate increase within the lab, and a further increase from day 7 to postlab to a point not significantly different than their prelab scores. In sharp contrast, the low groups made increments at each subsequent observation time and were the only group to show significant prelab to postlab shifts. The ratings by intimates, colleagues, and T-group associates provided some external confirmation of these changes.

The hypothesis, that T-groups differentially influenced subgroups of individuals was clearly supported.

It was suggested
primarily of value
by themselves and
measures of this
lying processes
findings and sug
assessment of su

Thesis Committee
John R. Hurley,
Dozier W. Thorn
Richard K. Russe

Fred Wise

It was suggested that perhaps such laboratories are primarily of value to persons who initially are described by themselves and others as relatively lower than peers on measures of this kind. Speculations about possible underlying processes were offered. The implications of these findings and suggestions for further research on the assessment of such shifts were also discussed.

Approved:

John R. Hurley

Date:

8/1/74

Thesis Committee

John R. Hurley, Chairman
Dozier W. Thornton
Richard K. Russell

DISPA

LA

M
in partial

D

DISPARATE PERSONALITY SHIFTS AMONG
LABORATORY TRAINING SUBGROUPS

By

Fred Wise

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

Department of Psychology

1974

To Sigmund Freud,
 who,
 more than once,
was known to have said
 "This is Crazy"

ACKNOWLEDGMENTS

I would like to express my deep appreciation to **Dr. John Hurley**, chairman of my thesis committee, for his **continual** support, encouragement, and guidance throughout **the** work of this thesis. I am also grateful to the members **of** my committee, Dr. Dozier Thornton and Dr. Richard **Russell**, for their participation and continued help.

I am also indebted to Tom Nicol and Mike Denny for **their** help in a seemingly unending battle of man against **machine**, the computer, and their patient advice on the **statistical** analyses of this study.

Finally, I wish to thank Diane for her limitless **source** of energy and encouragement.

TABLE OF CONTENTS

	Page
LIST OF TABLES	vi
LIST OF FIGURES.	vii
INTRODUCTION.	1
Definitions and Purposes of T-groups	1
REVIEW OF THE LITERATURE.	6
Problems in Research	7
Factors Relating to Change	12
Effects of T-groups on Participants	20
THEORETICAL JUSTIFICATION	33
METHOD.	44
Subjects	44
Instruments	45
Design	47
RESULTS	49
Data.	49
Constitution of High, Middle, and Low Subgroups	50
Measurement of Change	51
Main Effects of Time of Observation	52
Interaction of Observations With Subgroups	62
Effect of Levels.	64
DISCUSSION	71
Self-Report Ratings.	71
A Surprise Finding	77
Ratings by Others	80
Implications and Future Research	83

Chapter

BIBLIOGRAPHY .

APPENDIX A .

Chapter	Page
BIBLIOGRAPHY	86
APPENDIX A	94

Table

1. Means f
data
2. ANOVA f
3. ANOVA f
4. ANOVA f
5. F-ratio
6. Tukey's
for s

LIST OF TABLES

Table	Page
1. Means for all observations across sources of data	55
2. ANOVA for Scale IWA.	56
3. ANOVA for Scale PEW.	57
4. ANOVA for Scale A&E.	58
5. F-ratios for mean differences across levels. .	63
6. Tukey's post-hoc analysis of mean differences for self-scores	66

Figure

1. Total gro
and A&E
2. Subgroup
Warmth
3. Subgroup
Effect
4. Subgroup
Expres

LIST OF FIGURES

Figure	Page
1. Total group mean scores on Scales IWA, PEW, and A&E	54
2. Subgroup's scores on Scale IWA, Interpersonal Warmth and Acceptance	59
3. Subgroup's scores on Scale PEW, Power and Effectiveness in Work	60
4. Subgroup's scores on Scale A&E, Activity and Expressiveness.	61

The pre
groups and their
purpose of this
between a person
a test of inter
and his subsequ
of laboratory
methodology and
that T-groups
therefore, log
researchers' c
T-groups, (2)
the methodolog
We shall then
cerned with a
result of T-g

De
Since
ratory (NTL) :

INTRODUCTION

The present study deals with encounter groups or T-groups and their effects on participants. The specific purpose of this study was to examine the relationship between a person's initial score (pre-lab, self-rating) on a test of interpersonal perception (PDIX; Harrison, 1964) and his subsequent scores on that same variable as a result of laboratory experience. Before proceeding into the methodology and results it comes to the author's attention that T-groups are no standardized phenomenon. It is, therefore, logical to proceed with a review of some researchers' opinions on (1) the nature of the purposes of T-groups, (2) the goals that they may have, and (3) some of the methodological problems involved in T-group research. We shall then review some of the specific studies concerned with actual assessed changes in individuals as a result of T-group experience.

Definitions and Purposes of T-groups

Since their inception at National Training Laboratory (NTL) in 1947, training groups or T-groups have

enjoyed increasing
myriad of purposes
improving relations
aids for universities
and increasing un
Indeed, there is
according to pur
Depending on the
have been called
groups, sensual
groups, or trai
educational inn
reaching goals
(Bradford, Gibb
different type
ature, one bec
formulating a
must also be k
represent only
being conducted

Perhaps
would be to ex
and (2) the s
attempting to

Campbell
of six goals
Argyris (1964)

enjoyed increasing popularity. They have been used for a myriad of purposes including training management personnel, improving relationships within organizations, as teaching aids for university classes, stimulating personal growth, and increasing understanding of others, to mention a few. Indeed, there is no one standard type of T-group. They vary according to purpose, setting, structure, and practitioner. Depending on the emphasis on each of these variables, they have been called T-groups, encounter groups, sensitivity groups, sensual-awareness groups, growth groups, task-groups, or training labs. Some have called them a simple educational innovation while others attribute much farther reaching goals involving personal and social learning (Bradford, Gibb, Benne, 1964). In reviewing the many different types of groups reported on in research literature, one becomes actually aware of the difficulty of formulating a comprehensive definition of T-groups. It must also be kept in mind that research groups probably represent only a portion of the types of groups presently being conducted.

Perhaps one of the best ways to define a T-group would be to examine (1) the goals and purposes of the group, and (2) the structure and processes that are used in attempting to achieve those goals.

Campbell and Dunnette (1968) have composed a list of six goals for T-groups using resource material from Argyris (1964), Bradford et al. (1964), Buchanan (1965),

Miles (1960), Shei

(1961). It is as

1. Increased
one's own
context.

2. Increased
which inc
understan
includes
or the a
to the c

3. Increase
of proc

4. A combi
individ
skills
persona

5. Increas
vene a
levels
effect

6. "Learn
crease
goals
inter

Altho

emphasis plac

investigators

integral part

placed on the

processes use

and Bennis (

stress metho

Valiquet (19

Miles (1960), Shein and Bennis (1965), and Tannenbaum et al. (1961). It is as follows:

1. Increased self-awareness or self-insight concerning one's own behavior and its meaning in a social context.
2. Increased sensitivity to the behavior of others which includes not only being able to recognize and understand another person's behavior, but also includes what would clinically be deemed as empathy or the ability to communicate that understanding to the other person.
3. Increased awareness and understanding of the types of processes inherent in group functioning.
4. A combination of the first three goals in which an individual would acquire diagnostic and conceptual skills or the ability to assess social, interpersonal, and intergroup situations.
5. Increased ability to use #4 to effectively intervene at both the interpersonal and technological levels of group functioning so as to increase group effectiveness, satisfaction, and output.
6. "Learning how to learn" where an individual increases his flexibility in using the previous five goals to establish more effective and satisfying interpersonal relationships.

Although T-groups vary in regard to the amount of emphasis placed on each of the aforementioned goals, most investigators seem to agree that they are all necessary and integral parts of most T-groups. The degree of emphasis placed on these goals can often be seen in the structure or processes used to achieve these goals. For example, Shein and Bennis (1965), Benne (1964), and Harrison (1962), stress methods for organizational effectiveness improvement, Valiquet (1968) discusses individual work improvement, and

Shutz discusses training designs aimed at increasing interpersonal effectiveness, to mention a few.

Before designing structures and processes for achieving these goals, however, it is important to examine some basic assumptions of how an individual learns and specifically, how he can learn from a T-group. The literature seems to suggest a common set of assumptions for what facilitates growth and learning in laboratory environments. Argyris (1962) presents seven factors that he feels contribute to an individual's learning within a T-group:

1. The T-group emphasizes a participant's responsibility for self-development.
2. Education in human-relations is a matter of re-learning or an unfreezing of old patterns of behavior and replacement with new, more adaptive patterns.
3. This re-learning process is much the same as the original learning process in which an individual learns in a social, interpersonal context.
4. The learning process is not only a matter of intellectual understanding, but also of emotional insight and learning.
5. The most effective development of an individual takes place when he becomes both more understanding and more accepting of himself.
6. As he becomes more understanding and accepting of himself, he will also become more understanding and accepting of others, thus reducing their defensiveness and facilitating their growth.
7. As his basic values change then so will his behavior.

Also speaking to the issue of what group processes facilitate learning and the achievement of the previously mentioned goals, Gottschalk and Davidson (1972) state,

A training
create a s
their own
knowledge
appraise t
ones. A l
participan
environmen
to experim
risks and
artificial
may safely
old attitu
and practi
ability to

It can
of improving a
increasing awa
behavior, and
others. These
participants w
which they hav
selves and oth
in a social co
examination us
more specifica
atmosphere to
haviors and in
the opportunit
his old patter
he may wish to

A training lab is an educational procedure that aims to create a situation in which the participants, through their own initiative and control but with access to new knowledge and skilled professional leadership, can appraise their old behavior patterns and look for new ones. A lab recommends a temporary removal of the participants from their usual living and working environment, where attempts to re-evaluate attitudes or to experiment with new behavior patterns might involve risks and possible punishment. It provides a temporary artificial supportive culture in which the participants may safely confront the possible inadequacy of their old attitudes and behavior patterns and experiment with and practice new ones until they are confident in their ability to use them.

It can be seen then that T-groups have primary goals of improving an individual's interpersonal competence, increasing awareness of his own attitudes, emotions, and behavior, and increasing his awareness and understanding of others. These goals are sought through providing the participants with a relatively unstructured experience in which they have the opportunity for examination of themselves and others and for experimenting with new behaviors in a social context. The core of this self and other-examination usually rests on the process of feedback or more specifically, an individual is encouraged in a trusting atmosphere to both give and receive feedback about behaviors and interactions in the group. He thus is afforded the opportunity to find out what others think of not only his old patterns of behavior, but also of any new behaviors he may wish to try out.

Review:

purported claim

the all-encomp

happen to an in

It seems as tho

classified as a

Some investigat

and have gone a

tions of T-grow

But although ma

look at the lit

variability in

how long they l

vidual's life-f

numerous method

articles quite

methodology as

review first so

research, then

REVIEW OF THE LITERATURE

Reviewing the literature on T-groups or reading the purported claims of laboratory trainers, one is taken by the all-encompassing nature of change that is supposed to happen to an individual as a result of group experience. It seems as though the experience could more correctly be classified as a cure-all for the social ills of mankind. Some investigators have also recognized this misconception and have gone as far as to directly point out the limitations of T-groups (Golembuski & Blumberg, 1970; Back, 1972). But although many claims have been made, one has only to look at the literature regarding T-groups to see tremendous variability in what changes in participants were reported, how long they lasted, and of what relevance to the individual's life-functioning they had. Added to this are the numerous methodological problems in the research. Indeed, articles quite often begin with an attack on previous methodology as justification for their study. We will review first some of these problems involved in T-group research, then some of the studies on factors related to an

individual's functioning within a group, and finally some of the studies concerning actual change assessment in T-groups.

Problems in Research

Argyris (1964) has said that there has been more research conducted on the T-group method than on any other specific management-development technique. A bibliography by Durham, Gibb, Knowles, and Harrison (1967) containing over one hundred abstracts of change studies in T-groups seems to attest to this. Indeed, at least one monthly journal, Journal of Applied Behavioral Science, is primarily dedicated to research on groups. But can we really say that these articles substantiate the claims made by their researchers? Perhaps, but it would do good to bear in mind some reservations concerning not only the methodologies, but also the theoretical justification behind some of these studies. A number of books and articles contain material directly addressing these issues (Napier, 1973; Shein & Bennis, 1964; Odione, 1963; Friedlander, 1967; Harrison, 1967; House, 1967; Luke & Seashore, 1966; Golembuski & Blumberg, 1970; Campbell & Dunnette, 1970; Stock, 1964; Bradford et al., 1964).

The author sees six basic problems in T-group literature that should be considered when interpreting research results. First and extremely important is the matter of variability both in laboratory design and

implementation

before, group

and practice

accommodate t

is what Harr

T-group trai

and prolifer

Although sta

purposes, it

settings for

difficult to

learns form

justifiably

study with

differentia

on particip

1968; Peter

Sec

perceived c

laboratory

perhaps bes

I say, lack

use of cont

in obtainin

ness of cho

trols since

people who

implementation and in theoretical formulation. As mentioned before, groups vary in regard to goals, setting, structure, and practitioner and thus are designed differentially to accommodate their respective aims. Compounding this problem is what Harrison (1971) calls "a cult of originality among T-group trainers in which a dominant value is the invention and proliferation of new variations in training design." Although standardization would be desirable for research purposes, it would also reduce the number of suitable settings for laboratory application. It is therefore difficult to both ascertain specifically what a participant learns from T-groups, but more generally, what one could justifiably say about the comparability of results of one study with another. Also related here are the problems of differential effects of trainer style and group composition on participant learning (Stock, 1964; Bolman, 1968; Culbert, 1968; Peters, 1966; Lieberman, Yalom, & Miles, 1973).

Second is the related problem of whether or not perceived or measured changes are in fact due to the laboratory or to some other intervening variable. This is perhaps best subsumed under the problem of controls or should I say, lack of such. Very few studies have made adequate use of control groups, probably because of the difficulty in obtaining them. Some investigators question the soundness of choosing random groups of people to serve as controls since they may not possess the same motivation as the people who sign up for T-groups (Massarik, 1965). To

complicate mat
motivation for
usually report
of their exper
Bach, 1968; Li
(1965) has pr
desire T-grou
groups and ha
then told tha
This has been
change not a
on a waiting

A th
Assuming tha
how does thi
situation?
that many of
experience
antithetical
Pattison (19
cluded that
associated w
easier to as
at the end c
hampered by
of learning
itself. But

complicate matters, while control groups may lack the same motivation for membership as participants, participants usually report only positive and possibly inflated accounts of their experiences in groups (Rogers, 1967; Mintz, 1969; Bach, 1968; Lieberman, Yalom, & Miles, 1973). Massarik (1965) has proposed one alternative, to use volunteers who desire T-group experience, half of which are placed in groups and half designated as controls. These controls are then told that they will have to wait to be in a group. This has been questioned, however, in that the controls may change not at random, but rather as a result of being put on a waiting list.

A third problem is that of transfer of training. Assuming that individuals do change in a laboratory setting, how does this affect them in their work or everyday-life situation? Shein and Bennis (1965), for example conclude that many of the goals and processes of the laboratory experience (i.e.,--honesty and openness) are in fact antithetical to changes in effective job-functioning. Pattison (1965) has also reviewed research data and concluded that behavior change within groups is often not associated with behavior change outside of groups. It is easier to assume that learning is automatically transferred at the end of a group, that group processes will be hampered by attention to transfer issues, or that transfer of learning is not as important as the group experience itself. But unless practitioners, and some do, uniformly

claim that the
experience in
with the long
ship.

Even
are still fac
temporality.
change a pers
last? The re
concerned wit
a great deal
example, they
of hours, man
research supp
related to le
There is also
pants vary in
the group (H
et al., 1973).

A fi
in a later se
change. More
extent do inc
states that i
change the sa
change in a l
the premise i

claim that the laboratory is an intrinsically valuable experience in itself, there will still be those concerned with the long range and transfer effects of group membership.

Even if we can assume a transfer of learning, we are still faced with a fourth and related problem, temporality. In other words, how long does it take to change a person and if he does change, how long will it last? The research most relevant to this problem has been concerned with the length of the group experience. There is a great deal of variability in laboratory length. For example, they may consist of weekly meetings for any number of hours, marathons, or a combination of the two. Some research supports the notion that participant change is related to length of meeting time (Bunker & Knowles, 1967). There is also literature supporting the idea that participants vary in degree of change exhibited over time after the group (Harrison, 1966; Shutz & Allen, 1966; Lieberman et al., 1973).

A fifth problem, to be explained in further detail in a later section, concerns dimension and direction of change. More specifically, do and if so, how and to what extent do individuals change differently? Stelle (1968) states that it is a faulty assumption that individuals change the same or have the same prerequisite skills for change in a laboratory situation. Harrison (1967) attacks the premise implicit in many articles, that is, individuals

change

shown,

change

negative

Yalom,

the wide

in comp

in anot

amount

that he

study m

limit i

strictly

is obvie

want to

research

laborato

interper

etc. (Ga

Smith, 1

ences on

in attit

question

what is

statistic

Cronbach

change in one direction only, for the better. It has been shown, in fact, that laboratory participants do not only change in differing degrees, but that they may make either negative or positive changes (Underwood, 1965; Lieberman, Yalom, & Miles, 1973). Again it is also important to note the wide range of variables studied and thus the difficulty in comparing the dimensions of change of one study to those in another study. An experimenter also limits the type and amount of change he will find by choosing the instruments that he will measure such change with. For example, one study may focus on changes in self-concept while another may limit its findings to changes in self-esteem.

Sixth and finally, we must consider the more strictly methodological problems of T-group research. One is obviously instrumentation, or how can we measure what we want to? Campbell and Dunnette (1968) cite a number of researchers who discuss the problem of measuring what laboratory training purports to change; such things as interpersonal sensitivity, self-awareness, attitudes, values, etc. (Gage & Cronbach, 1955; Cline, 1964; Cronbach, 1965; Smith, 1966). For example, if we measure pre-post differences on questionnaire responses, are we measuring changes in attitudes, behavior, or merely familiarity with the questionnaire? More overriding may be the issue of exactly what is most important to measure? Related too are the statistical problems in measuring change. Harris (1963), Cronbach and Furby (1970), Tucker, Damarin, and Messick

(1966), and Lord (1968) have all discussed the problems of measuring any change. They state that one must consider the relationship between a person's initial score on a test and his change score. Another methodological problem is that of data collection. Harrison (1967) points out some of the problems with administering instruments on the first day such as initial anxiety and uncertainty about the laboratory experience. Yalom (1970) states that participants almost always feel good at the end of lab and thus administering instruments at this time may also lead to erroneous conclusions. A number of investigators have discussed the merits of longitudinal research with more than two test administrations (Harrison, 1966; Bunker & Knowles, 1967; Shutz & Allen, 1966; Bare & Mitchell, 1972).

Factors Relating to Change

Bearing in mind the aforementioned cautions and problems in research, let us now turn to some of the literature concerning factors related to functioning and change within or as a result of a T-group. It is useful to consider two basic categories of factors; (1) those variables that are part of the individual such as personality, desire for change, expectations, etc., and (2) those variables related to group climate such as structure of the group, trainer orientation, group composition, etc.

Let us first consider those variables within the individual that are related to behavior or change in

behavior in a T-group. Perhaps the most researched area has dealt with personality factors. Shutz and Allen (1966) found that the laboratory experience changed people selectively depending on initial personality characteristics, highly dominant members becoming less dominant and overly affectionate members also becoming less so. Harrison and Oshry (1966) found that members preferring high structure learned more than those preferring low structure situations. In a previous study they found that those individuals who were open to new ideas and expression of feelings were found to most effectively learn and apply their learnings from the group (Harrison & Oshry, 1964). Mathis (1958) found that passive, withdrawing people were least likely to change as they tended to prevent exposure, confrontation, and exploration which are all seen as necessary prerequisites for personal development or growth. Steele (1968), using the Meyers Briggs as a prediction instrument, found a relationship between the sensation-intuition scale and those individuals who were rated as most effective in a T-group. This scale is designed to measure a person's preference for basic modes of conceptualizing the world. It was, however, less effective in predicting actual change as a result of the group. Greening and Coffey (1966) found that impersonals, those who rated others in terms of achievement, ambitions, and independence, gained more from laboratory training than did personals who rated others in terms of love and intimacy.

Not

(1960) found

studied (ego

directly aff

Carlson (196

(CPI) was no

pants. Kerr

sonality mea

group. Lieb

is easier to

encounter g

values than

Lippitt, Ka

laboratory

were more r

than their

clusive evi

istics with

side the gr

Con

Harrison an

were more e

setting tha

and Berlew

likely to c

committed

research w

Not all research is positive, however. Miles (1960) found that none of the personality variables he studied (ego strength, flexibility, and need affiliation) directly affected laboratory outcomes. Massarik and Carlson (1962) found the California Psychological Inventory (CPI) was not predictive of laboratory change in participants. Kernan (1964) also found no differences on a personality measure (authoritarianism) before and after a T-group. Lieberman, Yalom, and Miles (1973) conclude that it is easier to predict a person's success or failure in an encounter group by his initial expectations, attitudes, and values than by measuring personality traits. Watson, Lippitt, Kallen, and Zipf (1961) analyzed extensive data on laboratory groups and concluded that personality factors were more related to how a person filled out a questionnaire than their actual behavior. In fact, they found no conclusive evidence that behavior or personality characteristics within the group were predictive of any change outside the group.

Concerning more specific individual variables, Harrison and Lubin (1965) found that person-oriented people were more expressive, warm, and comfortable in a T-group setting than were work-oriented individuals. Kolb, Winter, and Berlew (1968) report results indicating that those most likely to change in a T-group were those who initially were committed to the change goals of the group. Although their research was conducted on therapy groups which are somewhat

analogous to T-groups, Houts, Zimerberg, Rand, and Yalom (1965) also found that the only variables predictive of success were attraction to group and the person's general popularity. In summary, Stock (1964) concludes her review of laboratory training research by stating, "these findings converge on the idea that personality factors having to do with receptivity, involvement, lack of defensiveness and a certain kind of energy or openness may be the important facilitators of learning."

The other set of variables that are seen to affect a participant's behavior is group climate. Included here are such things as group structure, trainer characteristics, and group composition. We shall examine some of the literature relevant to each of these factors.

First, group structure including such things as length of group meetings, type of activities, and nature of communication is an extremely important variable affecting laboratory outcome. Bunker and Knowles (1967) compared the effects of laboratories of different length. Their assumption was that amount and kind of training outcome varies with respect to amount of input (length of lab). Thus by measuring outcome effects for different length laboratories, they could avoid some of the problems inherent in designs using control groups that had not had group experience. Using laboratories of two and three week lengths, they found that those participants in the three-week group made more changes as viewed by both themselves

and others and that these changes were overt, active changes in behavior while the two-week sample changes were of less magnitude and more of a passive, attitudinal nature. They concluded that the longer labs provided more time for the participants to incorporate and test attitudinal changes and to then adopt them behaviorally. Other studies point to the fact that changes in both behavior and attitudes may not even be seen within the context of the laboratory situation but rather are only evident at a time quite a bit after the experience (Harrison, 1966; Shein & Bennis, 1965; Shutz & Allen, 1966). Related to laboratory length, Bare and Mitchell (1972) report a study in which they manipulated time patterns of the group meetings into what they called spaced (30 hours over 10 weeks), massed (24 hours of continuous meeting), and a combination of these. They found that the combination pattern was most conducive to behavior change of the participants, although the results were not significant when measured again at three months after the laboratory.

In research concerning other group structure variables, Luke (1972) found that normative structures of T-groups often tend to be supportive of interpersonal encounter while norms of a conceptual nature are seen as less important. As a result, he concludes, it may be very difficult for members to make conceptual and behavioral changes. Stock and Luft (1960) conducted a study using high and low structure groups and found that low-structure

was more conducive to emotionality while the high structure groups were characterized by relatively superficial encounters, although were extremely active. Harrison (1965) interprets a number of studies in terms of confrontation theory and posits an optimum stress level for maximum participant learning. Stock (1964) also reviews a number of studies which reflect on the nature of group structure and its effects on participants. Egan (1970) discusses the varied effects of different group structures, examining such things as feedback, exercises, and norms in terms of "contract groups." Finally Lieberman, Yalom, and Miles (1973) explore many of the same variables in the context of encounter groups.

Trainer behavior is the second major classification of group climate variables having an impact on participants' change. The trainer is probably the most important individual in the group in terms of effect on participant interaction (Hare, 1962). Luke (1972) also states that although many labs are purportedly a mutually accommodative learning environment in which trainers and participants have equal say in the normative structure of the group, many T-groups do not even approximate this. He concludes that trainer style appears to determine which and how much members influence the normative structure of the group. Perhaps the most definitive and thorough examination of this phenomenon can be found in Lieberman, Yalom, and Miles' (1973) extensive study of encounter groups. Using eighteen

different groups with trainers representing most major styles of leadership, they conclude that trainer behaviors (often not related to their theoretical orientation) have a definite impact on whether or not a participant will be benefitted or harmed by the encounter group experience. More specifically, members who were seen to have benefitted most had trainers who were characterized by their caring and ability to provide a conceptual framework in which participants could interpret their experiences. Negative effects were associated with trainers who provided excessive emotional stimulation or were seen to have been extremely directive in terms of such things as rule setting and interaction intervention. Two other excellent reviews of trainer role, function, and effect on a T-group may be found in Hare (1962) and Golembuski and Blumberg (1970). The conclusion to be drawn appears to be that trainers do have a definite impact, but that it varies with regard to both his behavior and group composition.

The third important factor of group climate contributing to an individual's change is group composition. Here we are interested in such variables as members' relationships, status in group, and whether or not the group is homogeneous or heterogeneous. We have already seen that an individual member's personality, attitudes, values, or expectations may have an impact on his behavior or change in behavior within a group. It is logical then to assume that a combination of these, whether they be the

sam

Shu

and

enc

in

pr

sh

de

co

re

fe

gr

gr

me

f

e

l

P

R

a

r

v

e

e

same or different across members, may also have an impact. Shutz (1961) used the FIRO-B to compose homogeneous groups and found that the group with individuals sharing a preference for receiving rather than initiating was relatively low in activity compared to a group whose members showed a preference for interaction. He also found that members who showed a high concern for affection were seen as primarily dealing with warm feelings in the group, while a group composed of people who expressed a preference for distant relationships were seen as being unable to deal with feelings. Harrison (1965) examined a series of studies on group composition and concluded; (1) compatible, homogeneous groups may depress conflict and inhibit the learning of the members (Harrison & Lubin, 1965; Harrison, 1965), (2) conflict and incompatibility of personal styles may lead to exploration of alternatives and to learning (Harrison, 1965; Lieberman, 1958), (3) personal styles which depend on passivity and withdrawal for coping with interpersonal stress may prevent exposure, confrontation, and exploration which are all central to the learning process in T-groups (Mathis, 1958), and (4) poorly integrated, stress-vulnerable individuals have difficulty functioning in groups where ambiguity and emotionality are optimal for the learning of others (Powdermaker & Frank, 1953). Stock (1964) also looked at a number of studies on group composition. She came to the conclusion that group composition most certainly affects the character of group interaction in that

the members' interaction, based on their initial orientations, directly affects the normative structure of the group and thus the type and amount of interaction that will occur.

It is clear then that there are many variables that are related to an individual's behavior or change in behavior in a T-group. It would seem logical to conclude that although studies have customarily focused on only one or a few of these at a time, there is probably a great deal of interaction among them. It is therefore very difficult to make any definitive "this always leads to this" inferences. Stock (1964) agrees stating, "It is difficult to separate out any single aspect of a laboratory and say this is what influenced learning."

Effects of T-groups on Participants

The previous sections have discussed various goals and purposes of T-groups, problems with research, and some of the specific factors relating to an individual's functioning or change in a group. We shall now briefly review some of the studies concerning actual assessed changes in an individual as a result of T-group experience. The literature can be divided into two main categories along the lines of whether it is concerned with changes in behavior or with changes in attitudes, values, and personality characteristics. Further analysis could focus on whether the changes were observed within the group or

c
s
p
c
ch
in
in
sa
se
of

be
act

outside the group. Changes in behavior are most often measured by the observations of others, within the lab by other participants and outside the lab by colleagues, friends, or independent observers. Attitudes, values, and personality characteristics are usually measured, both inside and outside the lab, by participant responses to a questionnaire or some other kind of evaluative instrument.

As mentioned earlier, T-groups have a varied range of goals. As well as behavioral change (to be discussed shortly) laboratories often have as goals, changes in self-perception, changes in interpersonal sensitivity or perception of others, and changes in attitude and personality characteristics. Luke (1972) states that since norms with interpersonal encounter as a focus take primary importance in T-groups, one would assume that these goals would be salient. We shall examine these three areas of change goals separately although they are obviously interrelated aspects of an individual's personality.

A change in self-perception is commonly thought to be a precursor to an individual's growth or self-actualization. Zand, Steele, and Zalkind (1967) state,

Generally, training laboratories attempt to help participants become more aware of their assumptions about interpersonal trust, openness, and expression of emotions. Laboratories usually attempt to increase a person's sensitivity to his feelings and the feelings of others. They may help a person to see the different styles of behavior that he and others use to cope with uncertainty, authority, and competition. It is assumed that the laboratory experience will become a foundation for future changes in behavior.

Bur

cha

lab

mor

in

fi

co

Ya

ch

of

po

re

as

Th

th

th

se

se

ch

pe

(.

be

ci

S:

ch

S:

Burke and Bennis (1961) found statistically significant changes in participants' self-perceptions during a two week laboratory. Eighty-four participants were seen to become more satisfied with their self-perceptions and to move more in the direction of their "ideal-self." An ancillary finding was that their perceptions of others seemed to converge with how those others saw themselves. Lieberman, Yalom, and Miles (1973) found that although self-reported changes are quite often biased, fifty to seventy percent of all participants of their encounter groups report some positive change in self-perception. The most frequently reported change was in the participants seeing themselves as being more honest and open in communication with others. They also reported an increased awareness and acceptance of themselves and seventy-two percent stated that they expected the change to be lasting.

When interpreting results of studies dealing with self-perception, it should again be stressed that these self-ratings tend to be biased in the direction of positive change. Indeed, a number of studies dealing with self-perception report less than positive results. Gassner (1964) used a control group and found no differences between them and his experimental group in terms of discrepancies between "actual" and "ideal" self-description. Stock (1964) found that individuals whose self-perceptions changed most were also most variable in their descriptions. She therefore concluded that they actually became less sure

c

D

s

A

th

an

Ru

wi

re

acc

cal

mor

exp

Shu

the

star

unde

thei

part

expe

of the changes they made in the group. Campbell and Dunnette (1968) sum up much of this scepticism concerning self-perception studies;

. . . it seems relatively well established that the way in which an individual sees himself may indeed change during the course of a T-group. However, there is no firm evidence indicating that such changes are produced by T-group training as compared to other types of training, merely by the passage of time, or even by the simple expedient retaking a self-description inventory after a period of thinking about one's previous responses to the same inventory.

Related to self-perception is perception of others. A number of investigators have studied and concluded that there is a positive relationship between self-acceptance and acceptance of others (Omwake, 1954; Sherrer, 1949; Rubin, 1967). It is assumed that as one becomes more willing and able to accept himself or see himself as he really is, he will also be better able to see others and accept them as they are. This is what Eric Berne (1966) called the "I'm OK, you're OK" position.

Although many trainers claim that participants move more in this direction as a result of the laboratory experience, the evidence appears to be less conclusive. Shutz and Allen (1966) found that the large majority of their laboratory participants reported a greater understanding and insight into others as well as an increased understanding of themselves. But they also caution that their findings are based entirely on self-reports and that participants are inclined to find something good about the experience regardless of what happened. This would probably

be especially true if they had to pay for attending the training, as is frequently the case. Miles (1960) found significant differences between participants and control subjects in analytical understanding of human behavior, insight into group processes, sensitivity to others' needs and feelings as well as an increased understanding of themselves. This study had the advantage of both control groups and independent observers. Argyris (1962) found that participants tended to describe others in more interpersonal terms after the laboratory. Using middle and top managers from an organization, Argyris reported a significant difference between them and a control group of managers selected from the same organization. His results do not address the issue of long-term change however, since they were only true when members were describing other members of the lab. He suggests counter-pressures from the organization prevented them from transferring the learning outside the lab. Similar results are reported by Harrison (1966) who conducted two studies designed to investigate changes in concept preference in interpersonal perception. He posited that concepts which an individual uses to structure his interpersonal relationships directly affect how he will respond to others. He further states that if it can be shown that a T-group affects these conceptual preferences, the participants will as a result change their interpersonal behavior. Harrison states that the direction of this change should be toward a greater abstractness,

complexity, and depth of interpersonal concepts (increased awareness of his feelings, perceptions, and attitudes toward others). His 1962 findings show a conceptual shift in the expected direction when describing other laboratory participants, but not when describing others outside the group. His second study found significant changes in concept preference, but only at three months post-lab. Finally, on the more negative side, Zand, Steele, and Zalkind (1967) found that participants (organizational managers) had statistically significant reductions in the extent to which they trusted work associates, the extent to which they saw work associates as trusting each other, the amount of help they saw others as willing to accept from others, and the extent to which they felt open to share ideas with their bosses or seek help from others. They explain their results as participants having changed from a less to more demanding definition of trust, openness, and acceptance of help.

In summary it appears that laboratories do have the ability to change a person's interpersonal perceptions, but that the nature of this change may be dependent on (1) how it is measured (self-report or independent observer), (2) where and when it was measured (in lab, at work, or back home), (3) the nature of the laboratory experience (purposes and goals for change) and of course, (4) the individual's own ability to change.

We shall now turn to a third type of change, that affecting personality characteristics and attitudes. This area has had relatively little research. Until recently most research has focused on organizational change, or improving an individual personally and socially so that he may better function within a work organization. As a result, the variables studied are often defined only in terms of organizational efficiency such as ratings of job performance. Perhaps the paucity of research may also, in part, be due to the inherent problems with this type of study. Personality characteristics have always been difficult to study in that there is no agreed upon method of measuring them and, like attitudes, it is often hard to decide upon what is relevant to measure. It is also difficult to establish adequate control groups to aid in assessing such intervening variables as leader impact, length of lab, and laboratory techniques used. Finally there is the problem of specificity of variables measured. Quite often the variables are so global as to become meaningless.

In contrast, when the variables measured become too specific, results tend to be inconclusive. For example, Stock (1964) studied changes in self-concept and found that participants who reported the most change were also those who become most unsure of what kinds of persons they were. Kassajarian (1965), using pre and post tests, found no significant changes in participants measured for

inner-directedness vs. outer-directedness. Campbell and Dunnette (1968) cite an unpublished study by Massarik and Carlson in which they administered the CPI to a group of college students and a study by Kernan (1964) in which the California F scale was administered to a group of engineering supervisors before and after a T-group. Neither study yielded significant results in terms of personality change, although the authors concluded that such basic personality variables may be unaffected by a relatively short laboratory experience.

Perhaps the most positive results in the literature relevant to personality and attitude change have been found using the FIRO-B (Fundamental Interpersonal Relations Orientation-Behavior) personality test. This questionnaire includes a series of attitude items designed to measure what Shutz calls the three primary group behaviors; affection, inclusion, and control. Shutz and Allen (1966) found significant differences between experimental and control subjects in correlations of pre and post-test scores on the FIRO-B. They concluded that the lab experience (a Western Training Laboratories program) caused changes in the attitudes of the participants. Smith (1964) also reported significant attitude change in laboratory participants. They found that the disparity between an individual's own behavior or desire for a specific type of behavior and how that individual wanted others to behave decreased more for the laboratory sample than for the controls. Although

these studies seem to point to positive evidence that T-groups can change personality or attitudes of an individual, it must be remembered that only one measure was used and that other studies were not so conclusive. In summarizing personality and attitude change studies, Gottschalk and Davidson (1972) conclude

. . . the evidence is meager that such participants undergo significant attitude changes or personality changes. . . . What is clearest is that these groups provide an intensive affective experience for many participants. In this sense, the groups may be described as potent.

In reviewing behavioral change related to T-group experience, it becomes clear that most of the research is aimed towards measuring changes in job performance. A number of studies have been cited in support of the ability of a laboratory to change job behavior. Miles (1960) reports a well-controlled study designed to assess changes in job performance. Using three instruments to assess change, he found that 73 percent of the experimental group and only 29 percent and 17 percent, respectively, of the matched and random control groups showed statistically significant changes in job performance as measured by a "perceived change" rating made by job superiors, subordinates, or peers. Bunker (1965) refined this same instrument and essentially replicated Miles' findings. Valiquet (1964) also obtained statistically significant results comparing experimental and control groups on the total number of changes observed by independent raters and

total number of changes reported by the subjects themselves. Buchanan (1964) and Blasfield (1962) analyzed T-group programs administered to entire organizational units. They found positive behavioral changes in delegation of authority, managerial performance, teamwork, and effectiveness of the unit. These results should be interpreted with caution however, since there was no control group and no units of change were reported. Other studies supporting changes in job performance include Boyd and Ellis (1962), Beer and Kleisath (1967), and Friedlander (1968).

Although the aforementioned studies are cited in support of laboratory training for changing job performance, there are other studies which point to a more general behavioral change as a result of T-groups. Gottschalk and Davidson (1972) in a review of outcome research in encounter groups list a number of goals of T-groups. Among them are general behavioral changes such as improved group functioning, better socialization skills, and more effective interpersonal relationships. The literature seems to at least partly substantiate claims that T-groups are effective in meeting some of these goals. For example, Bunker (1965) found that 33 percent of the 229 members he studied showed favorable increases in openness, receptivity, toleration of differences, understanding of self and others, and operational skills in interpersonal relationships while only 15 percent of his control group improved on these variables. Argyris (1965) reports a study using a set of categories he

developed to measure the interpersonal competence of members in a T-group. Using independent observers and with a relatively high interscorer reliability, he found significant positive behavioral changes in interpersonal competence within the group. These findings take on special meaning considering the rigor with which his studies were conducted. Bare and Mitchell (1972) showed that experimental subjects exhibited more behavioral change than did their control subjects, both at the end of a sensitivity training laboratory and three months after it. These behavioral changes were measured by individually constructed rating scales that were scored by self, group, leader, and colleagues. Shutz and Allen (1966) conducted a study in which they used the FIRO-B personality measure to assess participant perceptions of attitudinal and behavioral changes. After six months the participants reported feeling less tense and more honest and confident in their relationships with others. The authors note, however, that certain methodological difficulties such as self-report bias, inadequate control group, and self-selection of the sample population may in part contaminate their results. And finally, Underwood (1965) reports a field experiment in which changes in personal, interpersonal, and non-personal behavior as reported by work associates of lab members were measured. Their participants, fifteen supervisors drawn from several departments and organizational levels, were seen to have made both positive and negative changes as a result of the

laboratory training. Observers found a general increase in supervisory effectiveness, but a decrease in personal effectiveness. While their results must be interpreted in light of the structure and type of laboratory, the observers, and the different supervisory roles of the lab participants, they still suggest that laboratories have a potential for both a constructive and destructive impact on an individual's behavior.

Not all research on behavioral change in T-groups is positive, however. Both the Underwood study just mentioned and a study by Yalom and Lieberman (1971) found negative as well as positive changes in behavior. Both authors suggest that negative behavioral change is probably a result of the "shake-up" type of experience that the laboratory provides. Some members may not be able to cope with this and thus the experience would not be constructive.

That the laboratory provides this "shake-up" experience appears to be agreed upon by most T-group researchers. Some posit that it is necessary to "unfreeze" one's old values and attitudes in order to allow him to form new perceptions about himself and others, and in turn, change his behavior (Bennis, 1962; Bradford et al., 1964; Schein & Bennis, 1965). Argyris (1962) agrees, stating that although his findings point to the fact that laboratory training can change beliefs and values, whether or not this is translated into behavioral change outside the laboratory depends both on the participant's motivation and

the counterpressures from outside socializing influences.

Zand, Stelle, and Zalkind (1967) conclude that

The immediate effect of a laboratory experience, rather than producing changes in observable behavior, may be to change participants' perceptions. The laboratory seems to enable a participant to develop and internalize new and probably more objective standards for evaluating his feelings and behavior and the feelings and behavior of others; this in turn may lead to a new perception of old events.

Bunker and Knowles (1967) and Luke (1967) suggest that perhaps what is needed to translate learning from within a T-group to outside behavioral change is a program activity separate from the T-group which is aimed directly at facilitating a planning and action-practice model to help apply the participants' learning in back-home situations. At the present time, however, we are still left with the questions of whether or not negative changes result in positive changes later, what is the most effective way of producing behavior change, and what is the most effective way of insuring that changes within a laboratory will be translated to back-home settings?

THEORETICAL JUSTIFICATION

Much of the literature just reviewed focuses on change in an individual's attitudes, personality, or behavior as a result of T-group experience. We have also examined research concerned with factors relating to change such as trainer effects, group composition, etc. But it appears that most of this research has proceeded from the tenuous assumption that a group experience has the same effects on all participants. Or quite often, studies have been only concerned with the "average" effect on all participants (as in the case of organizational training labs that wish to increase the overall effectiveness of the organization). A number of investigators have questioned this assumption although, unfortunately, few studies report differential individual changes. Bunker (1965) states "there is strong evidence that groups, individuals, and even entire training programs have differential outcomes." He also stresses the idea that not only is there no standard outcome, but that no stereotyped ideal toward conformity exists within a group. Campbell and Dunnette (1968), in a review of effectiveness of T-groups, concur by stating

Such a generalized interpretation (T-groups have average effects on participants) may cover up important individual differences and training methods. Given a particular kind of outcome, certain kinds of people may benefit from T-group training while others may actually be harmed. The same reason may be applied to the interaction of differences in situational and organizational variables with the training experience. However, very few studies have investigated interactive effects.

One way to view this problem is by examining the research designs that have previously been used. Basically, we find three standard research paradigms. The first and simplest design used to measure participant changes as a result of T-group experience is what may be termed the "Black-Box" method. Here a group is measured on some variable such as a personality, attitude, or behavior characteristic both before and after the laboratory. The basic assumption is that the laboratory is a type of "black-box" that everyone goes through and is affected by equally. The advantage to this method is obviously its simplicity, but it also carries several disadvantages. Among them are (1) problems of generalization because of lack of a control group, and (2) its inherent impreciseness both in terms of being able to pinpoint what variables caused changes and whether or not these changes were differential for the participants. The method is usually only used for pilot studies, when there are inadequate resources available, or when the investigator is not interested in generalizing his results to other populations. A definite improvement on this design is the use of a control group.

A second design is to manipulate some aspect of the group such as leader behavior, group size, exercises used, laboratory length, etc. and measure its effects on the participants according to some designated criterion variable such as personality, attitude, or behavior change. These results are usually in terms of pre-post difference scores and are then compared to scores of a control group in which the group variable was not manipulated. This method has definite advantages over the previous design in that it is possible to more accurately delineate what variables were responsible for the change. It still has limitations, however, in terms of not being able to evaluate differential learnings of the individual participants. Quite often group averages are taken and can lead to erroneous conclusions. For example, if half the people change positively and half change negatively, the net change for the group is zero. This problem also arises when only unidirectional changes are measured (Harrison, 1971).

This design is probably most widely employed, however, since it represents sufficient scientific rigor and is still within the fiscal and human resources of most investigators. Also, as was stated before, it may be that the researcher is only interested in laboratory design and its "average" effects on participants in which case this paradigm would be entirely appropriate. The same design has been used without a control group, but has obvious shortcomings.

The majority of research already reviewed has used this type of design. Included here would be those studies in which specific group variables were manipulated; length of laboratory experience (Bunker & Knowles, 1967; Bare & Mitchell, 1972), measurement of individuals at different times (Harrison, 1966; Shein & Bennis, 1965; Miles, 1960; Zand, Stelle, & Zalkind, 1967; Shutz & Allen, 1966), variations of trainer style (Greening & Coffey, 1966; Culbert, 1968; Cooper, 1969; Bolman, 1968), group composition (Powdermaker & Frank, 1953; Shutz, 1961; Harrison, 1965), and laboratory style (Byrd, 1967; Lieberman, Yalom, & Miles, 1973).

The third type of research design is really a variation of the previous design, but with the notable addition of analysis of specific individual differences between laboratory participants. Design 2 is interested in correlations of variations in laboratory style and their effects on participants to predict what circumstances are most conducive to change the group as a whole. In contrast, Design 3 is interested in which individuals do best or worst under a certain condition and is more interested in the differential effects of the lab on participants. This is not to say that Design 3 is not interested at all in laboratory style variables, but rather that its primary research focus is on the individual. Essentially we see two different methodologies for this assessment.

One is to divide the participants into categories according to some criterion variable such as scores on a personality test, ratings by independent observers, or situational variables like organizational status. Amount and type of change according to what the experimenter desires to examine are then measured for each of these categories. These measured changes need not necessarily be on the same variable as was the criteria for categorization of individuals, although that is frequently the case. Researchers using this type of methodology are usually interested in prediction of changes; namely, what characteristics of an individual are predictive of specific changes in that person. For example, a study might compare people who score high, medium, or low on a personality measure to see if they change differentially in behavior as a result of laboratory training. In fact, most research employing this methodology deals with personality factors as predictor variables (Stern, Stein, & Bloom, 1956; Vroom, 1960; Miles, 1960; Harrison & Lubin, 1965; Bennis, 1957; Stelle, 1968).

Another method of analyzing individual changes is according to the relative changes made by the individual participants. This procedure takes a different approach, that is, a post hoc analysis to see who changed and in what degree. The investigator then goes back and attempts to discover what was correlated with or responsible for their change. Criteria used for categorization have most

commonly been amount of change exhibited on a specific variable. For example, individuals could be divided into groups of high, medium, and low changers or positive and negative changers. Their respective scores are then correlated with such variables as group process factors (group style, structure, etc.) or with other individual variables (scores on other personality tests, behavior in the group, relative changes on other measures).

Examples of this type of research design can be found in studies by Argyris (1965) and Lieberman, Yalom, and Miles (1973). In an extremely thorough study, Argyris (1965) analyzed his data by categorizing individuals in terms of high medium, and low scores on a complex variable he called interpersonal competence. Lieberman, Yalom, and Miles (1973) also conducted an excellent study in which they used a composite score on a number of measures for each individual to categorize them into high, low, negative changers, and casualties. Both investigators, however, note the importance of assessing the learning environment in which these changes are made since a high changer in one laboratory may be a low or negative changer in another. Lieberman, Yalom, and Miles (1973) state "Differences among groups were more substantial both in number of people affected and in the type or area of change than were differences between those who participated in them and those who did not." Hopefully, in the future it will be possible to assess both the nature of laboratory experience

and the relative changes in individuals in order that laboratory training be made more effective in designing and implementing specific strategies to attain their goals, be they personal growth, organizational effectiveness, or whatever.

The present study draws from the assumptions of this third type of research methodology. More specifically, it focuses on individuals and their differential changes in T-groups rather than on group structure variables as noted in the second type of design discussed. Essentially it is an attempt to show (1) that all individuals in a group do not change either in the same amount or direction, and (2) that an individual's initial position or how he sees himself before the beginning of the group is predictive of both the amount and direction of change that he will exhibit during and after the laboratory.

The first goal of this study seems well substantiated in the literature. Previously cited in this paper, research points fairly conclusively to the fact that individuals do change differentially, at least in regard to their personality characteristics. It also seems reasonable to expect that individuals should be differentially affected by a laboratory experience. On one hand, varying laboratory structures and goals appeal to different types of people while it is also true that all individuals do not have the same prerequisite skills to learn from the laboratory environment. As Stelle (1968) states

This assumption (people learn best about behavioral concepts when they learn from immediate experience) seems to me to imply that all individuals tend to have an adequate ability to learn from the immediate data in the world around them, and I seriously question it. To me, the process of "learning from the data" requires a number of skills: to think thematically; to deal with the reality of multiple causation of behavior to use analogies to clarify a process; to make connections and to see correspondences which may be quite appropriate but not one-to-one in their relationships to one another; and (tied in with the others) an ability to generate hypotheses and to understand the context in which the data occur.

The second goal of this study is to evaluate the relationship between an individual's initial score on a variable (personality-type measure of interpersonal perception) and his subsequent change on that variable as a result of the laboratory experience. To the author's knowledge, this type of research has never been reported in the literature, although a number of investigators including statisticians have argued for the necessity of such a study (Harrison, 1971; Campbell & Dunnette, 1968; Cronbach & Furby, 1970; Tucker, Damarin, & Messick, 1966; Harris, 1962). There are, however, two types of studies which are closely related. These will be mentioned so as to present more clearly the different approach of this study.

First are the correlational studies in which an initial score on some variable such as a personality characteristic is correlated with a postlab score on that same variable. Unfortunately, this does not allow for the investigator to compare, for example, the relative results of high initial scorers to low initial scorers. It only

allows him to make some statement about the general relationship between the two testing times for the group as a whole. He can make statements about the degree of changability of his sample from one test time to another by analyzing population variance, but this says nothing about the dimension and direction of specific individual's changes.

The second type of research that may be found in the literature more closely approximates that of the present study. It utilizes some measure that when scored for an individual, yields differential categories. An example is a personality measure that classifies individuals into psychiatric types, i.e., obsessive-compulsive, paranoid, etc. Each categories' scores at pre and postlab are then correlated. This method gives the relationship of scores for each category, but has the same shortcomings as the previously mentioned research design, that of not being able to assess the relative relationship of an individual's initial score in a category with his subsequent change in the group on that variable.

The present study departs from previous methodology by grouping individuals into high, middle, and low scorers based on their prelab, self-report on a personality instrument. It proceeds from the assumption that individuals do not change either in the same amount or in the same direction. It would therefore be inappropriate to analyze the data using correlational methods since the relationship

of an initial score of an individual to his subsequent scores is not linear. Proof for the non-linearity of this relationship is meager, however. Although a number of investigators have hypothesized the possibility of differential change of participants, few have sought to investigate the relationship of initial score to subsequent change. As a result, it remains largely theoretical speculation based on arm-chair observations of the T-group process.

Let us examine some specific reasons to suspect a non-linear relationship. If, for example, an individual rates himself very high before the T-group on a desirable personality characteristic such as openness, it seems logical that it would be unlikely for him to improve since he already feels that he is well above the average. Conversely, it may be that he holds a somewhat unrealistic view of himself and through the feedback processes of the group comes to see himself more as he really is and thus, rate himself lower at the end of the group. Clearly then it is easier for him to decrease or perhaps stay the same while an increase is seen to be much less probable. The obverse reasoning would say that those who rate themselves very low at the beginning of the group are more likely to increase than decrease further in their ratings of themselves. The middle group is a different case. They probably hold fairly realistic views of themselves already, for instance, not rating themselves so high as to have no room for improvement, but also not so low that they feel

that they cannot improve. In their case, we would predict that they would report at least modest improvement if for no other reason than past studies tend to find that individuals always report gains at the end of the laboratory, especially if they paid for the experience.

As stated before, subjects were divided into groups of high, middle, and low scorers based on prelab, self-report data. This was done on the reasoning that such groupings should have some predictive value about subsequent changes. Although, data about the subjects was also collected from Intimates and Colleagues, this is not customary and to categorize the subjects accordingly would decrease the probability of replication. On the other hand, self-report data is usually readily available and would be extremely valuable if it could be shown that it is predictive of subsequent changes of participants in the laboratory. Data from Intimates and Colleagues was used, however, to provide some measure of validity or support for the accuracy of self-reports.

METHOD

The data for this study was drawn from the research done by Elizabeth J. Force for her Ph.D. dissertation. She collected data from 50 participants in an eight day training lab designed to increase their interpersonal competence. Particular emphasis was placed on communication skills and within that context, a greater awareness and understanding of self and others. Although an increase in job effectiveness was also a goal for the lab, it was not a primary focus. It was, however, measured under the assumption that as an individual becomes more facile in communication, he will in turn be better able both to establish more satisfying interpersonal relationships and to increase his personal effectiveness with work colleagues leading to greater job effectiveness.

Subjects

Subjects for this study were all participants in an eight day training lab conducted by Michigan Training Laboratories, Inc. from August 17 through August 25, 1968. The fee for participants was \$200 tuition plus room and board costs. The fifty participants, thirty-three males

and seventeen females, came from varied occupations including five priests or pastors, two professors, one curriculum consultant, fourteen high and junior high school teachers, four principals, two school superintendents, one art coordinator, four counselors, two caseworkers, one psychiatrist, eleven psychology or social work students, two housewives, and one director of marketing.

The subject sample also included a group of one hundred significant others, half of which were "Intimates" and half were "Colleagues" of the fifty participants in the laboratory. They were chosen so that whenever possible they knew the participants at least one year prior to the laboratory and would know them for an additional year afterwards. These significant others were chosen by the participants. Intimates were defined as family or very close friends while Colleagues were to be people who worked with and knew the participant well.

Instruments

Instruments for the original study were chosen for their predictive ability to reflect changes in interpersonal communication and perception as well as changes in intrapersonal awareness and understanding. The instrument chosen for this study was the Person Description Instrument-form X (PDIX) because (1) it seemed to tap change variables that were thought to be congruent with the objectives of the laboratory, and (2) it was administered to the

participants at all four testing times; it was also given to Colleagues and Intimates at pre and postlab and to other members of the group at both intra-lab testing times.

This instrument was developed by Harrison (1962, 1965, 1966) to study interpersonal perception. The scale is of semantic differential design and consists of three factorially independent subscales: Interpersonal Warmth and Acceptance (IWA), Power and Effectiveness in Work (PEW), and Activity and Expressiveness (AE). Each subscale consists of nine bipolar items separated by six numbers with dots between to permit decimal scoring (see Appendix A). Harrison has previously used this instrument and reports satisfactory test-retest reliability. Force (1969) also reported generally good stability for this measure with test-retest correlations for self-reports significant for all subscales across the four observation times.

In general, Harrison assumes face validity for these subscales. He has, however, conducted a number of studies and found some evidence for external validity. In one study he found that organizational managers attending a training laboratory increased in self-reported interpersonal skills (Harrison, 1962). In another study he found that person-oriented as opposed to work-oriented participants were more expressive, warm, comfortable, and formed stronger interpersonal ties within the laboratory (Harrison & Lubin, 1965). And finally, he used the PDIX and found that participants increased in the number of

inferential-abstract concepts that they used after a laboratory (Harrison, 1966).

Design

The original study was constructed to obviate some of the previously mentioned problems with T-group research; in particular those problems dealing with bias of self-report data, temporality of changes, and dimensions of individual changes. Data was collected at five weeks prelab, on the second and seventh day of the lab, and six months postlab. It was assumed that this longitudinal approach to data collection would show the nature of changes over time (temporality). Bias in self-report data were somewhat controlled for by asking Intimates and Colleagues and other group members to provide ancillary data so as to substantiate self-reported claims. The present study is primarily of a statistical nature and was designed to explore the issue of dimensions of individual change by analyzing respective changes of high, middle, and low scorers based on prelab, self-scores.

A packet containing ten personality-type measures (including PDIX) was sent out to all participants five weeks before the laboratory. Two identical packets were included with the instructions that they should be given to one Intimate and one Colleague. All data packets were then to be returned directly to the researcher, data not being available to T-group trainers or any other member of the

participant-Colleague-Intimate triad. The same procedure was followed for data collected at six months postlab.

Within the lab, data was collected on the second and seventh day. It was assumed that, consistent with prior research, data collection at these times would reduce problems with initial day anxiety and spuriously high end of lab reports. Along with self-reports at these times, other group members were asked to rate the participants in their group on the same measures. The instructions for the PDIX, however, were to rate only the two members that you liked least and the two members you liked most. This was done for ease of administration and so as not to make data collection such a noxious event to the participants. Post-hoc analysis reveals that all but three subjects received at least two scores from other members of the group and it was thus assumed to be a valid indication of the group's perception.

Groups consisted of ten members each, balanced for male-female ratio and minimizing prior acquaintances. Each group had two trainers which consisted of a senior, more experienced facilitator and a usually less experienced junior facilitator. Senior facilitators were all Ph.Ds. while junior facilitators had at least the equivalent of a master's degree.

RESULTS

Data

A complete inventory of the original data may be found in the appendix of Force's (1969) dissertation. Data returns from all sources were high. Returns for prelab data were received from 48 of the participants (96%), 48 from Intimates (96%), and 46 from Colleagues (92%). Postlab data was received from 48 participants (96%), 41 Intimates (82%), and 38 Colleagues (76%). Since all participants were required to fill out instruments within the lab, almost complete data from this time period was received. Misread instructions or missing scores for one subject yielded incomplete self-report data on day 7 of the lab. As mentioned before, three subjects did not receive the minimum of two PDIX ratings by fellow T-group participants and thus were excluded from the group report data.

Force examined those instances of missing data and concluded that nothing particularly characterized the other available data on those subjects. There were no trends for these participants to view themselves as significantly increasing or decreasing on any of the measures. She did note, however, that these participants had somewhat lower

prelab scores than did other lab members. In the present study, missing data was replaced using methods outlined in Winer (1962). More specifically, the row mean (S's scores across observations) and column mean (all scores for a certain observation time) were averaged to generate the missing score.

Constitution of High, Middle, and Low Subgroups

Theoretical justification for dividing the participants into three subgroups (high, middle, low) according to their initial self-report score has already been described. Individuals were divided into these subgroups according to self-reported, prelab scores. This was done separately for each of the three PDIX scales; Interpersonal Warmth and Acceptance (Scale IWA), Power and Effectiveness in Work (Scale PEW), and Activity and Expressiveness (Scale A&E). Thus, a person classified as a low scorer for one scale may have been a high scorer for another. An analysis of each individual's relative position on each scale revealed no specific trends in the data. In other words, a person who was in a certain subgroup on one scale was not necessarily in the same subgroup on another scale.

Three criteria were used to establish subgroups: (1) by dividing the range of scores on each scale into three equal parts; (2) by dividing the subjects into three equal size groups; and (3) by analyzing a scatterplot of all the scores on a specific scale and looking for breaks

in the distribution of scores. Method #3 also included attention to differences in range between means of the three subgroups with an attempt at keeping the range between the low and middle groups' mean equal to the range between the middle and high groups' mean. A combination of these three methods was used for each scale and in most cases the distributions met the criteria for at least two of the three methods. In all cases though, particular emphasis was placed on method #3 since it was felt that breaks in the distribution constituted more evidence of high, middle, and low subjects than did the more arbitrary classifications based on sample size or range of scores. The resulting high, middle, and low groups on the three PDIX scales were of unequal membership (Scale IWA: 12 low, 24 middle, 12 high; Scale PEW: 10 low, 24 middle, 14 high; and Scale A&E: 18 low, 19 middle, 11 high). Because of missing and/or inadequate data for two persons, these categorizations were based on the 48 remaining participants.

Measurement of Change

A two-way analysis of variance was the primary statistical tool. A 3X4 factorial design, three subgroups at four observations, was used for self-reports while a 3X2 factorial design was used for Group, Intimate, and Colleague reports since they came from only two observations (Group: Days 2 & 7; Intimate and Colleagues: prelab and postlab). A separate ANOVA was conducted on each

subgroup (high, middle, low) for each data source (Self, Group, Intimate, Colleague). Tables 2, 3, and 4 show the results of these analyses. Also of interest were the means for each subgroup, given in Table 5. Examination of the graph based on these means across the four observation times (Figures 2, 3, 4) indicated some further interesting trends and a Tukey's post-hoc analysis (Winer, 1962) was performed on the mean differences of self-scores at pre-post, day 2-day 7, pre-day 2, and day 7-post intervals. The results of this are shown in Table 6. Table 1 presents all subgroups' means for each scale across the four observation times. Total means are also presented graphically in Figure 1. Consistent with the goals of this study, tables and figures are as fully as practical presented to display comparisons between the three subgroups. It should also be noted that comparisons with data analysis conducted on the total group will be made to show the difference in information obtained when the group is subdivided. In most instances these data were abstracted from Force's dissertation.

Main Effects of Time of Observation

Means for the total group across all observation times are presented graphically in Figure 1 and numerically in Table 1. F-ratio values from Tables 2, 3, and 4 (ANOVA for subscales IWA, PEW, and A&E) indicate significant mean differences for self-scores on all PDIX scales

($F_{IWA} = 3.78$, $p < .025$; $F_{PEW} = 4.90$, $p < .01$; and $F_{A\&E} = 11.08$, $p < .01$ --all df 's = 3/132). Figure 1 shows a drop on all scales from prelab to day 2 of the lab. From day 2 to day 7, there is a moderate increase which gradually rises to above their respective initial scores at six months postlab. Since F tests were only significant for differences between means among the four series of observations, further analysis using t -test values obtained by Force showed that the significant mean differences probably existed between prelab and postlab data. T -values for scales IWA, PEW, and A&E were $t = 1.58$, $p < .10$; $t = 2.22$, $p < .01$; and $t = 4.66$, $p < .001$.

Group scores also appear to have similar significant increases from day 2 to day 7 on Scale IWA ($F = 13.5$, $p < .01$) and Scale PEW ($F = 12.5$, $p < .01$)--both with $df = 1/39$. Scale A&E, however, did not significantly increase although the graph shows a similar trend for group members' scores to go up from day 2 to day 7. Intimate and Colleague scores for all scales showed no significant differences from prelab to postlab testing times on any scale. This is shown graphically where the mean differences do not exceed 1.5.

We can conclude that the laboratory was effective in changing the participants' mean self-ratings on all scales over the four observations. The same conclusion can be drawn for Groups' ratings of participants except for the Activity and Expressiveness scale which showed

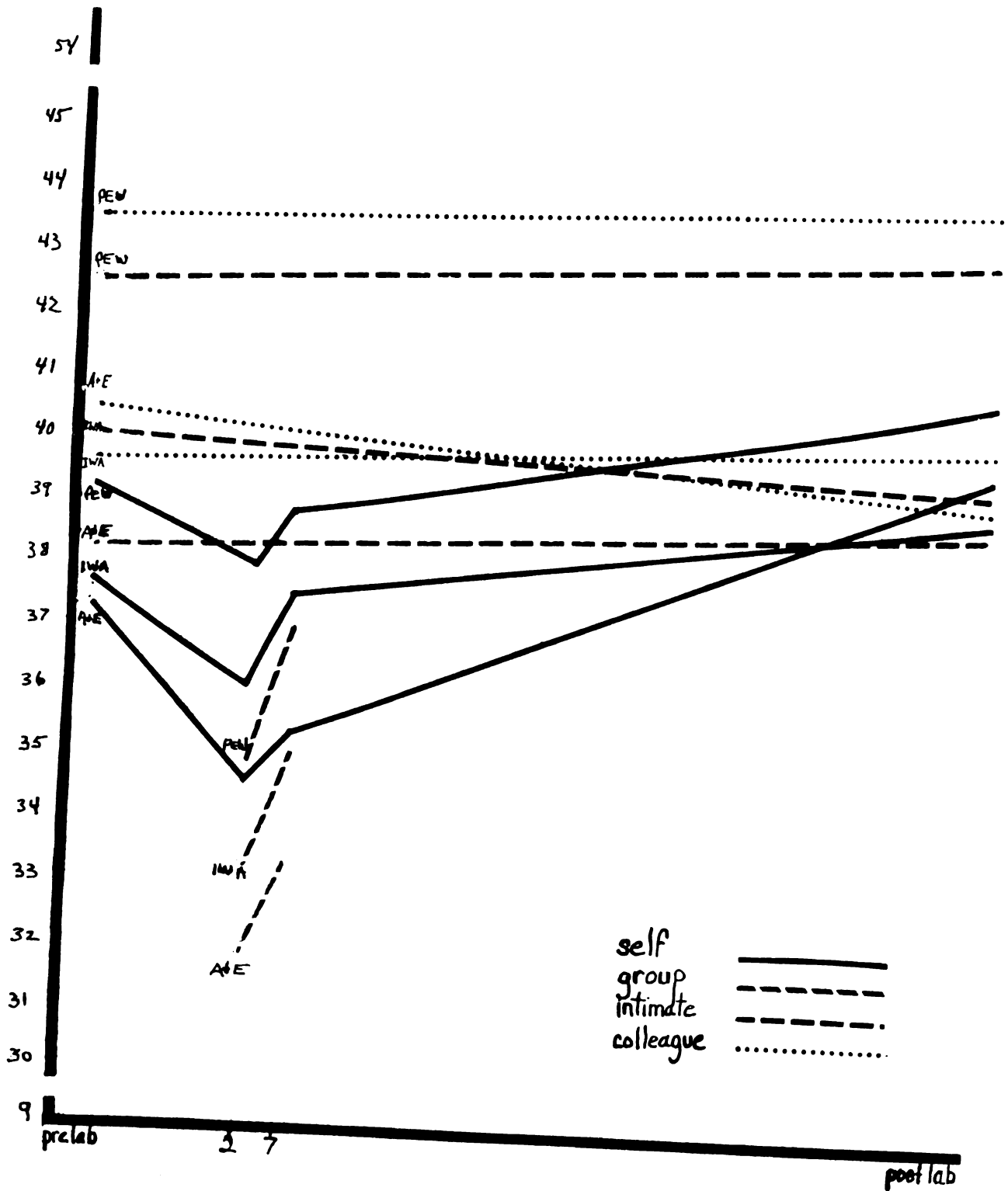


Figure 1. Total Group Mean Scores on Scales IWA, PEW, and A&E

Table 1 Means for all observations across sources of data

Observations:		Prelab			Day 2			Day 7			Postlab		
Scale:		IWA	PEW	A&E	IWA	PEW	A&E	IWA	PEW	A&E	IWA	PEW	A&E
<u>Self</u>	L	30.8	33.6	30.5	33.0	37.2	31.6	35.9	37.1	31.8	37.3	38.7	34.8
	M	38.4	39.4	37.6	37.1	38.6	34.9	38.1	39.3	35.6	38.6	41.4	40.4
	H	44.3	44.6	44.1	38.4	38.8	37.8	39.0	40.3	39.1	41.5	42.7	44.1
	Total $\bar{X}$	37.8	39.2	37.4	36.2	38.2	34.7	37.7	38.9	35.5	39.1	40.9	39.7
<u>Group</u>	L				31.6	30.6	29.5	31.6	34.0	30.2			
	M				33.4	38.4	31.1	31.0	40.0	32.4			
	H				35.0	35.4	35.2	38.1	37.9	37.4			
	Total $\bar{X}$				33.3	34.8	31.9	35.2	37.3	33.3			
<u>Intimate</u>	L	36.8	40.8	34.0							38.5	41.9	36.5
	M	39.4	42.2	37.7							38.4	44.3	40.4
	H	43.9	44.5	43.4							41.8	43.6	40.8
	Total $\bar{X}$	40.0	42.5	38.4							39.6	43.3	39.2
<u>Colleague</u>	L	37.3	41.9	38.1							40.9	43.8	36.6
	M	39.3	42.2	39.9							38.9	42.8	39.7
	H	42.2	45.6	43.2							41.4	44.7	41.5
	Total $\bar{X}$	39.6	43.2	40.4							40.4	43.8	39.3

Table 2 ANOVA for Scale IWA

	Source	df	MS	F	α
Self	Level of initial score	2	518.928	13.811	<.001
	Error	45			
	Test times	3	58.904	3.778	<.025
	Levels x tests	6	72.225	4.632	<.005
	Error	132			
Group	Level of initial score	2	75.163	1.748	NS
	Error	45			
	Test times	1	187.88	13.518	<.01
	Levels x tests	2	1.531	.11	NS
	Error	39			
Intimate	Level of initial score	2	122.918	2.497	<.05
	Error	45			
	Test times	1	16.918	.546	NS
	Levels x tests	2	14.413	.465	NS
	Error	35			
Colleague	Level of initial score	2	1526.776	30.351	<.001
	Error	45			
	Test times	1	.650	.046	NS
	Levels x tests	2	43.878	3.099	NS
	Error	29			

Table 3

ANOVA for Scale PEW

	Source	df	MS	F	α
Self	Level of initial score	2	292.022	6.444	<.01
	Error	45			
	Test times	3	76.437	4.897	<.01
	Levels x tests	6	50.67	3.247	<.01
	Error	132			
Group	Level of initial score	2	331.939	12.079	<.01
	Error	45			
	Test times	1	122.62	12.50	<.01
	Levels x tests	2	6.05	.62	NS
	Error	39			
Intimate	Level of initial score	2	45.821	1.106	NS
	Error	45			
	Test times	1	17.326	.854	NS
	Levels x tests	2	18.636	.918	NS
	Error	35			
Colleague	Level of initial score	2	50.259	1.361	NS
	Error	45		.78	
	Test times	1	4.167	3.692	NS
	Levels x tests	2	19.725		<.05
	Error	29			

Table 4

ANOVA for Scale A&E

	Source	df	MS	F	α
Self	Level of initial score	2	1140.543	26.031	<.01
	Error	45			
	Test times	3	232.240	11.076	<.01
	Levels x tests	6	36.905	1.76	NS
	Error	132			
Group	Level of initial score	2	272.796	4.289	<.05
	Error	45			
	Test times	1	30.488	1.453	NS
	Levels x tests	2	5.527	.263	NS
	Error	29			
Intimate	Level of initial score	2	328.121	4.009	<.05
	Error	45			
	Test times	1	26.67	1.358	NS
	Levels x tests	2	49.399	2.515	NS
	Error	35			
Colleague	Level of initial score	2	211.915	5.497	<.01
	Error	45			
	Test times	1	32.202	2.251	NS
	Levels x tests	2	18.661	1.33	NS
	Error	29			

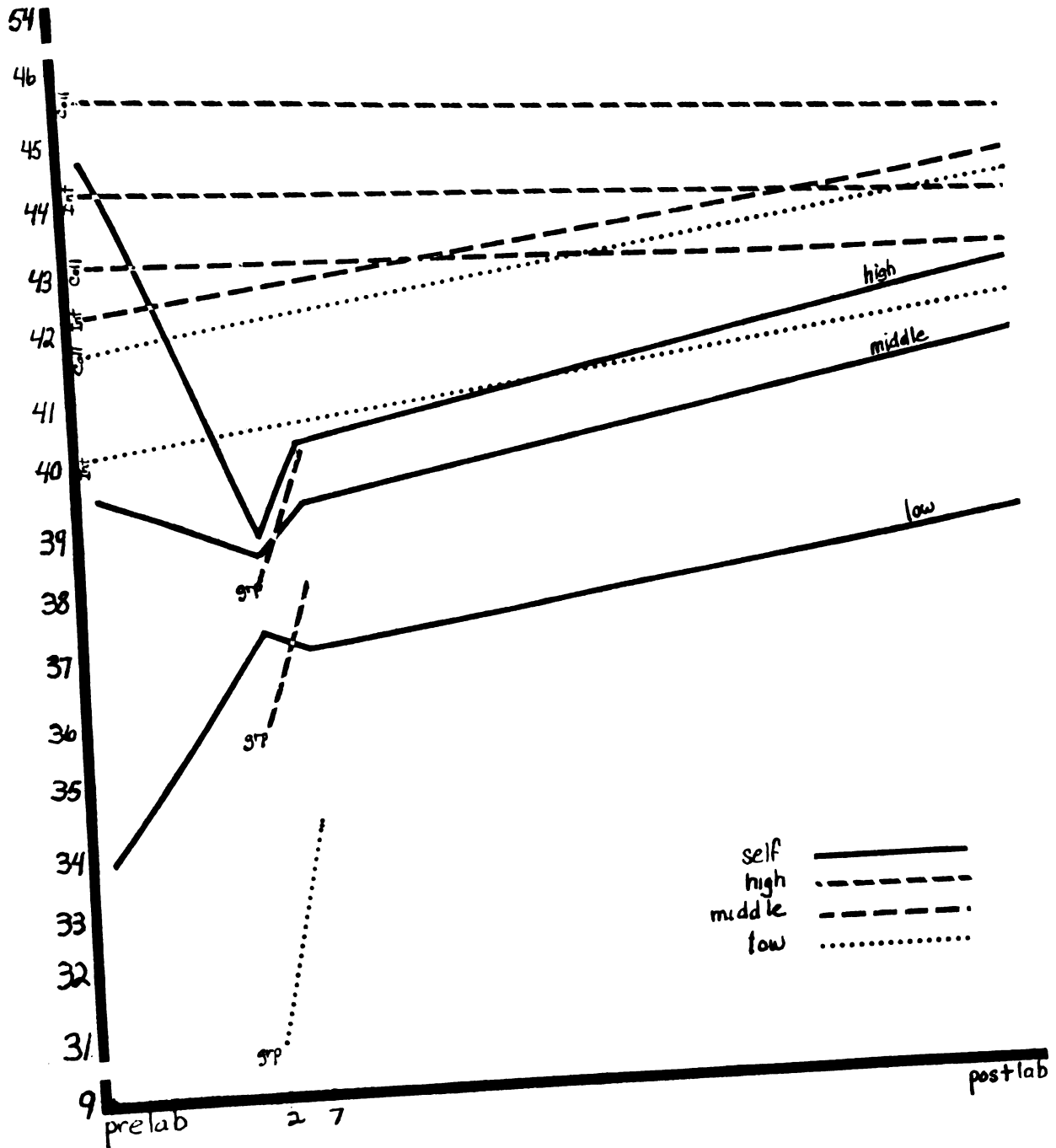


Figure 3. Subgroups' Scores on Scale PEW (Power and Effectiveness in Work)

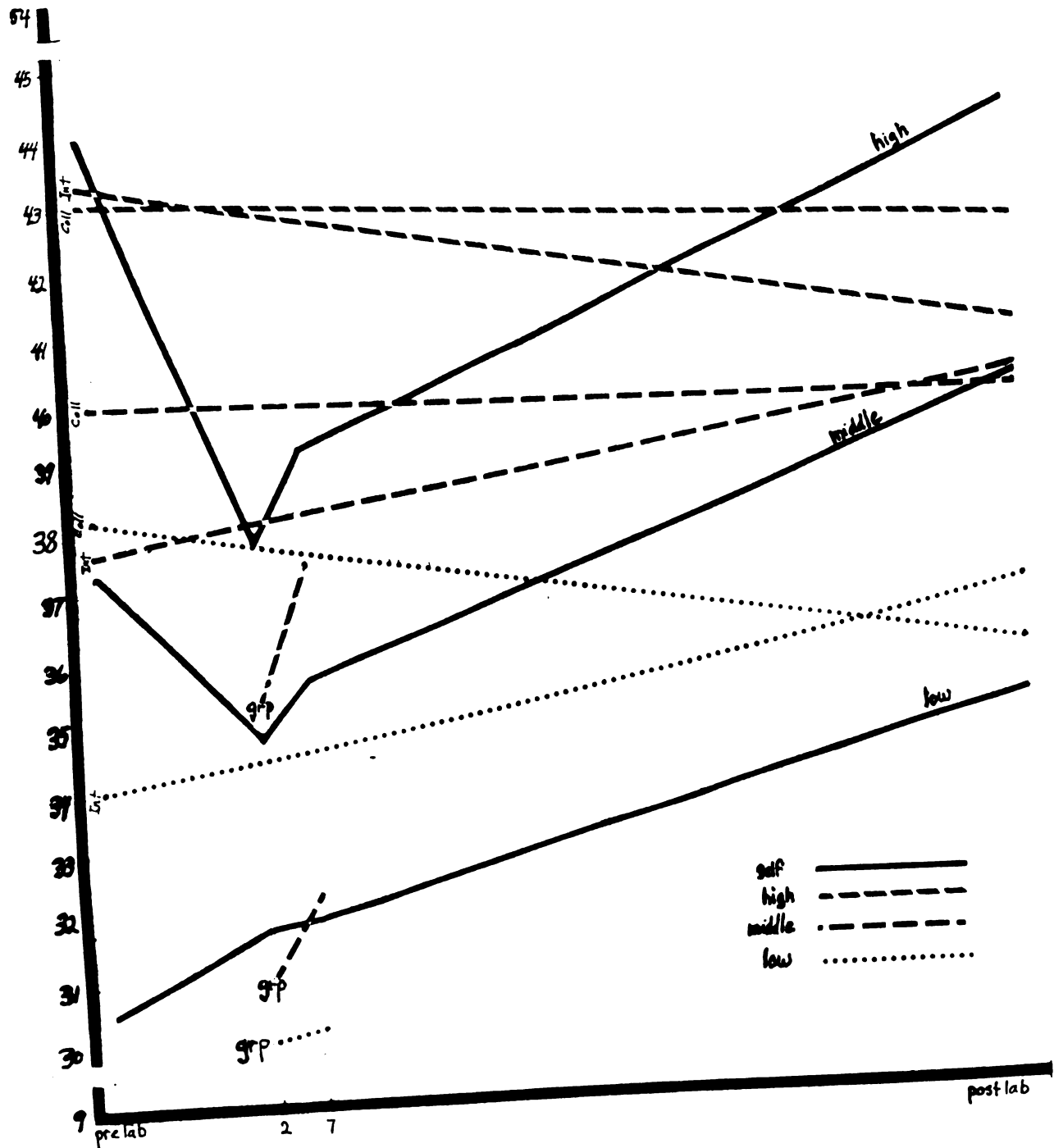


Figure 4. Subgroups' Scores on Scale A&E (Activity and Expressiveness)

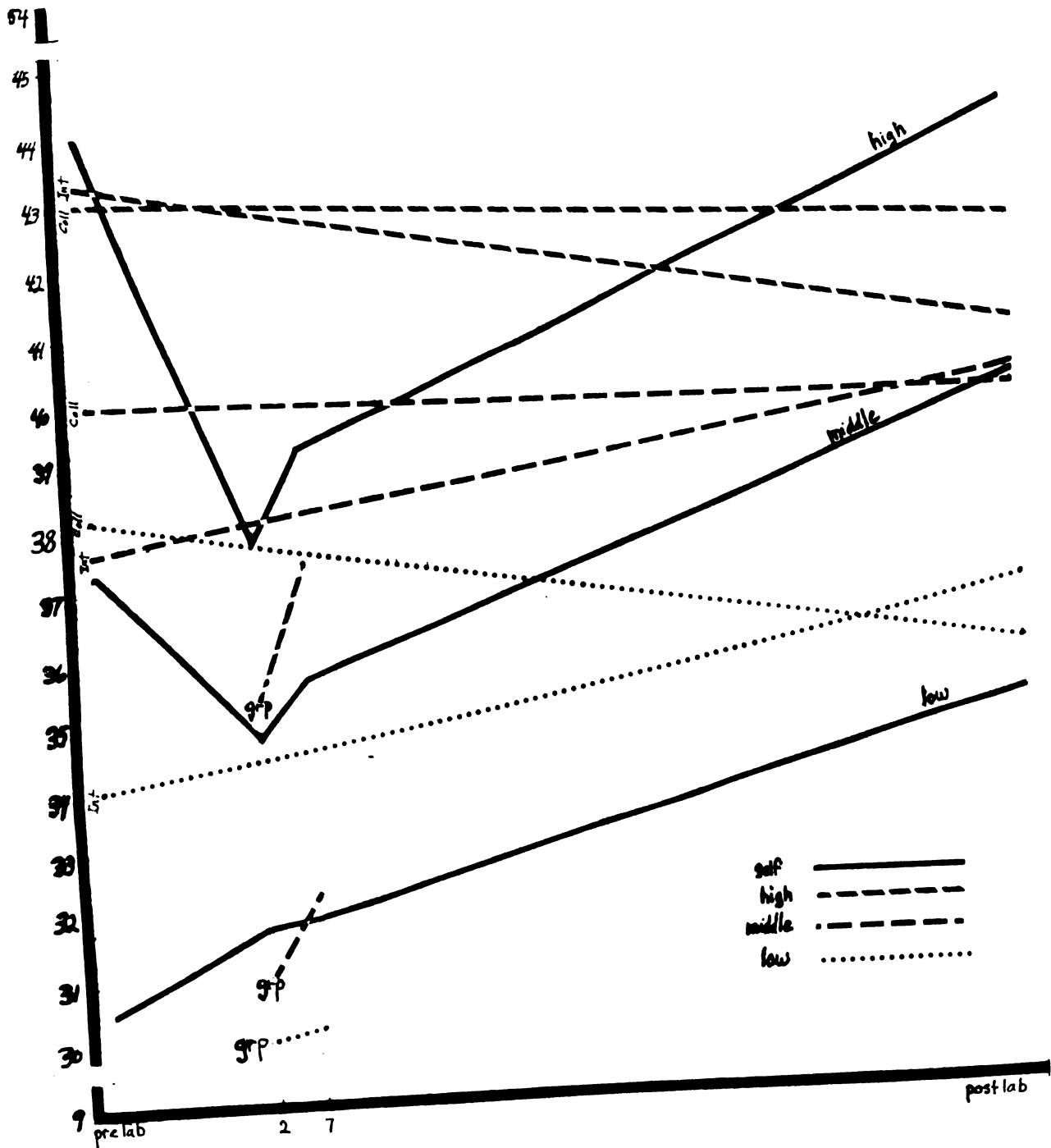


Figure 4. Subgroups' Scores on Scale A&E (Activity and Expressiveness)

non-significant within lab differences. Further analysis indicated that the significant self-rating changes were largely a result of differences between prelab versus postlab scores.

Interaction of Observations With Subgroups

As mentioned before, the subjects were divided into high, middle, and low subgroupings based on prelab, self-scores. The major hypothesis of this study was that subsequent change over the four observations was dependent on these subgroupings. The relevant findings are graphically represented in Figures 2, 3, and 4, while their respective ANOVA results are given in Tables 2, 3, and 4. The overall interaction effect of observations and levels (high, middle, and low) will be reviewed before attending to the changes of these subgroups.

The original hypothesis seems supported for self-reports on Scales IWA and PEW (F 's = 4.63, $p < .005$ & 3.25, $p < .01$ --both df 's = 6/132). It also appears supported for Colleague's scores on Scale PEW ($F = 19.3$, $p < .05$, [$df = 2/29$]) and approached significance on Scale IWA. There was no significant interaction between observations and level on Scale A&E for either of these groups. This was also true for both Intimates and Colleagues on all scales. The most significant conclusion to be drawn from this data is that a participant's prelab score importantly affects his subsequent self-scores, at least on Scale IWA and PEW.

Table 5 F-ratios for mean differences across levels

Level:	Low	Middle	High
Self			
IWA	6.88 ^a (3/33)	.93 (3/69)	4.20 ^b (3/33)
PEW	3.80 ^b (3/27)	2.35 (3/69)	5.34 ^a (3/39)
A&E	6.37 ^a (3/51)	5.04 ^a (3/54)	3.77 ^b (3/30)
Group			
IWA	4.88 ^b (1/11)	6.15 ^b (1/23)	5.63 ^b (1/11)
PEW	3.85 (1/9)	5.26 ^b (1/23)	5.47 ^b (1/13)
A&E	.09 (1/17)	.527 (1/18)	3.17 (1/10)
Intimate			
IWA	.08 (1/11)	.92 (1/23)	.33 (1/11)
PEW	.01 (1/9)	4.86 ^b (1/23)	.40 (1/13)
A&E	4.36 (1/17)	2.04 (1/18)	1.99 (1/10)
Colleague			
IWA	5.07 ^b (1/11)	2.04 (1/23)	.39 (1/4)
PEW	7.87 ^b (1/9)	3.96 (1/23)	2.22 (1/13)
A&E	11.76 ^a (1/17)	.07 (1/18)	10.44 ^a (1/10)

Note: F-Ratio (df)

Significance Levels: a = $p < .01$

b = $p < .05$

This also held for Colleague's ratings of participants. Thus, a more detailed analysis of levels seems justified and warranted.

Effect of Levels

Initially we shall begin with a global approach to analysis of levels, that is, to discuss differences among the means of the high, middle, and low levels independent of observation time. Tables 2, 3, and 4 show that almost all F-ratios for level comparisons were statistically significant. Exceptions include Group scores on Scale IWA and the scores of both Intimates and Colleagues on Scale PEW. The import of this finding is attenuated, however, when we consider that the subgroups were classified according to initial self-score and thus significant differences between levels are not surprising, at least for self-reports. This bias was not inherent in the Group, Intimate, and Colleague data, however, since their levels were not dependent on prelab scores, but rather were determined by a matching procedure in which their scores were paired with their respective participants who were already subgrouped. For instance, a Colleague would be placed in the low group if the participant he was rating had low prelab self-scores.

Specific patterns of change for the subgrouped levels is the next issue. Table 5 compiles all F-ratios for mean differences across levels for each subscale. The

relevant data are depicted in Figures 2, 3, and 4. We shall consider the Group, Intimate, and Colleague data and then proceed to a more detailed analysis of self-report data.

The most notable trend in Group data is a significant increase from day 2 to day 7 (the only two observations) on Scales IWA and PEW. This held for all subgroups (high, middle, low) except that the low group only approached significance on Scale PEW. No significant increase for any subgroup was found on Scale A&E. Intimates showed no statistically significant mean differences from day 2 to day 7 or any scale for any subgroup, except for the middle group on Scale PEW. In contrast, Colleagues exhibited a very clear trend toward significantly higher ratings of the low group on each scale ($F_{IWA} = 5.07, p < .05$ [$df = 1/11$]; $F_{PEW} = 7.88, p < .05$ [$df = 1/9$]; $F_{A\&E} = 11.76, p < .01$ [$df = 1/17$]). This is consistent with the original hypothesis that low groups have the greatest probability of changing positively over time. That neither high or middle groups showed any significant changes further supports the hypothesis that change is more difficult for them.

The self-report data yield the most dramatic evidence for participant change. Since the F -ratios are for across all four observations, a Tukey's post-hoc analysis for mean-difference comparisons (Winer, 1962) was conducted to identify the locale of significant mean differences. The results are shown in Table 6. Middle groups, as predicted, showed no significant changes over

Table 6 Tukey's post-hoc analysis of mean
differences for self-scores

Levels:		Low	Middle	High
Pre-post	IWA	6.5 ^a	.40	2.8
	PEW	5.0 ^a	2.0	1.6
	A&E	4.7 ^a	2.9	0.0
Day 2-Day 7	IWA	2.9	.8	.6
	PEW	-.1	.7	1.5
	A&E	.1	.6	1.3
Pre-day 2	IWA	2.2	-1.2	-5.9 ^a
	PEW	3.5 ^b	-.8	-5.8 ^a
	A&E	1.1	-2.7	-6.2 ^b
Day 7-post	IWA	1.5	.5	2.5
	PEW	1.6	2.1	2.7
	A&E	3.2 ^b	5.0 ^a	4.9 ^a

Note: negative values indicate a decrease from first to second observation

Significance level: a = $p < .01$

b = $p < .05$

the four testing times except on Scale A&E, Activity and Expressiveness ($F_{A\&E} = 5.04$, $p < .01$ [$df = 3/54$]). Table 6 shows that this difference seems most attributable to a significant increase from day 7 to postlab. Graphically represented, they did, however, show the same trend for change as the total group; that is, a decrease from prelab to day 2 of the lab, a slight increase during the lab and a gradual increase from day 7 to six months postlab to a point slightly higher than their initial prelab score. Thus the middle group probably contributed much to the total change pattern or at least did not significantly alter it over the four observation times.

A significant change over observations by the low groups on all scales is shown in Table 5. Further analyses, shown in Table 6, indicate this change is probably due to an increase between prelab and postlab testing times. All F -ratios were significant at $p < .01$. Figures 2, 3, and 4 shows this relationship as increasing from prelab scores to each of the subsequent testing times. There were two other significant increases (Table 6) for the low group on Scale PEW (pre-day 2) and Scale A&E (day 7-post). The within-lab increases for low groups, shown by these graphs were not statistically significant, perhaps because of the conservative nature of Tukey's post-hoc analysis. This was also true for the middle and high groups.

The high group also showed significant mean differences over time on all scales ($F_{IWA} = 4.20$, $p < .05$ [$df =$

3/33]; $F_{PEW} = 5.34$, $p < .05$ [$df = 3/39$]; and $F_{A\&E} = 3.77$, $p < .05$ [$df = 3/30$]. The Table 6 data suggests that this was probably due to a decrease, in contrast to the low group, from prelab to day 2. This is depicted in Figures 2, 3, and 4. These decreases are in the same direction as both middle groups' scores and the total group's scores as shown in Figure 1, but are of a much greater magnitude. Perhaps the total group's scores were significantly affected by this loss from prelab to day 2 by the high group. Again it is important to note that the low group did not show this decrease from prelab to day 2, but contrarily showed substantial increases especially on Scale PEW.

Some other interesting data is noted in Table 6. All subgroups (high, middle, low) showed significant increases on Scale A&E (Activity and Expressiveness) from day 7 to postlab. This seems to support a longitudinal theory of change, or more specifically that individuals changed within the lab, but that these changes have to "incubate" and may only be fully evidenced at some time after the laboratory experience. Furthermore, the middle group, consistent with the original hypothesis, did not significantly change on any scale aside from the previously cited day 7 to postlab increase on Scale A&E.

Finally, comparisons are drawn between the data for the total group and those of the low, middle, and high subgroups. The clearest finding is the significant variations in the self-reported changes made over time

between the three subgroups on all scales, as depicted in Figures 2, 3, and 4. The high group shows a marked decrease from prelab to day 2, a slight increase within the lab, and a gradual increase postlab to a level somewhat below their initial score. The medium groups have much the same pattern except that the initial decrease is of less magnitude and the day 7 to postlab data indicate an increase to somewhat above their initial score. This pattern is congruent with the total group pattern as seen in Figure 1. The low group, however, shows a distinctly different pattern, gaining on all scales at every observation point. Particularly notable is the absence of a prelab to day 2 decrement in the low group. This seems to indicate that the total group pattern, at least between prelab and day 2, was more affected by high and middle groups' scores than by the low groups' scores. All scales show this same pattern for the three subgroups except that Scale A&E shows greater postlab gains for all participants.

Differences between high, middle, and low group data and total group data are confirmed by the Colleague's reports. Again, the low group significantly increased on all scales while both middle and high groups show no statistically significant changes. Colleague data also revealed that there was a significant pre-post increase on Scale A&E for the total group while this was only supported for the low and high subgroups in this study.

Data from Intimates showed no significant changes on any scale by any subgroup. This was consistent with total group data. Another consistent finding was that there were no differences between total group and subgroup data for Groups. Both reported increases on Scales IWA and PEW with no change on Scale A&E.

DISCUSSION

The original hypothesis, that participants are differentially influenced by T-groups, appears well supported. The findings suggest that the laboratory was effective in changing participants on all three PDIX variables: Interpersonal Warmth and Acceptance, Power and Effectiveness in Work, and Activity and Expressiveness. However, a more complex pattern of change is clear when the data were analyzed in terms of high, middle, and low subgroups. There was obvious subgroup differences in the amount and direction of change. These changes provide insights into the ability of T-groups to differentially influence individuals. Major discrepancies between the findings of the total group versus the several subgroups will be examined. Within that context, a more detailed scrutiny will be made of changes within the subgroups.

Self-Report Ratings

Self-ratings on the PDIX scales provide the strongest evidence of differential participant changes. The overall trend over observations for the total group's self-ratings (Figure 1, page 54) is a decrease from prelab

to day 2 of the lab, a moderate increase within the lab, and a gradual increase postlab to a point above the prelab score. This pattern held for all scales, although Scale A&E (Activity and Expressiveness) shows the most dramatic postlab increment. This pattern might be "explained" by suggesting that participants undergo a type of "culture shock" when they enter the lab. More specifically, participants have no secure relationships to hold on to as they had back home while at the same time are asked to let down their defenses. As a result, their self-perceptions were revised more negatively at day 2. This might be attributed to a desire to appear favorably before the lab, perhaps thinking this might enhance admission which may have inflated their self-descriptions. During the period of the laboratory they reevaluated themselves mindful of feedback from other group participants and also with awareness of their impact on others. This probably has the effect of modifying their self-perceptions toward a more "realistic" level, or at least to a point more congruent with how others see them. Within the lab, there were moderate increases on all scales, although none achieved statistical significance. These increases were only moderate probably because the participants' self-perceptions may have been in a state of flux and clear decisions to change were still in the process of being made. The five month postlab period shows participants increasing on all scales to a point just above their initial prelab scores. This postlab period might

then be viewed as an "incubation" period in which perhaps participants try out new behaviors that were discovered and seen only as possibilities within the lab. This pattern argues not only for the utility of laboratories to produce change in individuals, but also for the necessity of a longitudinal research design to adequately measure change.

This overall pattern of change does not consistently hold, however, across the high, middle, and low subgroups. The sharpest deviation is apparent in the low group which made increments at each subsequent testing time on all scales, except for Scale PEW where the within-lab change was only $-.1$. This finding supports the hypothesized view that the low group has a greater probability of increasing than decreasing or remaining the same. Data from Table 6 (page 66) also shows that only the low groups changed significantly from prelab to postlab. This finding suggests that such laboratories may have greater utility for individuals who initially rate themselves rather negatively in comparison to the rest of the group.

The author postulates two possible reasons for this pattern. First, the low group could perhaps be rating themselves low at prelab as a kind of "insurance" that they would show positive changes during and after the laboratory. However, there are several strong arguments against this position. Both Intimates and Colleagues, although providing ratings higher than participants' self-ratings, rated participants in the same relative position

to the rest of the group as they do themselves; that is, lower than either the high or middle groups on all scales. Additionally, within-lab ratings by fellow group participants confirmed this lower position. Thus, there appears some external validity to the subgroup's lower self-ratings. It is also unlikely that participants would plan this five weeks in advance of the lab. Any premeditation would seem more likely to be in the direction of wanting to appear more favorable in order to be admitted to the lab. The second hypothesis to account for these changes seems both more plausible and is consistent with the study's original theoretical justification. It is that these participants may have held somewhat unrealistic negative views of themselves before the group and after exposure to the group and feedback from its members, began to alter their self-perceptions positively toward a position more congruent with others' view of them. This positive self-perception continued postlab as shown by the statistically significant increments.

The medium group evidenced a similar readjustment process from prelab to day 2, although it is manifested as a slight decrement. It is assumed that these individuals are relatively well-adjusted in that they rated themselves neither unreasonably high or low at prelab and in a manner congruent with how others rated them. As is typically the case, they tend to rate themselves somewhat higher than others rate them and subsequently readjust their

self-ratings slightly downward when they enter the lab, although this alteration was not statistically significant. Like the low and high groups, they make only moderate and statistically nonsignificant within-lab changes. Their postlab gains were also not statistically significant although they evidenced a general increase in self-ratings on Scales IWA and PEW (Interpersonal Warmth and Acceptance and Power and Effectiveness in Work). Only on Scale A&E (Activity and Expressiveness) did they show significant postlab gains. Perhaps Scale A&E is most congruent with the laboratory goals or at least what participants would tend to see as the more salient of lab goals. Quite often laboratories place a high priority on verbal activity and thus it is logical for participants, if they wanted to have accomplished something within the lab, to view themselves after the lab as having made gains on this scale. Even though their increment from day 7 to postlab was significant, it only brought the middle group slightly higher, but not significantly above their prelab score. Thus, although these middle groups made moderate prelab to postlab gains, generally the lab experience left them quite close to their original position.

The high groups showed much the same pattern of changes as did the middle group with the exception of a greater loss from prelab to day 2 and a slightly greater increase from day 7 to postlab. Their prelab to day 2 loss was statistically significant on all scales. Again, no

significant changes occurred within-lab and the only significant postlab change was on Scale A&E, probably for the reasons previously cited. Most importantly, there were no statistically significant changes from prelab to postlab despite the wide fluctuation of their scores between these times.

Are we to conclude that it was difficult for the high group to change upwardly? A closer look at the data reveals two possible explanations. First, assuming the same process of change with high groups as for low groups, it might be hypothesized that this group held unrealistically high perceptions of themselves before the lab. It could then be argued that upon entering the laboratory they shifted to a position more congruent with how others saw them. Like other subgroups, they made moderate increases within the lab and more gradual postlab increases to a point somewhat below their prelab scores. Perhaps they did not surpass their initial ratings because they began to see themselves more realistically. However, closer analysis suggests a second and perhaps more plausible explanation. The high groups differed from both the middle and low groups in their statistically significant decrement from prelab to day 2. This dramatic decrease in self-ratings on all scales seems to indicate not an actual readjustment in the face of external feedback, but rather an attempt to rate themselves as they thought others would rate them. This initial drop is so dramatic as to be suspect since not only

do none of the other groups show changes of such magnitude in that period of time, but it is difficult to believe that a group of individuals could alter their self-ratings to this degree after such a short exposure to group experience. It may be speculated from this line of reasoning and a look at the high groups' subsequent return to a point not significantly different from their prelab rating, that the high groups were playing a sort of "game" in which it seems they had very little intention of changing. Instead, they fill out their instruments within the lab according to how they think others will see them, but outside the lab remain at much the same level. They do, however, show a slight downward trend in their ratings from prelab to postlab which may indicate that they see themselves a bit more congruently with others' perceptions of them, but these differences were not statistically significant.

A Surprise Finding

Further speculation leads us to an unexpected, but important finding. Perhaps this same "moderating" process was functioning for all subgroups. It would point then to a conclusion that the laboratory had the effect of being a "moderator" variable. In other words, participants came into the lab from their respective high, middle, or low subgroups and rated themselves not as they had previously seen themselves, but more as they thought others would see them. The subgroups were still significantly different

from each other within lab, but it is hypothesized that the lab only moderates their scores more in the direction they assumed was expected rather than making everyone exactly the same. That all groups on all scales showed the same pattern of subsequent changes adds credence to this theory in that group members may be rating themselves according to what they feel is expected. This "moderating" theory has implications for T-group research. Perhaps laboratories are not places where participants are encouraged to see themselves more realistically, but rather are places where normative structure tends to "knock off the corners." Participants come to describe themselves less extremely, regardless of whether this extremity is positive or negative. An example of this can be found in the norms of a group which gives more attention to its low participants. Resultingly, the middle and high groups show very little overall change while the low groups make significant gains. Such differential learning could also be aided by a trainer who believes that everyone in the group should attain a certain level of functioning. He may then give more of his attention to the participants whom he feels need it most and in turn, set up a normative structure within the group for other members to do the same. Again, it should be mentioned that this is only speculation and that there is no direct supporting evidence that this occurred within this specific laboratory.

In summary, self-scores show different patterns of change for the total group than for the high, middle, and low subgroups. The total group exhibits a pattern of change on all scales in which there is a slight drop from prelab to day 2, a moderate within-lab increment, and a more gradual postlab increase to a point slightly above their initial score. Different change patterns are evident, however, within the high, middle and low subgroups. The most notable deviation is the low group which increases at all subsequent testing times. They are also the only group to exhibit a significant increase from prelab to postlab. The middle group almost exactly duplicates the total group's overall pattern of change. The high group, although having rather dramatic fluctuations, also somewhat duplicates the total group pattern. It is important to note that neither the high or middle group has statistically significant increments from prelab to postlab.

A very interesting pattern of changes which bears directly on T-group methodology is evident when different time periods are considered. If we looked only at the change pattern from the beginning to the end of the lab, there would be moderate non-significant increases. When the postlab observations are added, significant increases are noted on all scales for the total group as well as for the high, middle, and low subgroups. The further addition of the prelab observations creates a totally different impression of change. Viewing the total group, we see in

general only slight non-significant prelab to postlab changes. But if we look at the high, middle, and low groups we see that only the low groups made significant prelab to postlab changes, the middle groups made non-significant changes throughout the four observation times, and the high groups made non-significant changes, but fluctuated a great deal. These patterns show that participants do make differential changes and thus the original hypothesis appears to be well substantiated.

These findings underline the necessity for longitudinal research with multiple measurement times. They also question the utility of the laboratory as a change agent or equal change agent for all participants. In this present study, at least, apparently only the low subgroups benefitted appreciably from the laboratory experience.

Ratings by Others

The preceeding findings were based solely on self-scores and, therefore, are subject to bias. For purposes of external validation, let us examine ratings made by other lab participants, Intimates, and Colleagues. As mentioned before, the within-lab self-reported changes for all subgroups on all scales showed increases, but were not significant. The group reports also showed increases, but on Scales IWA and PEW these changes were significant. There was also no differentiation between high, middle, and low subgroups, although their relative position to each

other is generally the same as was for self-scores. It does seem notable however, that all group scores were lower than self-reports. This seems to indicate that the group sees participants generally less well off than the participants see themselves, but also rates them as having made more gains within the lab. As mentioned before, persons generally rate themselves more favorably than do others and thus these lower group ratings are logical. Group members, on the other hand, may attribute more change to participants due to a priori expectations. It is assumed that group members see more change in others because they hope for more change in themselves which could also explain the findings that their ratings did not discriminate between subgroups. It should also be noted that these results may have been in part due to the within-lab instructions to rate only the two highest and two lowest members of the group.

In contrast, Intimates and Colleagues generally rated participants higher than participants rated themselves. This might be explained by Intimates often being spouses while Colleagues were probably chosen by participants with the expectation that they would provide high ratings. Again, there still exists the same relative relationship in ratings with high ratings by Intimates coinciding with high self-ratings, middle with middle, etc. This seems to support some external consensus as to a person's general position. However, few significant findings were observed for prelab versus postlab data, as

no statistically significant shifts were reported by Intimates for any of the subgroups. It was speculated that Intimates were probably not very discriminating, at least on the PDIX scales. In most cases they were spouses and probably tended to see participants in much the same manner as they had previously viewed them, regardless of any actual behavioral changes. In contrast, many Intimates reported quite positive behavioral changes in participants when asked to write general impressions. This may indicate that the PDIX was not sensitive to behavioral changes, but attended more to shifts in attitudes. The low and middle group Intimates did, however, tend to rate participants somewhat higher at postlab than prelab, although it was not statistically significant. Unlike Intimates, Colleagues appeared to have been somewhat more objective and we find that they report significant increases for the low groups on all scales. This strongly substantiates the self-reported prelab to postlab gains made by the low groups.

Another notable finding is the changes made on Scale A&E (Activity and Expressiveness). As mentioned before, this scale is probably most congruent with laboratory goals or at least what participants may interpret as lab goals. It is assumed that since there is such a great importance placed on verbal activity, participants are likely to report increases on this scale. Looking at the data we find the most dramatic increases for self-reports on this scale (all subgroups reports significant changes). A closer look

reveals that these changes are greatest from day 7 to post-lab. Colleagues also report significant changes for high and low groups on this scale. The author hypothesizes that participants probably learn within the lab that what this scale taps are the most desirable changes. It is also true that the laboratory probably focuses on these things more than others and as a result, we would expect the most dramatic changes on this scale.

Implications and Future Research

These findings appear to indicate that the laboratory experience has the ability to affect participants on scales of Interpersonal Warmth and Acceptance, Power and Effectiveness in Work, and Activity and Expressiveness. The original hypothesis, that subgroups are differentially affected, also seems well supported. There are, however, cautions to be considered when interpreting these results. First is the problem of controls. It is tenuous, without a control group, to make definitive statements that this laboratory was solely responsible for participant changes, although adequate control groups are admittedly difficult if not impossible to obtain. Further research might employ more prelab observations so as to establish a baseline of participant responses to the measurement instrument. It may also be advantageous to use within-lab observers in conjunction with observers at prelab and postlab as further external validity checks for self-report data.

Another problem relates specifically to the measurement instrument. Although the results point fairly conclusively to the laboratories' ability to affect changes in the personality dimensions measured by the PDIX, other evidence (written reports by participants and intimates) brings attention to behavioral changes. It is desirable that future research investigate shifts in both these variables. Also, increased validity for the findings may be obtained using more than one instrument to measure change. Previously cited methods pertaining to statistical analyses which partial out the initial score from the change score correlations are also suggested.

Finally, this study draws attention to the issue of actual change measurement. The results of this study indicate that the amount that participants are affected within the lab is about the same for all participants. The real differences between members' shifts lie in the prelab to day 2 losses, day 7 to postlab gains, and most importantly the prelab to postlab change. It would be easy to conclude that all participants were equally affected within-lab and postlab (both Group and self-reports show similar patterns of change for all members). But if change over all four observations is considered, only the low subgroups are shown to have made long-term changes, while the middle and high subgroups fluctuated but remained at much the same level as their prelab self-ratings. This finding emphasizes the need for longitudinal

research designs with multiple observations including both prelab and postlab measurement.

Also underlined is the need for further examination of the differential effects of laboratory situations on participants. One possible method would be an in-group analysis of the interaction processes between individuals. As was speculated, the laboratory may have a "moderating" effect, much like peer-group pressure, that tends to make individuals less extreme, at least on self-reported perceptions. An in-group analysis of interaction may be able to identify any specific types or amounts of interaction that facilitate this. If it were then found that low individuals were the only ones to make long-term changes, it would have far-reaching implications on the utility of laboratories as catalysts for personal growth. It may be that laboratories serve more as normatizing agents rather than stimulating growth in all participants. These findings also bear on the issue of homogeneity vs. heterogeneity of group composition. Further research could examine differential participants changes in laboratory groups that are composed entirely of individuals who rate themselves similarly.

In summary, this study points to need for (1) multiple observers, (2) multiple measurement techniques, and (3) a longitudinal research design to adequately measure change. It also underlines the importance of assessing

differential effects of the laboratory experience on its participants. Further research seems definitely warranted to more specifically determine the interrelationships among these variables.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Argyris, C. Interpersonal Competence and Organizational Effectiveness. Homewood, Ill.: Irwin-Dorsey, 1962.
- Argyris, C. T groups for organizational effectiveness. Harvard Business Review, 1964, 42 (2), 60-74.
- Argyris, C. Exploration in interpersonal competence--I. Journal of Applied Behavioral Science, 1965, 1, 58-83.
- Argyris, C. Explorations in interpersonal competence--II. Journal of Applied Behavioral Science, 1965, 1 (3), 255-69.
- Argyris, C. On the future of laboratory education. Journal of Applied Behavioral Science, 1967, 3 (2), 153-83.
- Barl, C., and Mitchell, R. Experimental evaluation of desintivity training. Journal of Applied Behavioral Science, 1972, 8 (3), 263-76.
- Beer, M., and Kleisath, S. W. The effects of the managerial grid lab on organizational and leadership dimensions. In S. S. Zalkind (Chm.) Research on the impact of using different laboratory methods for interpersonal and organizational change. Symposium presented at the meeting of the American Psychological Assn., Washington, D.C., September, 1967.
- Benne, K. D. History of the T-group in the laboratory setting. In L. D. Bradford, J. R. Gibb, and K. D. Benne (eds.), T-Group Theory and Laboratory Method. New York: Willy, 1964.
- Bennis, W. G. Goals and meta-goals of laboratory training. Human Relations Training News, 1962, 6 (3), 1-14.

- Bennis, W. R., Burke, H., Cutter, H., Harrington, and Hoffman, J. A note on some problems of measurement and prediction in a training group. Group Psychotherapy, 1957, 10, 328-41.
- Berne, E. Principles of Group Treatment. New York: Oxford University Press, 1966.
- Blake, R. R., Mouton, J. S., and Fruchter, B. A factor analysis of training group behavior. Journal of Social Psychology, 1962, 58, 121-30.
- Blassfield, M. G. Depth analysis of organizational life. California Management Review, 1962, 5, 29-42.
- Bolman, L. G. The effects of variations in educator behavior on the learning process in laboratory human relations education. Unpublished doctoral dissertation, Yale University, 1968.
- Boyd, J. B., and Ellis, J. D. Findings of Research Into Senior Management Seminars. Toronto: Hydro-Electric Power Comm. of Ontario, 1962.
- Bradford, L. P., Gibb, J. R., Benne, K. D. (eds.). T Group Theory and Laboratory Method Innovation in Re-education. New York: John Wiley & Sons Inc., 1964.
- Buchanan, P. Evaluating the effectiveness of laboratory training in industry. In E. A. Fleishman (ed.), Studies in Personnel and Industrial Psychology. Homewood, Ill.: Dorsey, 1967.
- Bunker, D. R., and Knowles, E. S. Comparison of behavioral changes resulting from human relations laboratories of different lengths. Journal of Applied Behavioral Science, 1967, 3 (4), 505-23.
- Bunker, D. R. Individual applications of laboratory training. Journal of Applied Behavioral Science, 1965, 1 (2), 131-48.
- Burke, R. L., and Bennis, W. G. Changes in perception of self and others during human relations training. Human Relations, 1961, 14, 165-82.
- Byrd, R. E. Training in a non-group. Journal of Humanistic Psychology, 1967, 7 (1), 18-27.
- Campbell and Dunnette. Effectiveness of T. group experiences in managerial training and development Psychological Bulletin, 1968, 70, 73-104.

- Cline, U. B. Interpersonal perception. In B. A. Maher (ed.), Progress in Experimental Personality Research. New York: Academic Press, 1964.
- Cronbach, L. J. Processes affecting scores on "understanding of others" and "assumed similarity." Psychological Bulletin, 1955, 52, 177-93.
- Cronbach, L. J., and Furby, L. How should we measure "change" or should we? Psychological Bulletin, 1970, 74 (1), 68-80.
- Culbert, S. A. Trainer self-disclosure and member growth in two t-groups. Journal of Applied Behavioral Science, 1968, 4 (1), 47-73.
- Egan, J. Encounter: Group Processes for Interpersonal Growth. Belmont, Calif.: Brooks-Cole, 1970.
- Force, E. J. Personal changes attributed to human relations training by participants, intimates, and job colleagues. Unpublished doctoral dissertation, Michigan State University, 1969, 188 pp.
- Friedlander, F. The impact of organizational training laboratories upon the effectiveness and interaction of ongoing work groups. Personnel Psychology, 1967, 20 (3), 289-307.
- Gage, N. L., and Cronbach, L. J. Conceptual and methodological problems in interpersonal perception. Psychological Review, 1955, 62, 411-22.
- Gassner, S., Gold, J., and Snadowsky, A. M. Changes in the phenomenol field as a result of human relations training. Journal of Psychology, 1964, 58, 33-41.
- Golembuski, R., and Blumberg, A. Sensitivity Training and the Laboratory Approach. Itasca, Ill.: Peacock, 1970.
- Gottschalk, L. A., and Davidson, R. S. Sensitivity groups, encounter groups, training groups, marathon groups, and the laboratory movement. In H. I. Kaplan and B. J. Sadock (eds.), Sensitivity Through Encounter and Marathon. New York: Dutton, 1972.
- Greening, T. C. Sensitivity training: cult or contribution. Personnel, 1964, 41 (3), 18-25.
- Greening, T. C., and Coffey, H. S. Working with an impersonal T group. Journal of Applied Behavioral Science, 1966, 2 (4), 401-11.

- Hare, P. Handbook of Small Group Research. New York: The Free Press, 1962.
- Harris, C. W. (ed.). Problems in Measuring Change. Madison: University of Wisconsin Press, 1963.
- Harrison, R. The person description instrument X. Unpublished manuscript.
- Harrison, R. Cognitive change and participation in a sensitivity training laboratory. Journal of Consultant Psychology, 1966, 30 (6), 517-20.
- Harrison, R., and Lubin, B. Personal style, group composition, and learning, part I. Journal of Applied Behavioral Science, 1965, 1 (3), 786-94.
- Harrison, R. Research on human relations training: design and interpretation. Journal of Applied Behavioral Science, 1971, 7 (1), 71-85.
- House, R. T group education and leadership effectiveness: a review of the empirical literature and a critical evaluation. Personnel Psychology, 1967, 20 (11), 1-30.
- Houts, P. S., Zimerberg, S. M., Rand, K. H., and Yalom, I. D. Prediction of improvement in group therapy. Archives of General Psychiatry, 1967, 17, 159-68.
- Hurley, J. R., and Force, E. J. A multiobserver--multi-method study of interpersonal competence and T-groups. Unpublished manuscript, Michigan State University, 1971, 61 pp.
- _____. T-group gains in acceptance of self and others. International Journal of Group Psychotherapy, 1973, 23, in press.
- Kassarjian, H. H. Social character and sensitivity training. Journal of Applied Behavioral Science, 1965, 1 (4), 411-40.
- Kernan, J. Laboratory human relations training--its effects on the "personality" of supervisory engineers. Doctoral dissertation, Department of Psychology, New York University, 1963.
- Kolb, D. A., Winter, S. K., and Berlew, D. E. Self directed change: two studies. Journal of Applied Behavioral Science, 1968, 4 (4), 453-71.

- Lieberman, M. A. The influence of group composition on changes in affective approach. In D. Stock, and H. A. Thelen (eds.), Emotional Dynamics and Group Culture. Washington, D.C.: National Training Laboratories, 1958, Chapter 15, 131-39.
- Lieberman, M. A. The relation of diagnosed behavioral tendencies to member-perceptions of self and of the group. In D. Stock, and H. A. Thelen (eds.), Emotional Dynamics and Group Culture. Washington, D.C.: National Training Laboratories, 1958, Chapter 5, 35-49.
- Lieberman, M., Yalom, I., and Miles, M. Encounter Groups: First Facts. New York: Basic Books, 1973.
- Luke, R. The internal normative structure of sensitivity training groups. Journal of Applied Behavioral Science, 1972, 8 (4), 421-37.
- Mathis, A. G. "Trainability" as a function of individual valency pattern. In D. Stock and H. A. Thelen (eds.), Emotional Dynamics and Group Culture. Washington, D.C.: National Training Laboratories--National Education Association, 1958.
- Massarik, F., and Carlson, G. The California Psychology Inventory as an indicator of personality change in sensitivity training. Masters thesis, University of California, Los Angeles, 1960.
- Mc Nemar, Q. Psychological Statistics. New York: John Wiley and Sons, 1972.
- Miles, M. B. Human relations training: processess and outcomes. Journal of Counsel Psychology, 1960, 7, 301-06.
- Miles, M. B. Changes during and following laboratory training: a clinical-experimental study. Journal of Applied Behavioral Science, 1965, 1 (3), 215-42.
- Miles, M. B. Learning processess and outcomes in human relations training: a clinical-experimental study. In E. Schein and W. Bennis (eds.), Personal and Organizational Change Through Group Methods. New York: Wiley, 1965, 244-54.
- Napier, R., and Gershenfeld, M. Groups: Theory and Experience. Boston: Houghton Mifflin Co., 1973.

- Odiorne, G. The trouble with sensitivity training. In R. Golembuski and D. Blumberg (eds.), Sensitivity Training and Laboratory Approach. Itasca, Ill.: Peacock, 1970.
- Omwake, K. T. The relation between acceptance of self and acceptance of others on three personality inventories. Journal of Consulting Psychology, 1954, 18, 443-46.
- Oshry, B. I., and Harrison, R. Transfer from here and now to there and then: changes in organizational problem diagnosis stemming from T-group training. Journal of Applied Behavioral Science, 1966, 2 (2), 185-98.
- Pattison, M. Evaluation studies of group therapy. International Journal of Group Psychotherapy, 1967, 15, 382-97.
- Peters, D. R. Identification and personal change in laboratory training groups. Unpublished doctoral dissertation, Massachusetts Institute of Technology, 1966.
- Powdermaker, F. B., and Frank, J. D. Group Psychotherapy. Cambridge, Mass.: Harvard University Press, 1953, Chapter 4.
- Rogers, C. R. The process of the basic encounter group. In J. F. Bugental (ed.), The Challenge of Humanistic Psychology. New York: McGraw-Hill, 1967.
- Rubin, I. Increased self-acceptance: a means of reducing prejudice. Journal of Perceived Social Psychology, 1967, 5, 233-38.
- Rubin, I. The reduction of prejudice through laboratory training. Journal of Applied Behavioral Science, 1967, 3, 29-50.
- Shutz, W. C. On group composition. Journal of Abnormal Social Psychology, 1961, 6, 275-81.
- Shutz, W. C., and Allen, V. L. The effects of a T-group laboratory on interpersonal behavior. Journal of Applied Behavioral Science, 1966, 2 (3), 265-86.
- Seashore, C. What is sensitivity training? In R. Golembuski and A. Blumberg (eds.), Sensitivity Training and the Laboratory Approach. Itasca, Ill.: Peacock, 1970.

- Shein, E. H., and Bennis, W. G. Personal and Organizational Change Through Group Methods: The Laboratory Approach. New York: Wiley, 1965.
- Sherrer, E. T. An analysis of the relationship between acceptance of and respect for self and acceptance of and respect for others in ten counseling cases. Journal of Consulting Psychology, 1949, 13, 169-75.
- Smith, H. C. Sensitivity to People. New York: McGraw-Hill, 1966.
- Solomon, A., Perry, S., and Devine, R. Interpersonal Communication. Springfield, Ill.: Thomas, 1970.
- Steele, F. I. Personality and "laboratory style." Journal of Applied Behavioral Science, 1968, 4 (1), 25-45.
- Stock, D., and Ben-Zeev, S. Changes in work and emotionality during group growth. In D. Stock and H. A. Thelen (eds.), Emotional Dynamics and Group Culture. Washington, D.C.: National Training Laboratories, 1958, Chapter 21, 192-206.
- Stock, D., and Luft, J. "The T-E-T Design." Typewritten manuscript, National Training Laboratories, 1960.
- Stock, D. A survey of research on t-groups. In L. D. Bradford, J. R. Gibb, and K. D. Benne (eds.), T-group Theory and Laboratory Method. New York: Wiley, 1964.
- Tucky, L. R., Damarin, F., and Messick, J. A base-free measure of change. Psychometrika, 1966, 31 (4), 457-73.
- Underwood, W. J. Evaluation of laboratory method training. Training Directors Journal, 1965, 19 (5), 34-40.
- Valiquet, M. I. Individual change in a management development program. Journal of Applied Behavioral Science, 1968, 4 (3), 313-25.
- Watson, J., Lippitt, R., Kallen, D., and Zipf, S. "Evaluation of a human relations laboratory program." Typewritten manuscript, Research Center for Group Dynamics, University of Michigan, 1961.

Yalom, I. D. The Theory and Practice of Group Psychotherapy. New York: Basic Books, 1970.

Zand, D. E., Stelle, F. I., and Zalkind, S. S. The impact of an organizational development program on perceptions of interpersonal, group, and organizational functioning. Journal of Applied Behavioral Science, 1969, 5 (3), 393-411.

APPENDIX

THE PERSON DESCRIPTION INSTRUMENT--INTERNAL
Coded to Identify Variables

The bipolar scales given below are to elicit your impressions of how
 _____ has behaved in recent weeks. Encircle the
 (write in name)
 point on each scale which best represents your impression of _____
 behavior.

- | | | |
|-----------------------------|---------|------------------------|
| ○ NONDEFENSIVE | '.....' | DEFENSIVE |
| Δ LOW ABILITY | '.....' | HIGH ABILITY |
| ● SHOWS FEELINGS | '.....' | HIDES FEELINGS |
| ○ TACTLESS | '.....' | TACTFUL |
| Δ INFORMED | '.....' | UNINFORMED |
| ● RESERVED | '.....' | OUTSPOKEN |
| ○ SYMPATHETIC | '.....' | UNSYMPATHETIC |
| Δ INCOMPETENT | '.....' | COMPETENT |
| ● ENTHUSIASTIC | '.....' | UNENTHUSIASTIC |
| ○ THREATENING | '.....' | NONTHREATENING |
| Δ LOW STATUS | '.....' | HIGH STATUS |
| ● EMOTIONALLY
EXPRESSIVE | '.....' | UNEMOTIONAL |
| ○ CONSIDERATE | '.....' | INCONSIDERATE |
| Δ UNINFLUENTIAL | '.....' | INFLUENTIAL |
| ● QUIET | '.....' | LOUD |
| ○ ACCEPTS OTHERS | '.....' | REJECTS OTHERS |
| Δ LOW PRESTIGE | '.....' | HIGH PRESTIGE |
| ● DEMONSTRATIVE | '.....' | UNDEMONSTRATIVE |
| ○ FLEXIBLE | '.....' | INFLEXIBLE |
| Δ IRRESPONSIBLE | '.....' | RESPONSIBLE |
| ● ACTIVE | '.....' | PASSIVE |
| ○ REJECTS
SUGGESTIONS | '.....' | ACCEPTS |
| Δ THOROUGH | '.....' | CARELESS |
| ● NONCOMMITTAL | '.....' | COMMITTS SELF |
| ○ ACCOMMODATING | '.....' | STUBBORN |
| Δ LAZY | '.....' | HARDWORKING |
| ● PARTICIPATES
MUCH | '.....' | PARTICIPATES
LITTLE |

○=Internal Warmth and Acceptance; Δ=Power and Effectiveness in Work;
 ●=Activity and Expressiveness.

MICHIGAN STATE UNIVERSITY LIBRARIES



3 1293 03178 4741