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A Human Relations Training Program conducted with an experimental group of 150 educators from the Upper Cumberland Region in Tennessee is evaluated in this document. In an effort to assess the effects of the program, internal and external criteria, and matched control groups were utilized. The Personal Orientation Inventory, F Scale, Semantic Differential, Leary's Interpersonal Checklist, and the Motivation Analysis Test were used to measure internal criteria. Ryan's Rating Scale, the Michigan Picture Test, and the Leary Interpersonal Checklist were used to measure external criteria. A factor analysis was attempted to explain differential changes in behavior over a period of time. It was found that educators exposed to Human Relations Training become less authoritarian and more self-actualized. They develop better interpersonal relationships in addition to developing greater self-insight and leadership skills. These individuals were also perceived more positively by their supervisors and their students. A detailed discussion of the measurement instruments utilized and numerous statistical tables are also included. [Not available in hard copy due to marginal legibility of original document.] (SW)

AN EVALUATION OF THE HUMAN RELATIONS TRAINING PROGRAM

CONTENTS

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June 1969

J. L. Khanna

Introduction

This is a report on the evaluation of the sensitivity training program.

This sensivity training program primarily consisted of using Human Relations Training techniques with the educators who participated in the program. More specifically, the participants took part in a Human Relations Training Laboratory for two weeks in the Summer of 1968 and subsequently were exposed to 14 Saturday meetings held at predetermined time intervals till the end of the school year in 1969.

An effort was made to assess any changes that might have occurred among the participants as a result of this experience.

This report will describe:

a. The nature of the sample;
b. Design and procedure for evaluation;[1]
c. The measures used and the results obtained.

Relevant statistical tables are included in the report, for those readers who might be interested in these. Detailed statistical analyses are available from the writer on request.

In the end, some of the main findings on the basis of this evaluation are summarized. Implications of these conclusions for teacher training and education are discussed.

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1. Copies of instruments used in this investigation have already been furnished with the preliminary report of this evaluation; hence, they are not incorporated in this report.

DESCRIPTION OF THE SAMPLE

Before we describe the sample in a detailed manner, it might be interesting to mention some characteristics of the region from which this sample was selected. This region which is called Upper Cumberland Region in Tennessee comprises one-eighth of the total land area in Tennessee. This area lost nearly ten per cent of its population between 1950 and 1960, but since 1960 the trend has reversed and the region is now gaining in population due primarily to industrial, federal funds and general economic stimulation. But even as late as 1965, one half of the households had an effective buying power of less than $2500.00. For every $100.00 that the average person in the United States had to spend, the average Upper Cumberland resident had only $49.00.

The average educational level for adults twenty-five years of age and over in the Upper Cumberland area is mid-seventh grade for men and approximately eighth grade for women. If each person with less than five years of schooling is classified as a functional illiterate, almost one-fourth of the adult population would fall into this classification.

Some students must ride a school bus three hours or more daily to attend school that does not provide the type of curriculum needed to prepare them to live in the last third of the twentieth century. Of the twenty-five high schools in the Upper Cumberland Region, eighteen have enrollments of less than 500 students. Thirteen of these twenty-five schools offer thirty courses or fewer. Five of the school systems have enrollments of less than 2000 students. Approximately one hundred schools have a four-teacher capacity or less. One-fourth of the teachers have less than a bachelor's degree. Art, music, drama, guidance and effective programs in vocational education are almost non-existent. The number of persons per hospital bed, the number of persons for each physician and the number of persons for each dentist in the area is more than twice as large as the same ratio for the State of Tennessee.

Stewart (15) has raised a basic question and I quote him, "How do you improve education in such a region? We could all give many answers but one main ingredient which has to be considered is the classroom teacher. We could build fine buildings, provide elaborate equipment, increase expenditures and do just about anything else we wish, but the only thing that really makes the difference is the teacher. Our salaries are too low. We know that by and large we are stuck with the teachers we have and they with us." So, the argument was made that we must improve the teachers we have.

The sample for the present program was selected from this region and consisted of one hundred and fifty teachers. Their teaching

experience ranged from elementary school to high school, to principals and educational administrators.

This sample of 150 educators was selected on the basis of recommendations received by the various school system superintendents and principals.

These educators numbering 150 who participated in the Human Relations Training Laboratory and the subsequent Saturday meetings (mentioned earlier) comprised what is called in this evaluation the Experimental Group.

To get a comparable group, a Control Group of 50 educators was chosen who were similar in most respects to the experimental group. Educators comprising the control group were not exposed to any Human Relations Training. Some of the sample characteristics of the experimental and the control group are described below.

The mean age of the control group was 41.3 years and the mean age of the experimental group was 42.4 years. There were 32 per cent males in the control group and 34 per cent males in the experimental group. The mean years in number of profession for the control group was 14. The mean years in number of profession for the experimental group was 14.8. The mean income in the control group was $590.00 per month, and the mean income in the experimental group was $560.00 per month. The number of dependents in both the groups was 1.50. There is no difference in the size of the cities from which the control and the experimental groups came.

A statistical analysis of these characteristics of the experimental and control groups indicated that these two groups did not differ from each other.

DESIGN AND PROCEDURE

Subjects comprising the experimental group were administered the tests (described below) three times. Once at the beginning of the training program; secondly, at the end of the two-week Human Relations Training Laboratory and thirdly, in January and February of 1969 which represented a lapse of approximately four to five months since their exposition to the Human Relations Training Laboratory. As compared to these three administrations, the control group was given the tests twice, once at a time which coincided with the first testing of the experimental group and then at a time which coincided with the third testing of the experimental group. Due to budgetary limitations, it was not possible to test the control group the same number of times as the experimental group.

Basic demographic data, e.g. age, sex, marital status, etc., was collected on all the participants of the control and the experimental groups.

Changes in the experimental and control groups were assessed in terms of internal criteria and external criteria. In addition, a feedback questionnaire was administered to the experimental group.

Internal criteria changes, for the purposes of this evaluation, pertain to those changes that occur within a person. These were assessed by the use of the following measures:

1. The Authoritarianism Scale (F Scale) (1).
2. The Personal Orientation Inventory (12).
3. Semantic Differential (10).
4. Leary's Interpersonal Check List (7).
5. The Motivation Analysis Test ("MAT") (3).

Each of these instruments is described later.

The external criteria changes imply those changes that take place in the external environment of an individual. For example, the effect that a teacher might have on his students as a result of his exposition to Human Relations Training or the effect that an educator might have on the community around him could be classified as external criteria changes. For the purpose of this investigation, the following instruments were used to assess external criteria changes:

1. Ratings by principals (11).
2. The use of the Michigan Picture Test (2) to assess students' perceptions of the teachers.
3. The use of the Leary Interpersonal Check List (7) to assess students' perceptions of the teachers and themselves.

These techniques will be described in detail in the next section of this report.

A feedback questionnaire was administered to the experimental group at the end of the two week Human Relations Training Laboratory. Results obtained from this questionnaire are reported later.

DESCRIPTION OF MEASURES AND RESULTS OBTAINED

INTERNAL CRITERIA

I. Authoritarianism

Authoritarianism was measured by the administration of the F Scale (1), commonly called the Authoritarianism Scale.

According to Frenkel Brunswik (1), high authoritarianism as measured by F Scale score consists of:

"a. Conventionalism: Adherence to conventional middle class values.
b. Authoritarian submission: Submissive uncritical attitude towards idealized moral authorities of the in-group.
c. Authoritarian aggression: Tendency to be on the lookout for and to condemn, reject and punish people who violate conventional values.
d. Anti-intraception: Opposition to subjective, imaginative and the tenderminded.
e. Superstition and stereotype: Beliefs in the Mystical determinants of individuals' fate, the disposition to think in rigid categories.
f. Power and toughness: Preoccupation with dominance-submission, strong-weak, leader-follow or dimension; identification with power figures; overemphasis upon the conventional as attributes of the ego; exaggerated assertion of strength and toughness.
g. Destructiveness and cynicism: Generalized hostility, vilification of the human.
h. Projectivity: Disposition to believe that wild and dangerous things go on in the world.
i. Sex: A concern with sexual goings on" (pp. 255-256).

The mean F Scale score was 116 for the control group and 112 for the experimental group for the first administration of the F Scale. The T ratio between these two means was 1.084 which is not significant at the 5% level. Changes in the F Scale scores for the first and third testings of the experimental and control group were compared.

For the control group the mean change in F Scale score for the two administrations was +.167. T-test of significance for paired samples (for one-sided test) was computed (5). The value of t was 0.567 which is not significant. For the experimental group the main change in F score for the first and third administrations was -5.22. The t ratio was -3.179 which is significant at .001 level. This data would suggest that the experimental group changed more significantly so far as authoritarianism is concerned as compared to the control group. Implications of these findings are obvious in light of the above definitions of authoritarianism.

It seems that the educators became less authoritarian as a result of their exposition to Human Relations Training. More specifically, it can be said that they became less superstitious and more open-minded. They became less rigid in their thinking and could handle their hostilities in a more realistic manner.

Regression equations (19) were computed to find out the importance of age, sex, marital status, educational level, income, etc., in the F Scale changes.

Level of income and number of years in profession seem important in the F Scale changes. It seems that the more the number of years in profession, the less a person changes in terms of authoritarianism. Also, the higher an individual's income, the more he changed in terms of authoritarianism.

It is interesting to note that at least in this study none of the other demographic variables seemed to play a significant role in F Scale changes. Also, the F Scale scores for the experimental group between the first and the second testing did not change significantly.

2. Personal Orientation Inventory (POI)

Shostrom's Personal Orientation Inventory (12) was used to assess some of the personality changes as a result of the Human Relations Training Program. In recent years Maslow (8) has developed the idea of the self-actualizing person--a person who is more fully functioning and lives a more enriched life than does the average person. Such an individual is seen as developing and utilizing all of his unique capabilities, or potentialities, free of the inhibitions and emotional turmoil of those less self-actualized. The Personal Orientation Inventory is an instrument created by Shostrom (12) to measure self-actualization. It consists of a 150 two-choice comparative value and behavior judgements.

The POI has a number of subscales. These scales are briefly described on pages 12-13.

Table I (page 14) gives the means and the standard deviations for the POI for the pre-test of the experimental and control groups. It is clear from this table that the experimental and control groups are not different from each other.

Table 2 (page 15) gives the POI scores for the experimental group for the pre-test, first post-test and the second post-test.

Table 3 (page 16.) gives the POI scores for the pre-test and the second post-test of the control group. T ratios were computed to study the difference between these means, and no difference was found in the means except in spontaneity and self-acceptance subscales. Means for these are different at the 5% level of confidence.

Newman-Keuls test (19) of differences among means (which uses studentized range statistics [19]) was used in the experimental group for the pre-test, first post-test and second post-test. The results are summarized in a simple manner in Table 4 on pages 17. A graph on page 18 depicts the mean changes in the experimental group.

The following conclusions can be drawn from this data:

a. It seems that the educators exposed to Human Relations Training became more time competent. This implies that they were able to tie the past and the future to the present in a meaningful continuity. They developed greater faith in the future without rigid or overly idealistic goals.

This change in time competence seems to have occurred between the pre-test and the first post-test as is evident from Table 2.

b. The change in existentiality was statistically significant in the experimental group and occurred again between the pre-test and the first post-test. This change implies an increase in one's ability to use good judgement in the application of values.

c. There was a change at the 1% significance level in feeling reactivity. This implies sensitivity to one's own needs and feelings. Again, this change occurred between the pre-test and the first post-test.

d. The experimental group's self-regard was enhanced in a marked fashion. This is indicated by the significant difference at the 1% level of confidence between the first and second testing.

e. There is evidence (at the 5% level of confidence) that the self-acceptance was enhanced in the experimental group. Self-acceptance implies acceptance of one's self in spite of one's weaknesses or deficiencies. It appeared that the educators were more able to accept their own weaknesses and look at them realistically as the result of Human Relations Training. Interestingly enough, this change occurred between the second post-test and the third post-test as compared to the changes mentioned above which primarily took place between the pre-test and the first post-test.

f. The data indicates that there was a statistically significant change between the pre-test and the first post-test for "awareness" as measured by the POI. This can be interpreted by saying that the ability to relate to all objects of life meaningfully increased as a result of exposition to Human Relations Training.

g. There was an appreciable increase in the capacity for intimate contact with other human beings as a result of exposition to Human Relations Training. Again, this increase seemed to have occurred between the pre-test and the first post-test. It seems that the members of the experimental group were able to develop a more meaningful relationship with other human beings as compared to the control group.

We have noticed above that as a result of exposition to the Human Relations Training, the POI data indicates that the experimental group became more time competent; gained in existentiality; their feeling reactivity increased; their self-regard and self-acceptance increased; they became more aware of themselves; and they developed a capacity for more intimate contact with other human beings.

It is interesting to note that most of the changes in the POI data seemed to have occurred between the pre-test and the first post-test, and there was not much change between the first post-test and the second post-test. This would indicate that so far as the POI is concerned, probably the participants got a lot out of the two weeks intensive Human Relations Training Program and not so much out of the subsequent Saturday sessions.

The effects of Human Relations Training in terms of years in profession, sex, age and church affiliation for the POI data were studied by computing 82

two by two analyses of variances. Tables 5-12 on pages 19-24 give the significant findings. The insignificant results obtained by this analysis are not included in this report.

Table 5 page 19 gives the effects of years of profession as a result of Human Relations Training on the O subscale of the POI. It appears that persons who have spent between ten and 29 years in profession are more oriented to others as compared to persons who have spent less than nine years in profession and those who have spent more than thirty years in profession. This difference is significant at 5% level.

Similarly it seems from Table 6 that as a result of Human Relations Training persons who are between 20 and 29 years of age become more existentially oriented. This age group seems to differ from all the other age groups. Again the difference is significant at 5% level.

On the basis of this sample it seems that males become more existentially oriented after Human Relations Training than females. This difference is significant at .01 level (Table 7 page 19).

The mean differences in Table 8 page 20 are significant at .01 level. This can be interpreted by saying that Baptists and Methodists become more existentially oriented than members of Church of Christ.

Then from Table 9 page 20 we notice that Baptists and Methodists become more spontaneous than persons who belong to Church of Christ and again this difference seems to be significant at .05 level.

So far as spontaneity is concerned it appears that Methodists and Baptists do not differ from each other. Baptists do not differ from Church of Christ.

Table 10 describes the changes in A (acceptance of aggression) subscale of the POI in terms of church affiliation. Again we find that persons belonging to Baptist and Methodist Church seem to accept aggression more as a result of human relations training as compared to persons belonging to the Church of Christ. This difference is significant at 5% level of confidence.

From Table 11 page 21 it appears that as a result of exposition to human relations training males are able to accept aggression better than females and this difference is again significant at 5% level.

Table 12 page 21 describes the effect on self-acceptance ~~and~~ as a result of this training. Again we find that persons between the ages of twenty and thirty stand apart from the rest of the groups listed in the Table. It seems that persons in this age range were able to accept themselves

better as a result of human relations training as compared to other age ranges. This difference is significant at 5% level of confidence. It is also interesting to note that there seems to be no significant difference between persons who are between 20 and 29 years old and 40 and 49 years old.

The rest of the analysis of variances provided insignificant data. It seems that so far as POI changes are concerned it does not make any difference if the group to which a person belongs is a typical T group (i.e. where strangers are brought together) or is a group which is constituted of persons who know each other before coming into the group.

Number of Items	Scale Number	Symbol	Description
I. Ratio Scores			
23	1/2	T_I/T_C	TIME RATIO Time Incompetence/ Time Competence - measures degree to which one is "present" oriented
127	3/4	O/I	SUPPORT RATIO Other/Inner -measures whether reactivity orientation is basically toward others or self
II. Sub-Scales			
26	5	SAV	SELF-ACTUALIZING VALUE Measures affirmation of a primary value of self- actualizing people
32	6	Ex	EXISTENTIALITY Measures ability to situationally or existen- tially react without rigid adherence to principles
23	7	Fr	FEELING REACTIVITY Measures sensitivity of responsiveness to one's own needs and feelings
18	8	S	SPONTANEITY Measures freedom to react spontaneously or to be oneself
16	9	Sr	SELF REGARD Measures affirmation of self because of worth or strength

Number of Items	Scale Number	Symbol	Description
26	10	Sa	SELF ACCEPTANCE Measures affirmation or acceptance of self in spite of weaknesses or deficiencies
16	11	Nc	NATURE OF MAN Measures degree of the constructive view of the nature of man, masculinity, femininity
9	12	Sy	SYNERGY Measures ability to be synergistic, to transcend dichotomies
25	13	A	ACCEPTANCE OF AGGRESSION Measures ability to accept one's natural aggressiveness as opposed to defensiveness, denial, and repression of aggression
28	14	C	CAPACITY FOR INTIMATE CONTACT Measures ability to develop contactful intimate relationships with other human beings, unencumbered by expectations and obligations

TABLE I: Means and Standard Deviations of the Experimental and Control Group on the Basis of Pretest

PRETEST

	POI Item		Experimental	Control	p
1.	TI	M	7.03	7.06	N.S.
		S	2.96	2.57	
2.	TC	M	15.84	15.76	N.S.
		S	2.95	2.66	
3.	O	M	47.89	48.02	N.S.
		S	9.63	8.92	
4.	I	M	76.68	77.48	N.S.
		S	10.23	8.67	
5.	SAV	M	19.34	19.54	N.S.
		S	2.59	2.35	
6.	EX	M	17.23	16.74	N.S.
		S	3.97	3.76	
7.	FR	M	13.80	13:32	N.S.
		S	2.71	2.70	
8.	S	M	10.62	10:80	N.S.
		S	2.79	2:29	
9.	SR	M	11.68	12.06	N.S.
		S	2.30	2.60	
10.	SA	M	15.00	14.82	N.S.
		S	2.93	2.61	
11.	NC	M	11.62	11:80	N.S.
		S	1.87	2.09	
12.	SY	M	6.70	6:96	N.S.
		S	1.31	1.23	
13.	A	M	14.70	14.52	N.S.
		S	3.28	3.24	
14.	C	M	16.06	16.46	N.S.
		S	3.10	2.71	

M represents the Mean; S represents the Standard Deviation.
N for Experimental Group = 108; N for Control Group = 50.
Significance was computed on the basis of t-tests. Not significant implies a t-value which was not significant at 5% level.

TABLE 2: POI - Means and Standard Deviations for the Experimental Group for the Pretest, 1st Post-test and the 2nd Post-test

	PRETEST		POST-TEST 1		POST-TEST 2
	POI	Items			
1.	TI	M	7.03	6.67	6.17
		S	2.96	3.50	2.62
2.	TC	M	15.84	16.43	16.67
		S	2.95	3.16	2.73
3.	O	M	47.89	42.40	43.10
		S	9.63	9.64	10.93
4.	I	M	76.68	82.90	83.19
		S	10.23	10.38	11.08
5.	SAV	M	19.34	19.45	19.83
		S	2.59	2.74	2.42
6.	EX	M	17.23	19.89	20.18
		S	3.97	4.38	4.47
7.	FR	M	13.80	15.17	14.87
		S	2.71	2.80	2.70
8.	S	M	10.62	11.51	11.48
		S	2.79	2.81	2.61
9.	SR	M	11.68	11.58	12.09
		S	2.30	2.54	2.49
10.	SA	M	15.00	16.66	16.69
		S	2.93	3.01	3.20
11.	NC	M	11.62	12.04	11.99
		S	1.87	1.75	1.78
12.	SY	M	6.70	6.94	6.99
		S	1.31	1.20	1.23
13.	A	M	14.70	15.95	16.09
		S	3.28	3.10	3.06
14.	C	M	16.06	18.12	18.00
		S	3.10	3.46	3.35

N = 108

M represents the Mean
S represents the Standard Deviation

TABLE 3: Means and Standard Deviations for the POI Scores for the Pretest and the 2nd Post-Test of the Control Group

	PRETEST			POST-TEST 2		
	POI	ITEM		POI	ITEM	
1.	TI	M	7.06	TI	M	6.57
		S	2.57		S	2.84
2.	TC	M	15.76	TC	M	16.26
		S	2.66		S	2.80
3.	O	M	48.02	O	M	46.62
		S	8.92		S	10.21
4.	I	M	77.48	I	M	78.68
		S	8.67		S	9.69
5.	SAV	M	19.54	SAV	M	19.14
		S	2.35		S	2.65
6.	EX	M	16.74	EX	M	16.96
		S	3.76		S	4.06
7.	FR	M	13.32	FR	M	13.48
		S	2.70		S	2.83
8.	S	M	10.80	S	M	10.16
		S	2.29		S	2.34
9.	SR	M	12.06	SR	M	12.08
		S	2.60		S	2.40
10.	SA	M	14.82	SA	M	15.72
		S			S	
11.	NC	M	11.80	NC	M	11.32
		S	2.09		S	2.08
12.	SY	M	6.96	SY	M	6.88
		S	1.23		S	1.26
13.	A	M	14.52	A	M	15.34
		S	3.24		S	2.95
14.	C	M	16.46	C	M	16.90
		S	2.71		S	3.22

M represents the Mean
S represents the Standard Deviation

TABLE 4

POI

Changes in the experimental group for the Pretest, 1st Post-test and 2nd Post-test on the basis of the Newman-Keuls Test of differences among means

	Item	p(using F distribution)	Means for the three testings*
1.	TI	.01	3 2 1
		.05	3 2 1
2.	Tc	.01	1 2 3
		.05	1 2 3
3.	O	.01	2 3 1
4.	I	.01	1 2 3
5.	Sav	N.S.	
6.	Ex	.01	1 2 3
7.	Fr	.01	1 3 2
8.	S	.01	1 3 2
9.	Sr	.05	2 1 3
10.	Sa	.01	1 2 3
11.	Nc	N.S.	
12.	Sy	N.S.	
13.	A	.01	1 2 3
14.	C	.01	1 3 2

*1 = Pretest
2 = Post-test 1
3 = Post-test 2

Note: A line joining two numbers implies that the means were not different.

PROFILE SHEET FOR THE PERSONAL ORIENTATION INVENTORY

PRETEST - BLUE
1ST POST TEST - GREEN
2ND POST TEST - RED

NAME EXPERIMENTAL-GROUP - MEANS DATE TESTED

AGE _____ SEX _____

OCCUPATION _____

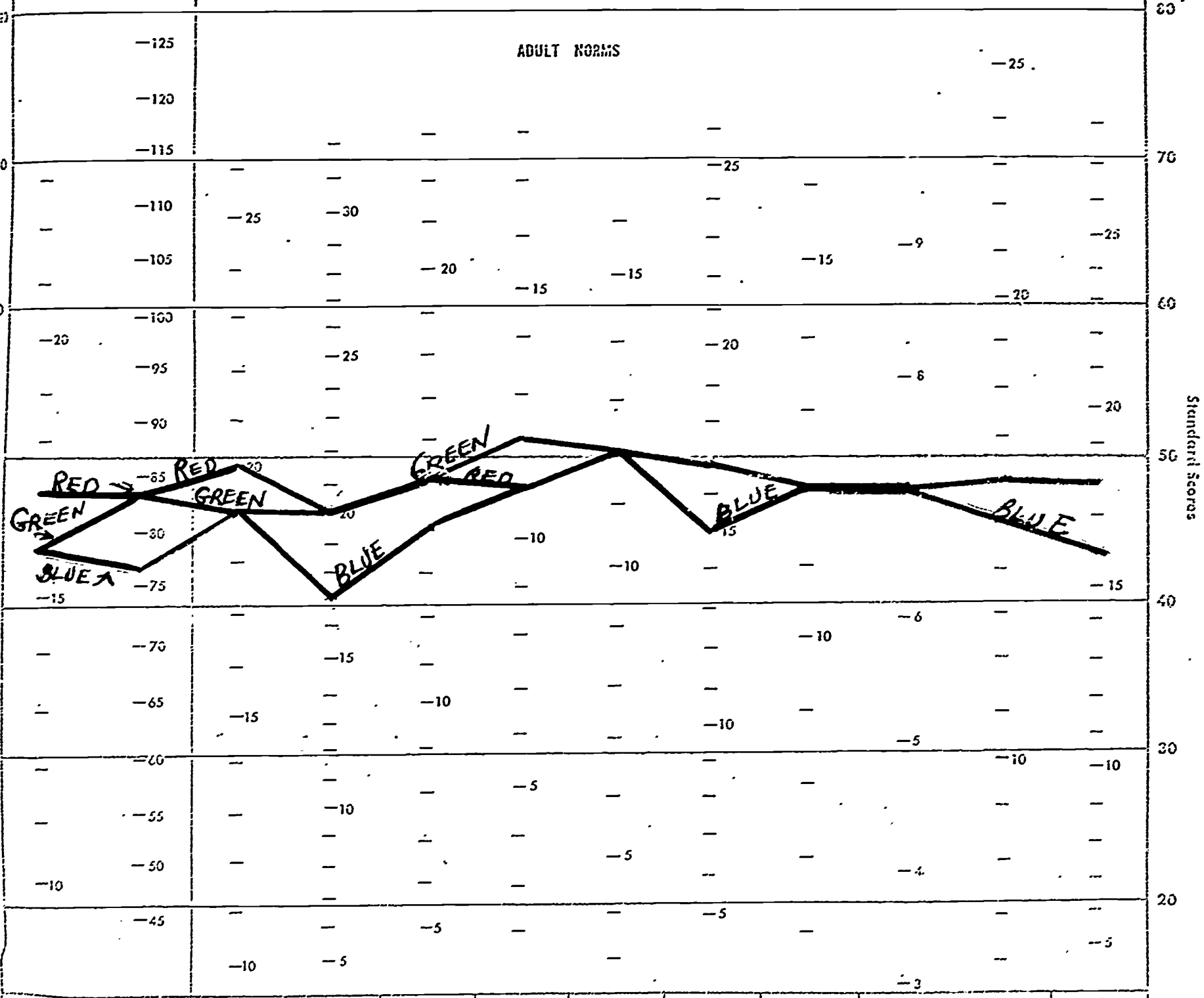
I $T_I - T_C$ (Time) Ratio:
Self-Actualizing Average: $T_I : T_C = 1:8$
Your Ratio: $T_I : T_C = 1:$ __

1	2	3	4	5	6	7	8	9	10

II O - I (Support) Ratio:
Self-Actualizing Average: O:I = 1:3
Your Ratio: O:I = 1: __

1	2	3	4	5	6	7	8	9	10

		VALUING		FEELING		SELF-PERCEPTION		SYNERGISTIC AWARENESS		INTERPERSONAL SENSITIVITY	
TIME COMPETENT Lives in the present	INNER-DIRECTED Independent, self-supportive	SELF-ACTUALIZING VALUE Holds values of self-actualizing people	EXISTENTIALITY Flexible in application of values	FEELING REACTIVITY Sensitive to own needs and feelings	SPONTANEITY Freely expresses feelings behaviorally	SELF-REGARD Has high self-worth	SELF-ACCEPTANCE Accepting of self in spite of weaknesses	NATURE OF MAN, CONSTRUCTIVE Sees man as essentially good	SYNERGY Sees opposites of life as meaningfully related	ACCEPTANCE OF AGGRESSION Accepts feelings of anger or aggression	CAPACITY FOR INTIMATE CONTACT Has warm interpersonal relationships
T_C	I	SAV	Ex	Fr	S	Sr	Sa	Nc	Sy	A	C



TIME INCOMPETENT Lives in the past or future	INNER-DIRECTED Dependent, seeks support of others' views	Rejects values of self-actualizing people	Rigid in application of values	Insensitive to own needs and feelings	Fearful of expressing feelings behaviorally	Has low self-worth	Unable to accept self with weaknesses	Sees man as essentially evil	Sees opposites of life as antagonistic	Blocks feelings of anger or aggression	Has difficulty with warm interpersonal relations

Standard Scores

POI

TABLE 5

THE EFFECT OF YEARS IN PROFESSION ON THE O SUBSCALE OF THE POI (SIGNIFICANT AT .05 LEVEL)

YEARS	PRETEST	POST TEST	N	MEAN	DIFFERENCE (PRE - POST)
0 - 9	43.46	37.15	26	40.30	6.31
10 - 19	48.65	44.34	26	46.49	4.31
20 - 29	50.55	44.52	40	47.53	6.03
30 - Up	47.18	42.43	16	44.81	4.75

0 - 9. 30 - Up, 10 - 19, 20 - 29

Note: A line joining two numbers implies that the means were not different.

TABLE 6

THE EFFECT OF AGE ON THE EX SUBSCALE OF THE POI (SIGNIFICANT AT .05 LEVEL)

AGE	PRETEST	POST TEST	N	MEAN	DIFFERENCE (PRE-POST)
20 - 29	19.71	22.71	14	21.25	3.00
30 - 39	16.07	19.00	13	17.53	2.93
40 - 49	16.90	20.30	33	18.60	3.40
50 - Up	17.04	19.02	48	18.03	1.98

30 - 39. 50 - Up. 40 - 49, 20 - 29

Note: A line joining two numbers implies that the means were not different.

TABLE 7

THE EFFECT OF SEX ON THE EX SUBSCALE OF THE POI (SIGNIFICANT AT .01 LEVEL)

SEX	PRETEST	POST TEST	N	MEAN	DIFFERENCE (PRE - POST)
Male	18.31	21.17	35	19.74	2.86
Female	16.71	19.27	73	17.99	2.56

POI

TABLE 8

THE EFFECT OF CHURCH AFFILIATION ON THE EX SUBSCALE OF THE POI (SIGNIFICANT AT .01 LEVEL)

CHURCH AFFILIATION	PRETEST	POST TEST	N	MEAN	DIFFERENCE (PRE - POST)
Baptist	17.75	21.37	32	19.56	3.62
Methodist	18.27	20.78	33	19.53	2.41
Church of Christ	15.30	18.15	26	16.73	2.85

Church of Christ, Methodist, Baptist

Note: A line joining two words implies that the means were not different.

TABLE 9

THE EFFECT OF CHURCH AFFILIATION ON THE S SUBSCALE OF THE POI (SIGNIFICANT AT .05 LEVEL)

CHURCH AFFILIATION	PRETEST	POST TEST	N	MEAN	DIFFERENCE (PRE - POST)
Baptist	10.75	11.87	32	11.31	1.12
Methodist	11.69	12.00	33	11.84	.31
Church of Christ	9.65	10.96	26	10.30	1.31

Church of Christ, Baptist, Methodist

Note: A line joining two words implies that the means were not different.

TABLE 10

THE EFFECT OF CHURCH AFFILIATION ON THE A SUBSCALE OF THE POI (SIGNIFICANT AT .05 LEVEL)

CHURCH AFFILIATION	PRETEST	POST TEST	N	MEAN	DIFFERENCE (PRE - POST)
Baptist	15.62	16.81	32	16.21	1.19
Methodist	15.45	16.33	33	15.89	.88
Church of Christ	13.42	15.15	26	14.28	1.73

Church of Christ, Methodist, Baptist

Note: A line joining two words implies that the means were not different.

POI

TABLE 11

THE EFFECT OF SEX ON THE A SUBSCALE OF THE POI
(SIGNIFICANT AT .05 LEVEL)

SEX	PRETEST	POST TEST	N	MEAN	DIFFERENCE (PRE - POST)
Male	16.97	18.82	35	17.89	1.85
Female	15.63	17.78	73	16.70	2.15

TABLE 12

THE EFFECT OF AGE ON THE SA SUBSCALE OF THE POI
(SIGNIFICANT AT .05 LEVEL)

AGE	PRETEST	POST TEST	N	MEAN	DIFFERENCE (PRE - POST)
20 - 29	16.00	18.35	14	17.17	2.35
30 - 39	14.07	15.53	13	14.80	1.46
40 - 49	15.57	17.03	33	16.30	1.46
50 - Up	14.56	16.20	48	15.38	1.64

30 - 39, 50 - Up, 40 - 49, 20 - 29

Note: A line joining two numbers implies that the means were not different.

3. Semantic Differential

A Semantic Differential test based on Osgood and Tannenbaum's (10) work was administered to the experimental and control groups. The concepts used on this test were:

a. Sensivity Training
b. Superior
c. Self
d. Relationship to Others
e. Principal
f. Student
g. Trainer

This test was administered to find out if as a result of exposition to Human Relations Training the subjects' perception of the above concepts changes significantly. This test was scored by the method suggested by Osgood and Tannenbaum (10).

Two kinds of analyses were undertaken on this data.

1. A study of the overall changes in the concepts being measured; and
2. A study of changes in these concepts on the basis of the three subscales of Evaluation, Potency and Oriented Activity which were computed as suggested by Osgood and Tannenbaum (10).

Tables 13, 14 (pages 23-24) give details of these analyses.

It seems that the only concept that changes significantly for the experimental group ($p < .04$) so far as the overall changes are concerned is that of a Superior (page 23). There is no difference between the experimental and control groups changes for the rest of the concepts.

Table 14 (page 24.) gives data about the changes in the experimental and control groups for Evaluation, Potency and Oriented Activity. Changes in Potency and Oriented Activity for the experimental group for the concept of Superior are statistically significant. The experimental group also changes significantly for the concepts of Principal and Trainer in terms of Potency.

For all other concepts there seems to be no difference between the experimental and control groups.

On the basis of this data analysis, it seems that educators as a result of Human Relations Training tend to view Superiors, Principals and Trainers as more powerful and influential. It also seems that they gain a better insight into their own selves (concept of self for experimental group is significant at .001 level for the evaluation subscale).

TABLE 13

COMPARISON BETWEEN EXPERIMENTAL AND CONTROL GROUPS
ON TOTAL AMOUNT OF CHANGE
ON SEMANTIC DIFFERENTIAL RATINGS

Concept	Average Rank		
	Experimental	Control	p
1. Sensitivity Training	65	74	N.S.
2. Superior	72	60	.04
3. Self	71	62	N.S.
4. Relationship to Others	69	66	N.S.
5. Principal	69	65	N.S.
6. Student	71	63	N.S.
7. Trainer	67	70	N.S.

TABLE 14

CHANGES FROM PRETEST TO POST TEST 2
IN SEMANTIC DIFFERENTIAL JUDGEMENTS
FOR EXPERIMENTAL AND CONTROL GROUPS

	Evaluation		Potency		Oriented Activity	
	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.
1. Sensitivity Training	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
2. Superior	N.S.	N.S.	.02	N.S.	.02	N.S.
3. Self	.001	N.S.	N.S.	N.S.	N.S.	N.S.
4. Relationship to Others	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
5. Principal	N.S.	N.S.	.04	N.S.	N.S.	N.S.
6. Student	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.
7. Trainer	N.S.	.05	.02	N.S.	N.S.	N.S.

4. Leary Interpersonal Checklist

Description:

The theoretical background of this system of personality, the current research findings and its clinical application are described in detail in a book, "The Interpersonal Diagnoses of Personality."

Briefly speaking, this scale has eight subscales. These are listed and described below:

1. Managerial-Autocratic, (AP): A person scoring high on the subscale is dictatorial and expects everyone to admire him. He manages others and is bossy. He tries to be too successful and always gives advice to others. A person scoring low on this scale likes responsibility, is a good leader and is forceful. He is able to give orders, makes a good impression and is often admired and respected by others. He is well thought of.

2. Competitive-Narcissistic, (BC): A person scoring high on this subscale is cold and unfeeling, egotistical and conceited. He is shrewd and calculating and thinks only of himself. He is somewhat snobbish, proud and self-satisfied, and boastful. A person scoring low on this subscale can be indifferent to others. He is self-reliant, assertive, self-confident, independent and businesslike. He likes to compete with others. He is able to take care of himself and is also self-respecting.

3. Aggressive-Sadistic, (DE): A person scoring high on this subscale is hard hearted, cruel and unkind. He is often unfriendly, frequently angry and outspoken. He is impatient with others' mistakes. He is self-seeking and sarcastic. A person scoring low on this subscale is straightforward and direct. He is critical of others and irritable. He is hard-boiled when necessary, stern but fair and firm but just. He can be frank and honest and can be strict if necessary.

4. Rebellious-Distrustful, (FG): A person scoring high on this subscale is rebellious against everything and distrusts everybody. He is bitter, resentful and complaining. He is jealous, stubborn and slow to forgive a wrong. A person scoring low on this subscale is skeptical, often gloomy and resents being bossed. He is hard to impress, touchy and easily hurt, and frequently disappointed. He can complain if necessary and is able to doubt others.

5. Self-effacing-Masochistic, (HI): A person scoring high on this subscale is always ashamed of himself. He is shy, timid and self-punishing. He is spineless, meek, passive and unaggressive, and obeys too willingly. A person scoring low on this subscale is modest, easily led and usually gives in. He is able to criticize himself and can be obedient.

6. Docile-Dependent, (JK): A person scoring high on this subscale is a clinging vine and will believe anyone. He is dependent, wants to be led and hardly ever talks back. He is easily fooled. He likes to be taken care of and lets others make decisions. A person scoring low on this subscale is often helped by others, admires and imitates others and is very respectful to authority. He accepts advice readily, is trusting and eager to please and very anxious to be approved of. He is grateful and appreciative.

7. Coop.-over-Conventional, (LM): A person scoring high on this subscale agrees with everyone and loves everyone. He will confide in anyone, is too easily influenced by his friends and wants everyone's love. He likes everybody and is friendly all the time. A person scoring low on this subscale is warm, sociable and neighborly. He is affectionate and understanding and wants everyone to like him. He is always pleasant and agreeable and eager to get along with others. He is cooperative and friendly.

8. Responsible-Hypernormal, (NO): A person scoring high on this subscale tries to comfort everyone. He spoils people with kindness, is too willing to give to others, is overprotective of others and is generous to a fault. He is oversympathetic, forgives anything and is too lenient with others. A person scoring low on this subscale enjoys taking care of others. He is kind, reassuring, tender and softhearted. He gives freely of himself and encourages others. He is helpful and considerate.

Results:

The changes in the experimental group as assessed by Leary's Interpersonal Checklist are quite striking. The experimental group shows a significant ($p < .05$) decrease in seven out of the eight subscales.

Tables 15, 16 and 17 summarize the statistical findings so far in this context.

More specifically, it can be concluded that as a result of exposition to the Human Relations Training program, the educators viewed themselves as having changed on the following personality dimensions:

a) They saw themselves as good and forceful leaders. They said that they liked responsibility and giving orders. They reported that they were able to give orders and command respect of others.

b) They viewed themselves as being more straightforward and direct. They felt that they were more frank and honest and firm but just in their decisions.

c) They reported to have become less rebellious and less distrustful of others. They acquired the ability to complain in a realistic manner whenever necessary.

d) They said that they were less timid and less self-punishing. They said that they were able to look at themselves realistically and criticize themselves if necessary.

e) They reported that they had been able to develop a realistic respect for authority and they became more appreciative of the help of others.

f) They viewed themselves as being more sociable and neighborly and made a conscious effort to get along with others. They also saw themselves as friendly and cooperative.

g) They viewed themselves as giving more freely of themselves and helped others. They also felt they became more considerate.

An additional finding concerning the changes in the experimental group was that the changes tended to occur some time after training was over rather than immediately after the two week training laboratory. No significant differences in scores occurred between the pretest and the first post-test. Yet when the pretest is compared with the second post-test, the differences noted above appeared. This is congruent with other theories of personal change as a result of group experience in that the application of new interpersonal skills acquired "in group" have a cumulative effect over time to change self-concept gradually as positive "back home" experiences are built up.

These results are summarized in Figures 1 and 2. The general concept that the teachers have of themselves can be readily compared with the view held by their students if Figure 3 is compared with Figures 1 and 2. The differences are quite striking and are probably a reflection of the students' stereotype of adult authority and the teachers' dislike of viewing themselves negatively, particularly in terms of hostility and authoritarianism. This point is discussed in detail later.

TABLE 15 Means and Standard Deviations, Experimental Group, Interpersonal Checklist (N=94)

SCALE	PRETEST	POST-TEST 1	POST-TEST 2
AP	Mean - 5.52 S.D. - 2.69	5.33 2.81	4.70 2.74
BC	Mean - 5.97 S.D. - 2.17	5.84 2.31	5.72 2.53
DE	Mean - 6.57 S.D. - 2.67	6.28 2.50	6.04 2.57
FG	Mean - 4.43 S.D. - 2.25	4.17 2.22	3.77 2.12
HI	Mean - 6.55 S.D. - 2.94	6.16 2.82	5.23 2.67
JK	Mean - 7.97 S.D. - 2.46	7.56 2.84	6.76 2.61
LM	Mean - 8.65 S.D. - 3.12	8.43 3.12	7.79 2.88
NO	Mean - 8.56 S.D. - 2.81	8.20 3.16	7.51 3.17

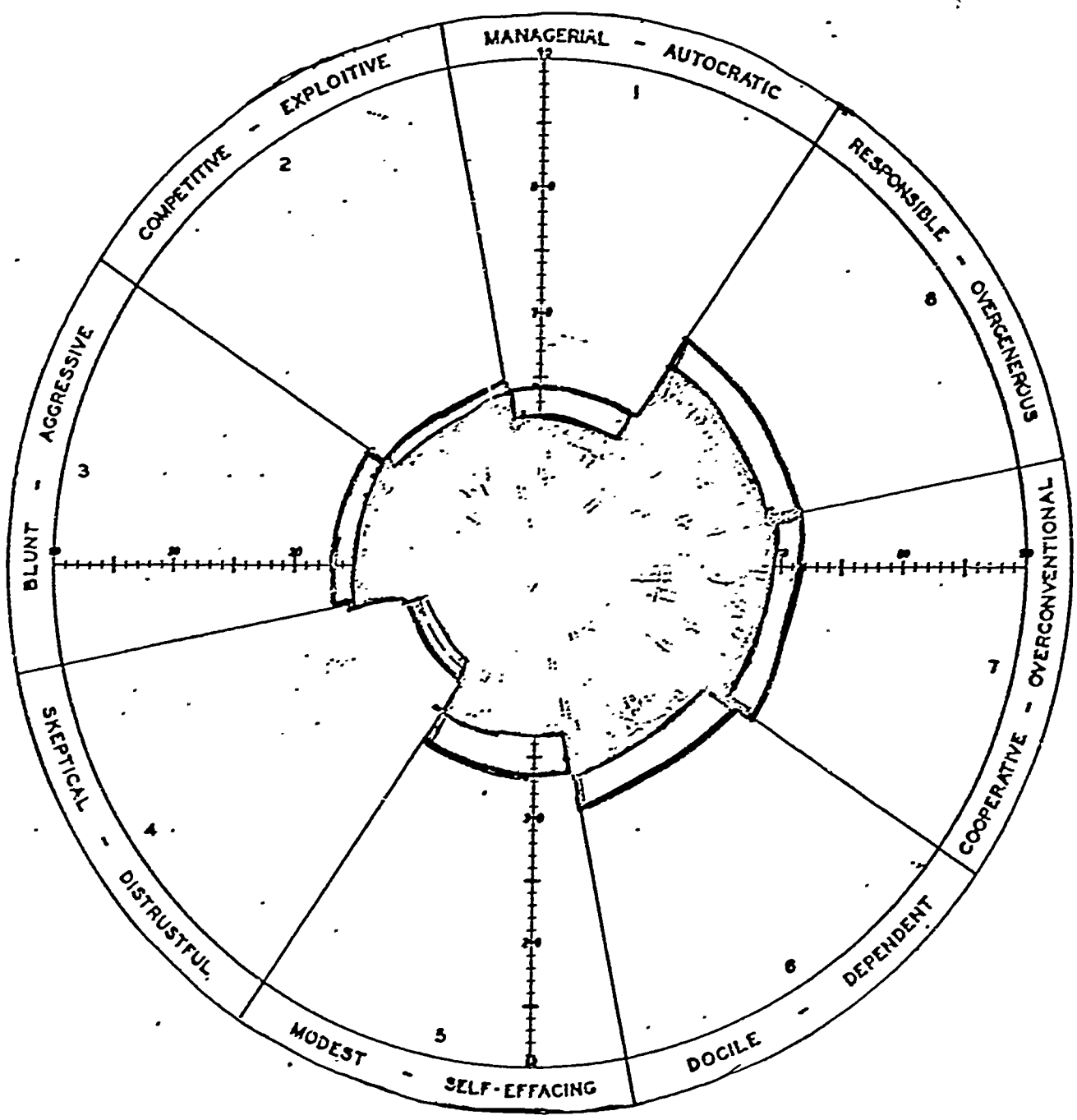
TABLE 16: Control Group, Pre- and Post-test Results on Interpersonal Checklist with Significance Tests

SCALE	PRETEST	POST-TEST 1	SIGNIFICANCE OF CHANGE
AP	Mean - 4.93 S.D. - 2.64	4.96 2.36	NS
BC	Mean - 5.60 S.D. - 2.24	5.60 1.91	NS
DE	Mean - 5.67 S.D. - 2.25	5.56 2.16	NS
FG	Mean - 3.18 S.D. - 2.28	3.40 2.04	NS
HI	Mean - 5.13 S.D. - 2.61	4.96 2.48	NS
JK	Mean - 6.51 S.D. - 2.17	5.49 1.85	$p<.01$
LM	Mean - 8.02 S.D. - 3.22	7.38 2.69	NS $p<.10$
NO	Mean - 7.67 S.D. - 2.89	7.44 2.89	NS

TABLE 17: Test of Significance of Changes in Experimental Group Mean Scores

SCALE	Pretest vs Post-test 1	Post-test 1 vs Post-test 2	Pre- vs Post-test 2
AP	NS	$p<.05$	$p<.01$
BC	NS	NS	NS
DE	NS	NS	$p<.05$
FG	NS	$p<.05$	$p<.05$
HI	NS	$p<.01$	$p<.05$
JK	NS $p<.10$	$p<.01$	$p<.01$
LM	NS	$p<.05$	$p<.05$
NO	NS	$p<.05$	$p<.05$

FIGURE 1: Self Rating of Teachers
in the Experimental Group

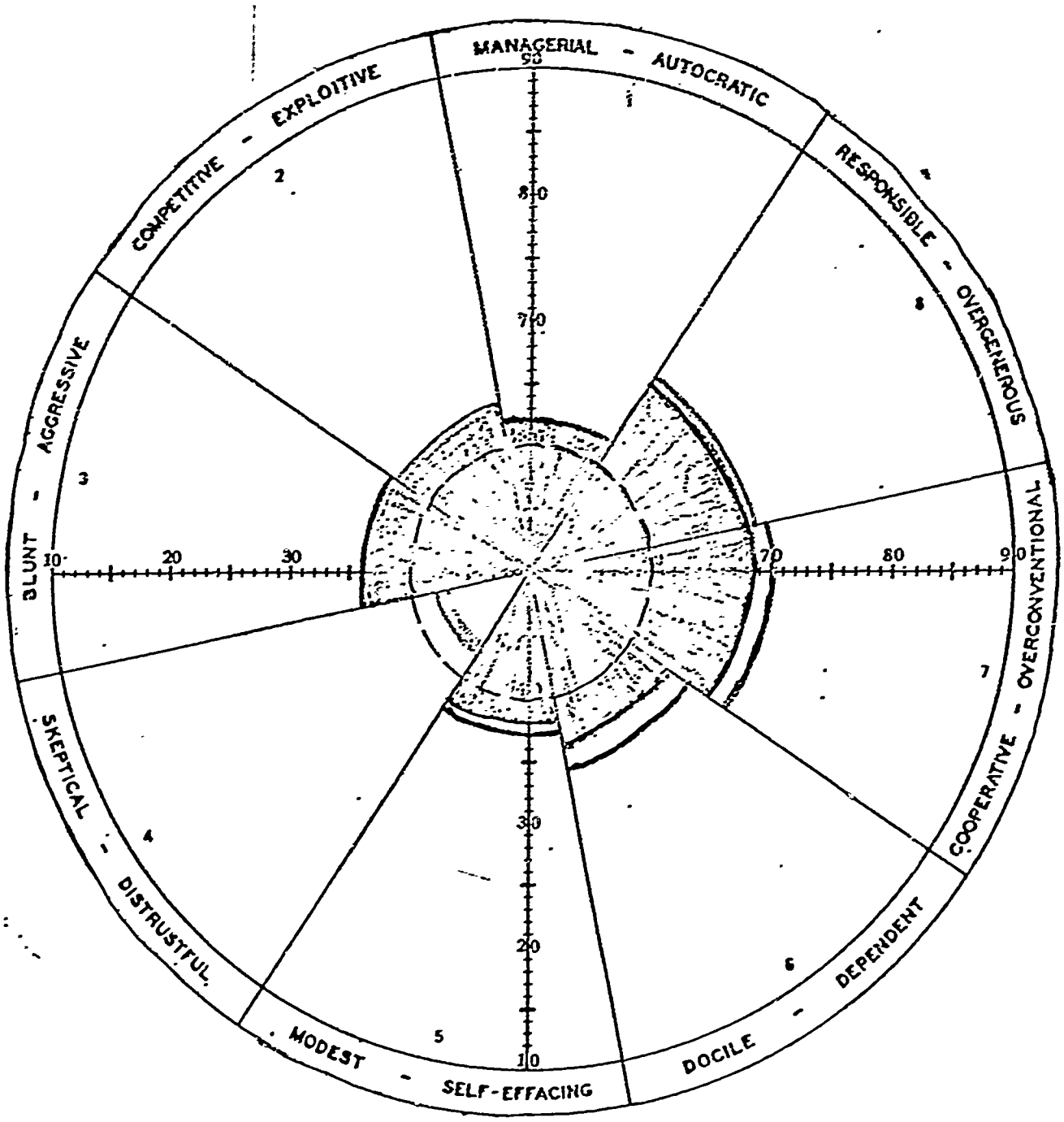


Pretest Score - ☐

Post-test Score - ▨

This profile shows a comparative relationship of the various scales of the Interpersonal Checklist on both the pretest and the second post-test. The decrease in scores on all scales can easily be seen.

FIGURE 2: Self Rating of Teachers
in the Control Group

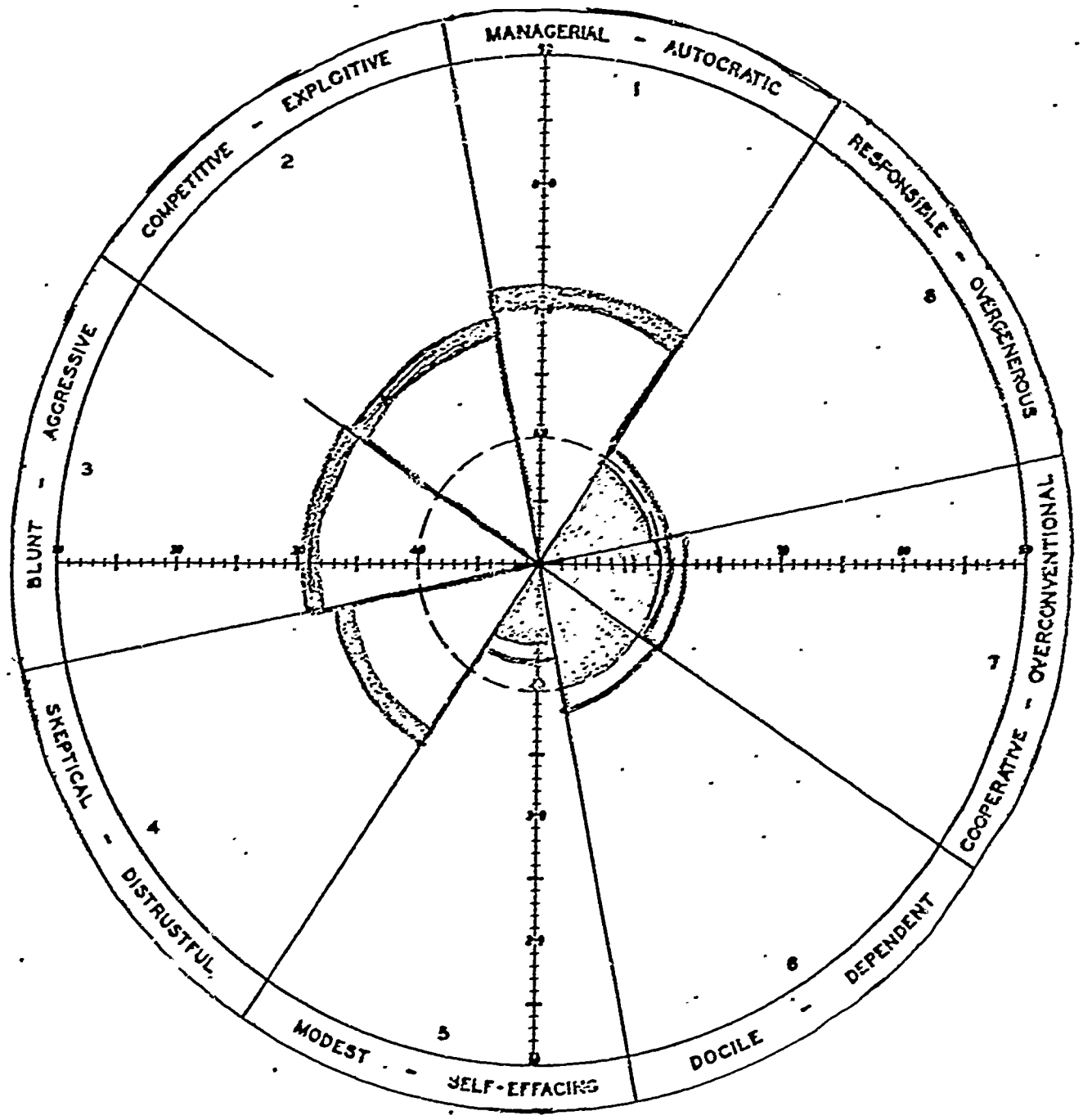


Pretest Score -

Post-test Score -

This pattern shows graphically the general lack of change in the Control Group's scores. A comparison of this figure and Figure 1 shows that teachers both with and without training have similar views of their interpersonal characteristics, as opposed to their students who see them quite differently, as shown in Figure 3.

FIGURE 3: Ratings of Teachers by Students



Experimental Group - ☐

Control Group - ▨

This diagram shows the interpersonal evaluation of teachers in both the control and experimental groups. To be noted particularly is the reversal of direction of mean differences between scales 1 thru 4 and 5 thru 8. This is consistent with the hoped for result that teachers with training would be more open and less punitive in dealing with their students.

FURTHER ANALYSIS OF THE F SCALE AND LEARY INTERPERSONAL CHECKLIST DATA

When the initial analysis of our data revealed a number of very significant changes in the mean scores of the experimental group on both the F Scale and the Leary Interpersonal Checklist, it was decided to continue the analysis by correlational methods in an attempt to discover what variables were related to these changes. An additional hope was to understand the effects of a group experience in a group of strangers (heterogeneous groups) versus a group made up of co-workers from "back home" (homogeneous groups). This analysis was done in two steps, with the first being a complete correlation study of all variables involved, and the second being a multiple regression attempt at predicting the changes in both the F Scale and the Leary Checklist Scales.

The prediction variables were eleven demographic characteristics, including (see Table 18) age, marital status, sex, number of professional years in education, number of years as a teacher, number of non-teaching (administrative) years, number of years in college, income in thousands, number of dependents, population of the town of residence, and whether or not the subject receives supplemental salary from either moonlighting or extra teaching duties such as coaching. An additional variable was the kind of group the subject was in. The other prediction variables used were the raw scores at the initial testing of each scale. This variable was included since it was felt that initial level on any given scale would be important in understanding the direction and magnitude of change in that scale.

As our criterion scores for prediction, three indices of change were computed for each scale, the first being an overall change score derived from the difference between the initial level on the scale and the second post-testing. This score will be referred to in this analysis of the test scores as the "overall change" score. The second criterion score is derived from the difference in scores between the pretest and the first post-testing which followed immediately after the training sessions. This score will be referred to in the future as the "within session" change. The third score for each scale is derived from the change between the end of the training sessions (i.e. first post-test) and the second post-test, the time between the end of training and the follow-up six months later. This score will be designated the post-testing or "between" score in the body of the report. These criterion scores were derived by means of subtraction so that a negative change score indicates a decrease in overall score while a positive change score indicates an increase in score. For example, a subject

who scored 110 on the F Scale pretest and who scored 105 on the first post-test immediately after training would have a within session change score of -5. This fact must be kept in mind in interpreting the sign of the correlation coefficients derived.

The correlation analysis contains 48 variables; eleven demographic characteristics, group membership, three scores each for the F Scale and the eight subscales of the Leary Checklist, and the nine pretest scores for the F Scale and the Leary Checklist. A correlational analysis of this 48 variable problem was carried out on a IBM-360 Model 40 Computer utilizing a multiple regression and correlation program called the BMD-02R developed and revised by the Health Sciences Computing Facility of UCLA. The resulting 48 x 48 correlation matrix and 27 prediction equations provided the hard data for this section of this report.

General Findings of the Correlation Matrix

To attempt to interpret a correlation matrix of this size containing some fourteen hundred correlations is at best a complex and difficult proposition. To make this process more understandable the matrix had to be borken down into manipulatable parts. In addition, there is the problem in a matrix of this size of artifactual correlations of significant size occurring purely by chance. To minimize this latter problem, no correlations smaller than .20 (the .05 Level of significance) will be interpreted as a relationship and those which are greater than this size will be interpreted with great caution. The reader is reminded also that a correlational relationship is in no way indicative of a causative relationship and must be interpreted with great caution in a single sample study. Another caution is that any prediction equation cannot be taken as fact until it has been cross-validated on an independently drawn sample from the same population.

With these cautions in mind, the overall matrix was subdivided into meaningful divisions for analysis. The first area of interest for any correlational study is the intercorrelation of one's predictor variables since independence of these variables is important for accurate prediction. As can be seen from Table 8, the correlations range from essentially zero to the artificially inflated value of .90. There are, however, some moderate relationships which do not appear to be artifactual which deserve comment. Besides the artifactual high correlation between age and number of professional years and number of teaching years, there appears to be a moderate relationship between sex and number of non-teaching (administrative) years, suggesting that more males go into the administrative field. Sex seems to be related in a positive way to being an administrator having a higher income, having a larger number of dependents and receiving supplemental salary. In any case, the independence of the variables is somewhat limited which probably lowers their ability to predict changes to a great extent.

The next attempt at analysis involves the correlations of the twelve demographic variables with changes in the various scales. Table 19 shows the correlations of these variables with changes in the F Scale. In overall changes, it will be noted that only sex, income, and supplemental salary are significantly related to change. Note also that the kind of group used is in no way related to changes in the F Scale. This suggests that authoritarianism was reduced independent of knowing or not knowing the members of one's T-group. All the relationships noted are negative suggesting that of these predictors those most associated with decreases in score are being male, having a higher than average (for this sample) income and receiving supplemental salary. The other correlations on this Table are small and probably not overly useful in prediction.

Table 20 shows the same information for the eight subscales of the Leary Self-Concept, covering only the overall changes. In interpreting these correlational values, it is a necessity to keep in mind what each scale attempts to measure. In Scale AP, which relates to managerial-autocratic kinds of self-perception, being male, having less than average education, and being in a stranger group were associated with decreases in score. In Scale BC, related to competitive kinds of self-perception, only being in a stranger group seemed to be related to decreases in score. No significant correlations appeared in Scales DE or FG. Scale HI, however, having to do with self-effacing, masochistic kinds of attitudes, seem to have decreases in score related to being younger than average, having less experience, not being an administrator and being in a heterogeneous group. JK, a scale having to do with submission and being dependent, showed decreases in the younger, less experienced numbers of the subject poll. For Scale LM, having to do with being cooperative and overly conventional, the only significant relationship was with number of non-teaching years, suggesting that the non-administrators were more likely to decrease in score on this variable. Scale NO showed no significant correlations. The lack of large numbers of significant correlations in this Table suggests that our efforts at predictions of changes from these demographic variables is slated for large disappointments, without the inclusion of some other more highly correlated variables. However, the correlations that are significant in this Table do appear to be meaningful relationships and make sense in terms of interpretation.

In an effort to find other more reliable predictors, it was felt that the level of score initially would be related to changes in that score over time. For this purpose, the pretest raw scores on each scale was included as a predictor of that scale. The intercorrelations of these scores for the Leary Checklist and the correlations of the Leary with the F Pretest are shown in Table 21. The results are an interesting exercise in scale validation in that the Leary Interpersonal Checklist was developed empirically to show clusters of related self-perceptions which should be correlated with each other but not with the other scales. This is exactly what was discovered in the analysis of these results. The highest correlations of these scales tend to be those which are supposed to go together into the dominance and love composite scores. The dominance score comes from a composite of Scales AP, BC, DE and FG. As may be noted, the intercorrelations of these four scales are higher than the correlations with the other four scales. On the other hand, the love score comes from a combination of HI, JK, LM and NO. As may be noted again the intercorrelations of these four scales are in general higher than the correlations with any of the other scales. This suggests that our subjects are in fact performing on this scale as they should.

An additional bit of information from Table 21 is that the F Scale is by and large uncorrelated with the interpersonal styles contained in the Leary. The only relationships which are significant are with Scales LM and NO. This is exactly what would be expected from the theoretical rationales of both the F Scale authoritarianism description and the two scales in question. Scale LM is supposedly related to overcooperative overly conventional interpersonal attitudes while NO has to do with being super-responsible and hypernormal. These should relate to the conventionality, stereotyped behavior and rigidity of the authoritarian. The correlations are positive as would be expected.

Table 22 shows the relationship between the demographic variables originally used as predictors and the pretest levels of both the F Scale and the Leary Interpersonal Checklist. First, high scores on the F Scale (indicating authoritarian attitudes) seem to be related to increased income, older than average age, higher than average professional years and teaching years, and inversely related to the amount of education. This suggests that, as might be expected from the kinds of attitudes that go into authoritarianism, the older one gets, the longer in one's profession, the less flexible and the more rigid one becomes. However, there is a tendency for education, with its exposure to more kinds of people and ideas, to moderate this effect and decrease the rigidity and conventionality associated with authoritarianism.

The correlations of the demographic variables with the Interpersonal Checklist Scales are by and large not significant. There is a tendency for the married subjects to score higher on the two scales dealing with being cooperative and relating to others in a responsible conventional way, a tendency for males to be more managerial and autocratic. In addition, those people with high incomes tend to be more managerial and autocratic and competitive. This is an expected and reasonable relationship. An additional interesting tendency, although not significant, is for sex (being male) to correlate positively with the scales associated with dominance and negatively with the scales associated with the love score. This relationship seems also expected in view of the cultural stereotypes of maleness and femaleness. The amazing thing is that the correlations are not larger since the part of the country from which the sample was drawn places great emphasis upon the separateness and differentness of the male-female role model.

Table 23 shows the correlations of the pretest scores with the changes in the scales in question. It will be noted that the correlations of the pretest scores with overall changes in score are all negative and quite substantial in size. Note also

that the pretest level of scores also correlates significantly with changes within training session but not with changes between sessions after training. This difference has to do with the pattern of changes within the group, with many people increasing during the session and others decreasing but with an overall change toward decreased scores. This relationship is analyzed further in Figures 4 and 5 of this report. In general, however, it may be said that the relationship between the pretest score and the overall change is that those scoring high initially tend to decrease over time. Those scoring low tend to increase slightly yielding a definite overall decrease in score.

At the other end of any prediction problem are your criterion measures, in this case the change scores for the various scales used. Table 24, shows the intercorrelations of the overall changes for the Leary Checklist. As was the case in the pretest scores, the correlations tend to fall in clusters with those scales most related to each other showing the highest correlation of change. This suggests that the more similar attitudes measured by two scales, the more alike their changes were.

Table 25 shows the correlation of changes in a given scale within training, after training and overall. Again the pattern of correlation is the same for all scales and may be generally characterized as a high positive correlation between the overall changes and changes after training, a relationship that could be expected from the changes in mean score. The unexpected result was the significant and quite large negative correlations between the changes within the session and those after the session. This relationship suggests that in general people who increase in score during the session, decrease after they get out of the session and vice versa. This relationship was found to be true and is diagramed in Figures 4 and 6 through 13. This was the initial suggestion for the reasons for no significant change in mean score within the session. It suggested that there were subjects changing in a regular way but going in opposite directions during the two periods of measurement. That this was the case was an unexpected but helpful result in understanding the changes in means.

The most ready generalization from the findings are that the demographic characteristics chosen are not particularly good predictors of changes in the two scales used. It does, however, show that the attitudes measured in the Leary Interpersonal Checklist and the F Scale are relatively independent of each other and a finding not yet reported in the literature.

The next section of this report is devoted to a very important problem in training groups---i.e. how to predict how many and which individuals are going to benefit from training.

Interpretation of the Multiple Regression Analysis

Because of the independence of the two scales, it was decided to analyze the prediction equations and prediction results for the F Scale separate from the Leary Checklist. Because of the complex changes hinted at by the intercorrelations of the changes in the F Scale, the direction of the changes both within the session and between the session were cross-plotted on the chart shown in Figure 4 . This chart shows that within the session 47 people increased in score, 2 remained the same and 44 decreased in score. This readily explains the non-significant change in mean score. However, during the follow-up period, noted here as between, 61 people decreased in score while 32 people increased. This is the reason for the negative correlation which occurred during this follow-up period. It is interesting to note, however, that there are 61 people of the 93 who showed both increases and decreases over the whole time period studied. These are shown in the diagonally marked corner cells of Figure 4 .

Further analysis is needed to understand exactly the reasons for these changes and to discover what kinds of people consistently decrease, what kinds consistently increase and those who show bidirectional changes. In any case, within this complex relationship of changes, it was felt that the change of interest to this experiment was the overall change in authoritarianism as a result of T-group experience. Therefore, the analysis of the differential changes within session and following sessions were left for future analysis and the prediction attempt was focused on the overall change in score.

Figure 5 shows the results of this multiple regression attempt. As may be seen from the figure, the resulting multiple correlation was .68, a fairly respectable figure. The standard error of estimate was 12.83, showing that our errors of prediction were fairly substantial. The variables used were the pretest score, income, number of professional years, sex, number of college years, and marital status. From the direction (sign of the beta coefficient) it may be seen that the variables connected with decreased scores on the F Scale are having a high pretest score, having higher than average income, being low in professional years, being male, having more education than usual and being married. The variables are listed in order of relationship and the latter two or three reflect very mild relationships. This result gives rise to several hypotheses but the one that appears most likely to this writer is that those people who are more openly authoritarian at the outset of T-group

experience tend to become less so as a result of their new experiences and exposure to differing ideas and attitudes. On the other hand those people who are defensive about their authoritarian attitudes initially become more open about their attitudes and thus increase slightly in score during the session. After the session, however, two-thirds of the subjects decrease in score, perhaps reflecting the application of new sensitivity and flexible attitudes learned in the group. This, of course, relates to the final result of decreased authoritarianism over the whole group. One of the problems with this hypothesis is that 32 people actually increased in authoritarianism over the whole time. Some of these decreased initially but went back up to their previous level or higher over the whole session. Others, 11 of them, increased initially but came back down to a score above their initial level. Only 9 people actually continued to increase in authoritarianism over the whole time of the study. A scatter plot of the changes reveals, however, that these people were by and large people who scored lower than average on authoritarianism in the beginning and thus tends not to negate the hypothesis of less defensiveness and new experiences casuing people to be more open about their attitudes and more flexible in their approach to other people.

The variables involved here suggest again what one would expect in dealing with authoritarian attitudes; that the older, the more conservative and the more experience a person has with a given social system, the more likely one is to absorb the socially accepted and conventional attitudes and the more rigid these attitudes become. The implications for T-grouping here are that these people who are more rigid benefit the most from the group experience in terms of decreased authoritarianism.

The results of prediction show that it is much easier to predict those people who decrease in score than it is to predict those who will increase. However, the overall prediction level is quite acceptable for the individual case. In this sample, the equation listed above correctly predicted 73 of the 92 subjects who changed in score over the whole time covered. This is a 79% accuracy and is probably acceptable as an increase over random selection of subjects. Also, it is much more accurate in selecting subjects who will decrease in score, correctly picking 54 of the 60.

Results of Prediction on the Leary Interpersonal Checklist

To begin the analysis of prediction on the Leary Checklist, the changes present were analyzed as to when and where they occurred as was noted above in the F Scale. In the eight subscales of the Interpersonal Checklist, the changes followed a pattern similar to that of the F Scale, as can be seen in Figures 6 through 13 . In all scales there were subjects going in both directions, both increasing and decreasing within their T-group sessions. These changes were approximately equal to being slightly more heavily weighted on the decrease side. This clearly explains the reason for the nonsignificant decreases in mean score during the T-group sessions. As in the F Scale, the changes during the follow-up or between period showed the same reversal of direction in as many as 50 of the cases out of 93, but with a preponderance of decreasing scores. This leads to the overall result noted underneath the 3 x 3 charts (pages 55-62 with 45 to 64 of the 93 subjects showing an overall decrease in score on the various scales.

It is interesting to note that in Scale BC, the only scale which did not show significant change in mean score over the whole time, the number of subjects increasing and decreasing were relatively stable so that people returned almost exactly to their pretest level over the whole time period. This result suggests that only about 50% to 60% of the subjects are showing decreases in their scores on the Interpersonal Checklist. This suggests that perhaps this is the percentage of people who benefit from the limited T-group experience offered. This points out the drastic need for efficient prediction as to which people will show the decreases in score. This is the goal of the prediction equations listed in the Figures 14 through 21 . A suggestion for the interpretation of the changes within session and between session is that the T-group session offers an intensive exposure to points of view quite different from the individual's normal social contacts. This leads to a great upheaval or cognitive dissonance and some initial alterations; be they increased defensiveness and increased scores or temporary decreases induced by the intense interaction of the T-group setting. However, in the period following the sessions the person is returned to his normal environment and his old attitudes tend to reassert themselves bringing him back toward his usual level of interaction or his usual style of relating to others. However, since the T-group sessions hopefully will teach new ways of relating and new perceptions of self, the overall pattern for the group is a decrease in score.

Figures 14 through 21 show the multiple correlations derived, the standard error of estimate, the variables included in the prediction equation and their beta coefficients, and finally the outcome of the prediction equation in terms of

correct prediction of direction of change. While this is a rather crude way of displaying the results, it gives a clear picture of how accurately the equations predict changes in this sample of subjects. Again the reader must be cautioned that these are tentative prediction equations and should not be used for actual application until they have been cross-validated.

As can be seen from the Figures 14 through 21, the pretest scores are the strongest predictors of change. They appear in all of the prediction equations and are the heaviest contributors to the multiple correlation. Looking at the results of the prediction, it can be seen that the number of individuals correctly predicted ranged from 53 out of 93 to 64 out of 93. It can also be noted that the lowest number predicted, 53, was in Scale BC in which there was no significant change in mean score. The multiple correlations ranged from about .5 through .7, all of which are significant regressions and useful in prediction where large groups of subjects are available. It further can be noted from the overall accuracy tables that it is much easier to predict the cases which will decrease than it is to predict those that will increase over the overall time period. The reasons for this differential prediction is not readily apparent from the data presently available and should give rise to an inclusion of more variables in future research.

In terms of specifying which variables are most useful in these predictions at present Table 26 shows the frequency of appearance in the prediction equations of all the predictor variables used with the Leary Interpersonal Checklist. It also shows the direction of relationship in each appearance. It can be noted from this that all variables are not equally used. The pretest scores appear in the prediction of all eight scales for overall and within session and in all but one of the eight for the between, always in a negative relationship, suggesting that those people who score highest on the pretest are more likely to decrease in score. Other variables like marital status, teaching years, number of dependents and population appear in very few prediction equations and appear to be not very useful in prediction of changes in the Leary Checklist. Of the demographic variables, number of professional years, number of non-teaching (administrative) years, supplemental salary and group membership appear to be the best overall predictors. The relationships are all positive suggesting that those with large numbers of professional years, longer experience in an administrative position and receiving supplemental salary are less likely to decrease in score. In predicting the changes within session the best predictors appear to be receiving supplemental salary, income and sex suggesting that males with good incomes and not receiving supplemental salary are more likely to decrease within session.

In terms of changes during the follow-up or post-session period, the best predictors for change in this situation are age, college years and group membership, with younger persons with higher education and receiving training in a stranger group showing the most likely decrease in scores.

In general, the results of the prediction and correlational study has offered some hope toward predicting the kinds of people who will benefit most from a T-group experience. Although these results must be taken as tentative and subject to cross-validation on later independently selected samples, it is felt that the results point to the possibility of such selection being valuable. In general, it appears that there are two basic clusters or factors pointing toward decreases in score on the two instruments used here. The first of these is, of course, a pretest level which is in the upper extremes of the sample. In terms of authoritarianism, this means someone who is relatively authoritarian to begin with, before training. In terms of the Interpersonal Checklist, it means someone who falls in the less desirable upper ends of the scale. The other factor tends to be one of flexibility, with those people who have more education and who are younger tending to benefit more.

TABLE 18

INTERCORRELATIONS OF PREDICTOR VARIABLES

VARIABLES	2	3	4	5	6	7	8	9	10	11	12
1. Age in Years	-.00	-.09	.81	.76	.21	.01	-.04	-.14	-.24	-.14	.0
2. Marital Status (1= Married, 0= Single)		.11	.06	.01	.10	-.08	-.06	.11	.08	-.03	-.2
3. Sex (1= Male, 0= Female)			-.04	-.16	.33	.19	.37	.50	.07	.50	-.1
4. Number of Professional Years				.90	.32	.16	-.01	-.20	-.10	-.14	.0
5. Number of Teaching Years					.03	.10	-.09	-.15	-.22	-.15	.1
6. Number of Non-Teaching Years						.20	.13	.07	.06	.16	-.0
7. Number of College Years							.31	.00	-.00	.14	-.0
8. Income (in 1000's)								.14	.01	.29	-.1
9. Number of Dependents									-.20	.38	.0
10. Population of Town of Residence										.02	-.2
11. Supplemental Salary (1= Yes, 0= No)											-.1
12. Group (1= Heterogeneous 0= Homogeneous)											

TABLE 19

CORRELATIONS OF PREDICTORS AND CHANGES IN F SCALE

	VARIABLES	OVERALL CHANGE IN F SCALE	CHANGES IN SESSION	AFTER SESSION
1.	Age in Years	.04	.05	-.00
2.	Marital Status (1= Married, 0= Single)	-.09	.04	-.11
3.	Sex (1= Male, 0= Female)	-.21	-.01	-.18
4.	Number of Professional Years	.09	.09	.01
5.	Number of Teaching Years	.10	.03	.06
6.	Number of Non-Teaching Years	-.05	.02	-.05
7.	Number of College Years	-.04	-.07	.03
8.	Income (in 1000's)	-.30	-.23	-.08
9.	Number of Dependents	-.15	-.15	-.02
10.	Population of Town of Residence	-.03	-.05	.02
11.	Supplemental Salary (1= Yes, 0= No)	-.28	-.04	-.22
12.	Group (1= Heterogeneous 0= Homogeneous)	.05	.08	-.03

TABLE 20

CORRELATIONS OF PREDICTORS WITH OVERALL CHANGES IN LEARY'S SELF CONCEPT SCALE

	VARIABLES	AP	BC	DE	FG	HI	JK	LM	NO
1.	Age in Years	.14	.18	.10	.05	.22	.17	.11	.02
2.	Marital Status (1= Married, 0= Single)	-.00	.04	.07	.04	-.04	.01	-.08	-.1
3.	Sex (1= Male, 0= Female)	-.21	-.11	.01	-.05	-.19	-.18	-.02	-.1
4.	Number of Professional Years	.05	.13	.13	.04	.30	.26	.19	.0
5.	Number of Teaching Years	.07	.11	.10	.04	.25	.19	.16	.0
6.	Number of Non-Teaching Years	.02	.10	.11	-.01	.25	.27	.24	-.0
7.	Number of College Years	-.28	-.11	-.13	-.04	.08	.11	.06	.0
8.	Income (in 1000's)	-.12	-.15	-.02	-.05	-.00	.05	.10	.0
9.	Number of Dependents	-.04	-.06	.04	-.04	-.05	-.10	-.05	-.0
10.	Population of Town of Residence	-.00	.03	.04	.00	-.21	-.06	-.06	-.1
11.	Supplemental Salary (1= Yes, 0= No)	-.14	-.13	.12	-.17	.02	.04	.05	-.1
12.	Group (1= Heterogeneous 0= Homogeneous)	.22	.21	.16	-.08	.20	.15	-.10	.0

TABLE 21

INTERCORRELATIONS OF PRETEST RAW SCORES ON THE LEARY INTERPERSONAL CHECKLIST AND CORRELATIONS WITH F SCALE PRETEST

	BC	DE	FG	HI	JK	LM	NO	F
AP	.62	.59	.35	-.02	.13	.21	.24	.09
BC		.57	.40	-.01	.12	.20	.15	.09
DE			.60	.14	.22	.12	.20	.03
FG				.35	.43	.21	.27	.14
HI					.63	.39	.30	.10
JK						.58	.53	.17
LM							.68	.33
NO								.28

TABLE 22

CORRELATIONS OF F SCALE AND LEARY INTERPERSONAL CHECKLIST PRETEST RAW SCORES WITH THE PREDICTOR VARIABLES

	VARIABLES	F	AP	BC	DE	FG	HI	JK	LM	N
1.	Age in Years	.38	-.04	-.11	-.03	.09	.03	.09	.04	.
2.	Marital Status (1= Married, 0= Single)	.05	-.01	-.08	-.15	.02	.06	.16	.24	.
3.	Sex (1= Male, 0= Female)	-.08	.25	.19	.06	.16	-.07	-.12	-.11	-.
4.	Number of Professional Years	.34	-.00	-.10	-.02	.11	-.10	.02	-.03	.
5.	Number of Teaching Years	.34	-.07	-.16	-.01	.11	-.03	.03	.00	.
6.	Number of Non-Teaching Years	.13	.13	.16	.05	.06	-.20	-.01	-.13	.
7.	Number of College Years	-.21	.12	.14	.01	.01	-.19	-.09	-.03	.
8.	Income (in 1000's)	.01	.22	.28	.01	.05	-.13	-.12	-.08	-.
9.	Number of Dependents	-.04	.14	.12	.08	.25	-.03	.05	-.07	-.
10.	Population of Town of Residence	-.06	-.08	-.22	-.15	-.19	.12	.03	.02	.
11.	Supplemental Salary (1= Yes, 0= No)	.04	.07	.15	.05	.12	-.16	-.05	-.05	.
12.	Group (1= Heterogeneous 0= Homogeneous)	-.02	.04	.10	.04	.11	-.02	.01	.16	.

TABLE 23

CORRELATIONS OF PRETEST RAW SCORES WITH CHANGES
(F SCALE AND LEARY CHECKLIST)

	OVERALL	WITHIN	BETWEEN
F	-.51	-.32	-.19
AP	-.45	-.37	-.11
BC	-.43	-.38	-.13
DE	-.51	-.45	-.15
FG	-.55	-.39	-.28
HI	-.56	-.45	-.20
JK	-.35	-.25	-.08
LM	-.56	-.40	-.23
NO	-.36	-.30	-.08

TABLE 24

INTERCORRELATIONS OF OVERALL CHANGES
IN LEARY'S SELF CONCEPT SCALE

	BC	DE	FG	HI	JK	LM	NO
AP	.55	.41	.30	.25	.27	.18	.17
BC		.50	.24	.30	.26	.23	.17
DE			.31	.31	.26	.16	.22
FG				.32	.26	.12	.09
HI					.62	.35	.17
JK						.43	.25
LM							.44
NO							

TABLE 25

INTERCORRELATIONS OF CHANGES
(OVERALL, WITHIN SESSION, AND POST SESSION)

F SCALE		IN SESSION	POST SESSION
OVERALL		.32	.64
IN SESSION			-.53
	INTERPERSONAL CHECKLIST		
AP	Overall	.39	.62
	In Session		-.48
BC	Overall	.36	.70
	In Session		-.42
DE	Overall	.47	.66
	In Session		-.35
FG	Overall	.54	.66
	In Session		-.27
HI	Overall	.53	.61
	In Session		-.35
JK	Overall	.34	.56
	In Session		-.59
LM	Overall	.52	.59
	In Session		-.38
NO	Overall	.41	.59
	In Session		-.49

FIGURE 4: DIRECTION OF CHANGES IN F SCALE SCORES WITHIN SESSION AND DURING FOLLOW UP (BETWEEN) PERIOD

WITHIN SESSION \ BETWEEN	−	0	+	
+	+ 11 / − 28	0	8	47
0	1	0	1	2
−	21	0	+ / − 12 / 10 / 1	44
Number Changing	61	0	32	93

Overall: + 32
0 1
− 60

Note: The two diagonal cells (+ − and − +) show those individuals who showed both increases and decreases in score over the three testings. Those above the diagonal line had overall changes in score that were positive and those below had overall changes in a negative direction. One subject (lower right cell) had equal increases and decreases to have an overall change of zero.

FIGURE 5 : RESULTS OF PREDICTION
OF OVERALL CHANGES IN F SCALE SCORES

MULTIPLE R = .68 STANDARD ERROR OF ESTIMATE = 12.83

	VARIABLES	COEFFICIENTS (BETA)
1.	F Pretest	-.49
2.	Income	-1.99
3.	Number of Professional Years	.51
4.	Sex	-5.04
5.	Number of College Years	-3.36
6.	Marital Status	-4.23

CONSTANT = 68.20

		PREDICTED		
DIRECTION		-	+	
REAL	+	13	19	32
	0	1	0	1
	-	54	6	60
				93

CORRECT PREDICTIONS: 54 of 60 who decreased
19 of 32 who increased
73 of 92 who changed
73 of 93 overall

2 OF 2

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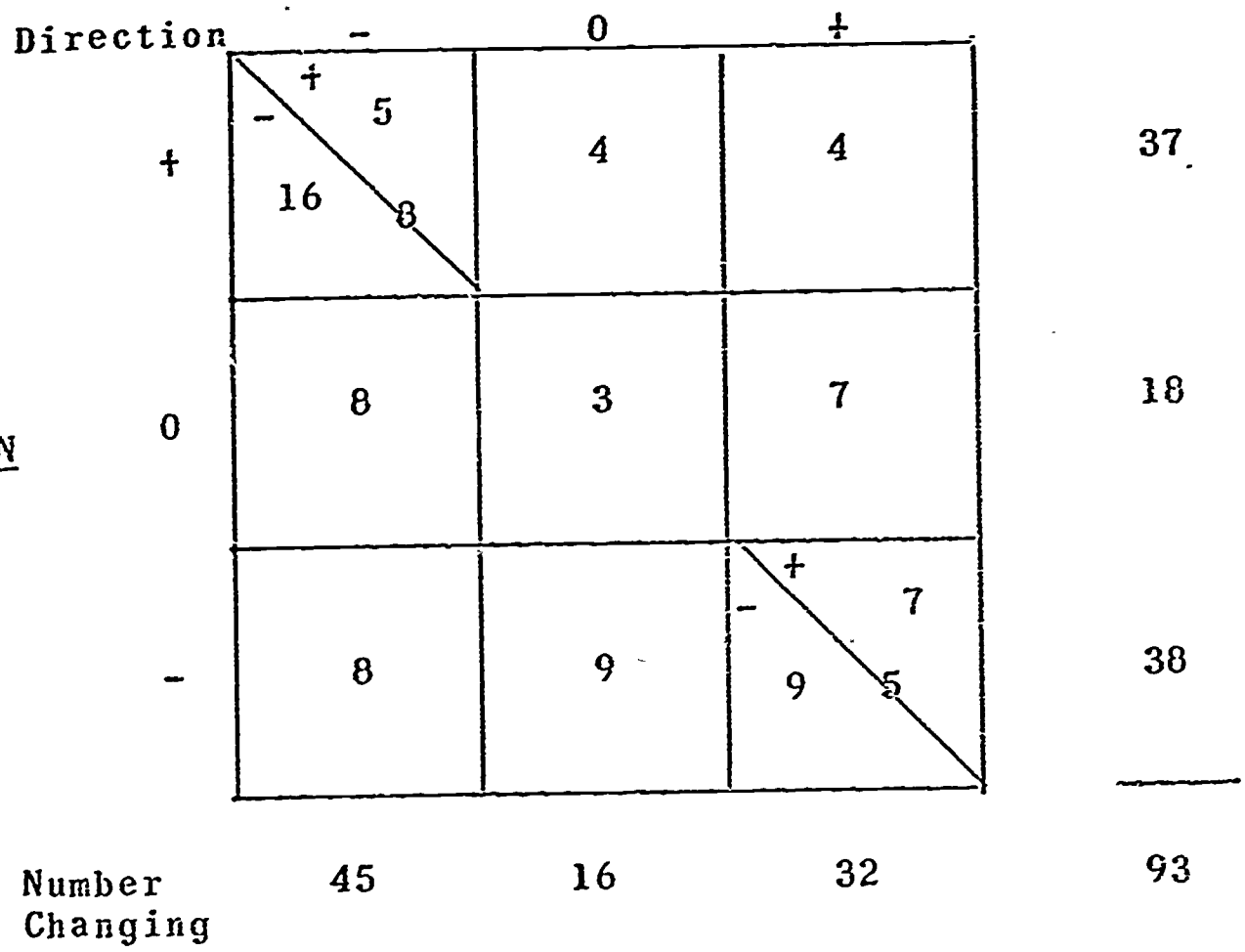
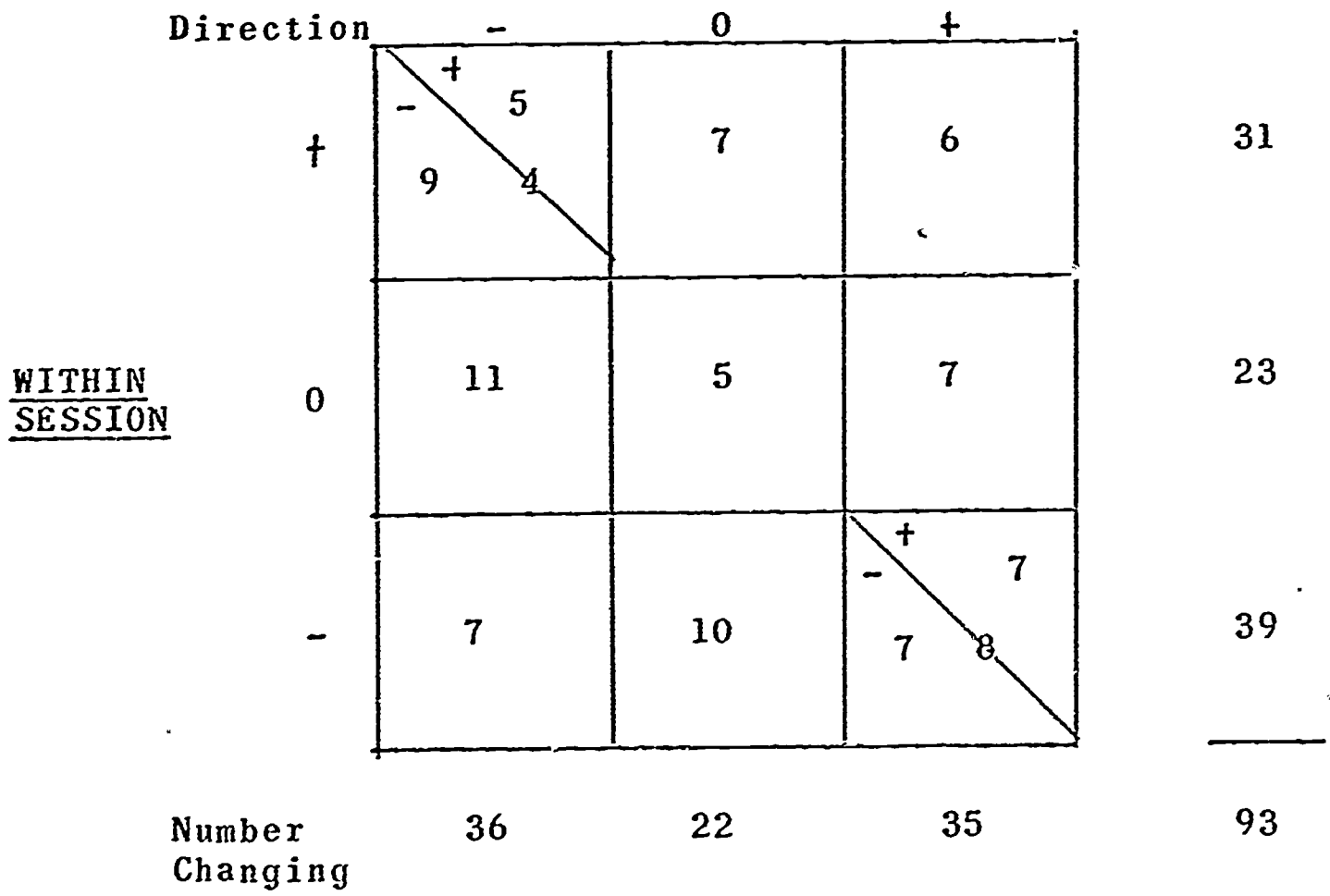
FIGURE 6 : DIRECTION OF CHANGES IN SCALE AP
WITHIN SESSION AND DURING FOLLOW UP (BETWEEN) PERIOD



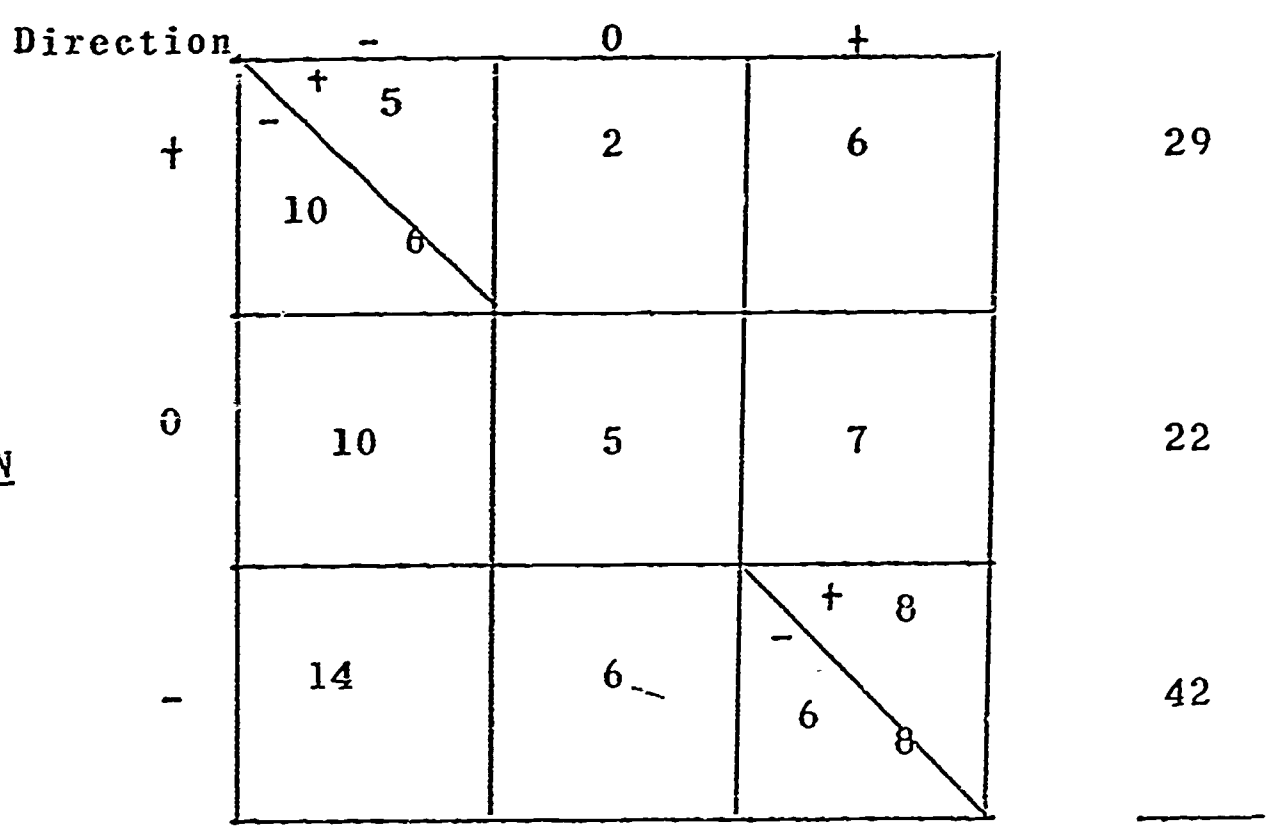
Overall + 27
0 16
− 50

FIGURE 7 : DIRECTION OF CHANGES IN SCALE BC
WITHIN SESSION AND DURING FOLLOW UP (BETWEEN) PERIOD



Overall + 32
0 17
- 44

FIGURE 8 : DIRECTION OF CHANGES IN SCALE DE WITHIN SESSION AND DURING FOLLOW UP (BETWEEN) PERIOD



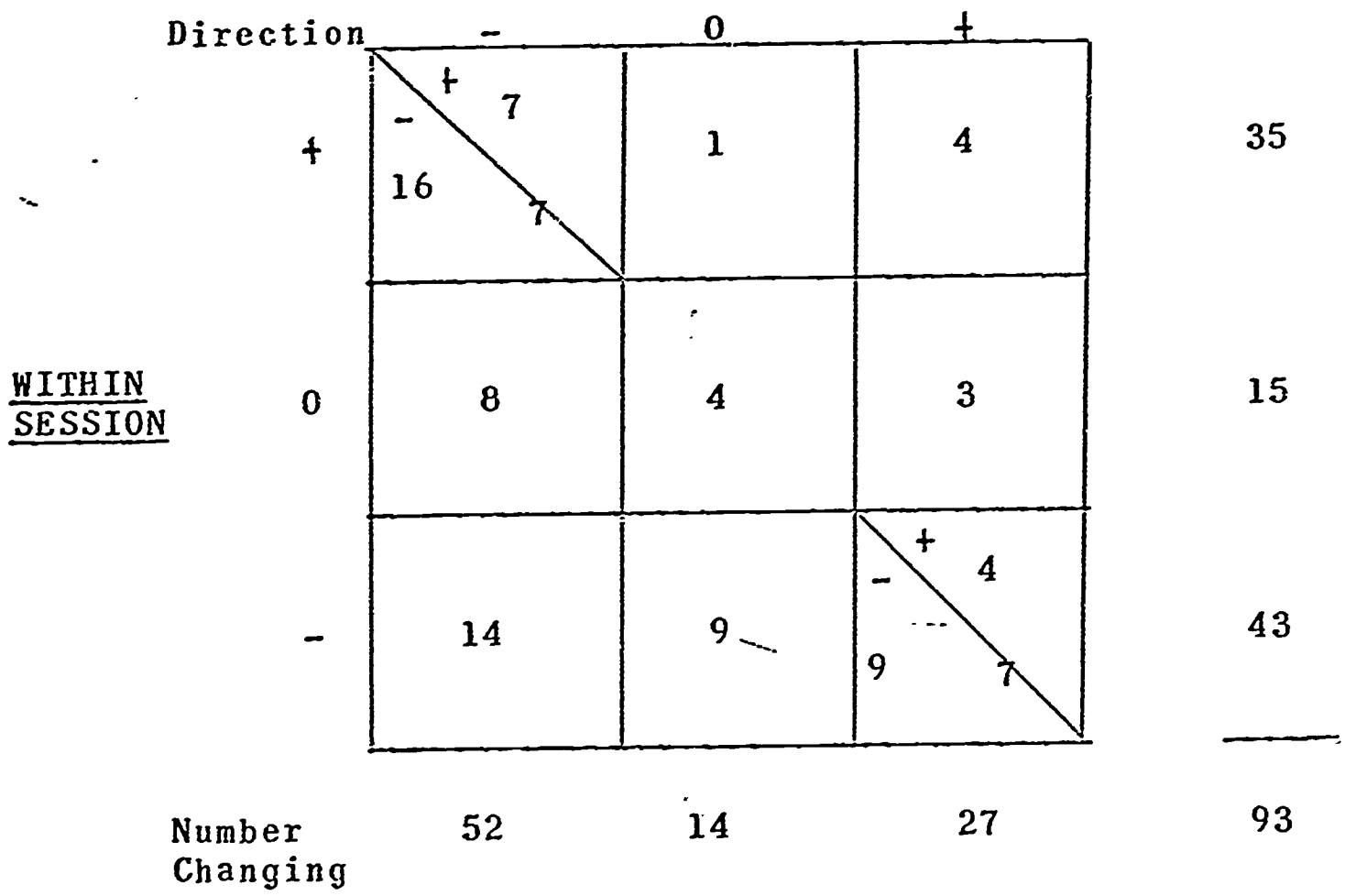
Overall + 28
0 19
- 46

FIGURE 9 : DIRECTION OF CHANGES IN SCALE FG
WITHIN SESSION AND DURING FOLLOW UP (BETWEEN) PERIOD

		BETWEEN			
	Direction	−	0	+	
WITHIN SESSION	+	+ − 4 5 6	5	7	27
	0	14	6	5	25
	−	13	10	+ − 7 7 4	41
Number Changing		42	21	30	93

Overall
+ 28
0 16
− 49

FIGURE 10: DIRECTION OF CHANGES IN SCALE HI
WITHIN SESSION AND DURING FOLLOW UP (BETWEEN) PERIOD



Overall + 19
0 18
- 56

FIGURE 11: DIRECTION OF CHANGES IN SCALE JK WITHIN SESSION AND DURING FOLLOW UP (BETWEEN) PERIOD

		BETWEEN			
Direction		−	0	+	
WITHIN SESSION	+	− + 18 2 6	3	3	32
	0	12	4	4	20
	−	12	12	− + 10 4 3	41
Number Changing		50	19	24	93

Overall
+ 16
0 13
− 64

FIGURE 12: DIRECTION OF CHANGES IN SCALE LM
WITHIN SESSION AND DURING FOLLOW UP (BETWEEN) PERIOD

		BETWEEN			
	Direction	−	0	+	
WITHIN SESSION	+	+ − 9 13 8	4	6	40
	0	10	4	4	18
	−	13	5	+ − 5 7 5	35
	Number Changing	53	13	27	93

Overall	+	28
	0	17
	−	48

FIGURE 13: DIRECTION OF CHANGES IN SCALE NO WITHIN SESSION AND DURING FOLLOW UP (BETWEEN) PERIOD

WITHIN SESSION \ BETWEEN	−	0	+	
+	+ − 6 12 4	5	5	32
0	11	2	3	16
−	20	3	+ − 7 10 5	45
	53	10	30	93

Number Changing

Overall + 26
0 11
− 56

FIGURE 14: RESULTS OF PREDICTION
OF OVERALL CHANGES IN SCALE AP

MULTIPLE R = .57 STANDARD ERROR OF ESTIMATE = 2.15

	VARIABLES	COEFFICIENTS (BETA)
1.	AP Pretest	-.43
2.	Group	1.20
3.	Number of College Years	-.84
4.	Number of Non Teaching Years	.06

CONSTANT = 4.02

		PREDICTED		
	Direction	-	+	
REAL	+	12	15	27
	0	9	7	16
	-	41	9	50
				93

CORRECT PREDICTIONS: 41 of 50 who decreased
15 of 27 who increased

56 of 77 who changed
56 of 93 overall

FIGURE 15: RESULTS OF PREDICTION
OF OVERALL CHANGES IN SCALE BC

MULTIPLE R = .53 STANDARD ERROR OF ESTIMATE = 2.19

VARIABLES	COEFFICIENTS (BETA)
1. BC Pretest	-.57
2. Group	1.36
3. Number of Non Teaching Years	.08

CONSTANT = 2.21

		PREDICTED		
Direction		-	+	
REAL	+	13	19	32
	0	6	11	17
	-	34	10	44
				93

CORRECT PREDICTIONS: 34 of 44 who decreased
19 of 32 who decreased

53 of 76 who changed
53 of 93 overall

FIGURE 16: RESULTS OF PREDICTION OF OVERALL CHANGES IN SCALE DE

MULTIPLE R = .61 STANDARD ERROR OF ESTIMATE = 2.00

VARIABLES	COEFFICIENTS (BETA)
1. DE Pretest	-.48
2. Group	.96
3. Supplemental Salary	1.10
4. Number of Professional Years	.03
5. Number of CollegesYears	-.62
6. Number of Non Teaching Years	.05
CONSTANT = 3.62	

PREDICTED

Direction		-	+	
REAL	+	11	17	28
	0	9	10	19
	-	39	7	46
				93

CORRECT PREDICTIONS: 39 of 46 who decreased
17 of 28 who increased

56 of 74 who changed
56 of 93 overall

FIGURE 17: RESULTS OF PREDICTION OF OVERALL CHANGES IN SCALE FG

MULTIPLE R = .59 STANDARD ERROR OF ESTIMATE = 1.82

VARIABLES	COEFFICIENTS (BETA)
1. FG Pretest	-.58
2. Supplemental Salary	-.81
3. Number of Dependents	.29
4. Number of Professional Years	.02

CONSTANT = 1.23

		PREDICTED		
	Direction	-	+	
REAL	+	10	18	28
	0	10	6	16
	-	41	8	49
				93

CORRECT PREDICTIONS:
41 of 49 who decreased
18 of 28 who increased
59 of 77 who changed
59 of 93 overall

FIGURE 18: RESULTS OF PREDICTION OF OVERALL CHANGES IN SCALE HI

MULTIPLE R = .70

STANDARD ERROR OF ESTIMATE = 2.03

VARIABLES	COEFFICIENTS (BETA)
1. HI Pretest	-.45
2. Number of Professional Years	.04
3. Sex	-1.81
4. Number of Non Teaching Years	.09
5. Group	.72
6. Population	-.06
7. Supplemental Salary	.66
CONSTANT = .90	

PREDICTED

Direction		+	−	
REAL	+	7	12	19
	0	10	8	18
	−	52	4	56
				93

CORRECT PREDICTIONS: 52 of 56 who decreased
12 of 19 who increased

64 of 75 who changed
64 of 93 overall

FIGURE 19: RESULTS OF PREDICTION OF OVERALL CHANGES IN SCALE JK

MULTIPLE R = .63 STANDARD ERROR OF ESTIMATE = 1.69

	VARIABLES	COEFFICIENTS (BETA)
1.	JK Pretest	-.34
2.	Number of Professional Years	.03
3.	Sex	-2.05
4.	Number of Non Teaching Years	.11
5.	Supplemental Salary	1.02
6.	Group	.63
7.	Marital Status	.68
8.	Income	.12

CONSTANT = -.51

		PREDICTED		
Direction		-	+	
REAL	+	11	5	16
	0	11	2	13
	-	58	6	64
				93

CORRECT PREDICTIONS:
58 of 64 who decreased
5 of 16 who increased
63 of 80 who changed
63 of 93 overall

FIGURE 20: RESULTS OF PREDICTION
OF OVERALL CHANGES IN SCALE LM

MULTIPLE R = .62

STANDARD ERROR OF ESTIMATE = 2.38

VARIABLES	COEFFICIENTS (BETA)
1. LM Pretest	-.52
2. Number of Professional Years	.03
3. Number of Non Teaching Years	.08
4. Sex	-1.19
5. Supplemental Salary	.75
CONSTANT = 2.95	

PREDICTED

Direction		-	+	
REAL	+	10	18	28
	0	10	7	17
	-	42	6	48
				93

CORRECT PREDICTIONS: 42 of 48 who decreased
18 of 28 who increased

60 of 76 who changed
60 of 93 overall

FIGURE 21: RESULTS OF PREDICTION
OF OVERALL CHANGES IN SCALE NO

MULTIPLE R = .43 STANDARD ERROR OF ESTIMATE = 2.55

VARIABLES	COEFFICIENTS (BETA)
1. NO Pretest	-.37
2. Sex	-1.30
3. Population	-.07
4. Income	.18

CONSTANT = 1.78

PREDICTED

Direction		-	+	
REAL	+	18	8	26
	0	7	4	11
	-	52	4	56
				93

CORRECT PREDICTIONS: 52 of 56 who decreased
8 of 26 who increased

60 of 82 who changed
60 of 93 overall

TABLE 26

FREQUENCY OF OCCURRENCE OF PREDICTOR VARIABLES
IN MULTIPLE REGRESSION EQUATIONS
FOR THE LEARY INTERPERSONAL CHECKLIST
AND DIRECTION OF WEIGHT

	VARIABLES	OVERALL	WITHIN SESSION	POST SESSION
1.	Age			+++++
2.	Marital Status	+	++	-
3.	Sex	----	----	+-
4.	Professional Years	+++++		+++-
5.	Teaching Years			
6.	Non Teaching Years (Administrative)	++++++	+++	++
7.	College Years	--	+++-	----
8.	Income	++	----	+++
9.	Number of Dependents	+		
10.	Population of Town	--	-	-
11.	Supplemental Salary	+-+++	++++++	---
12.	Group	+++++	-	+++++
13.	Pretest Raw Score	--------	--------	-------

FACTOR ANALYSIS

It has been mentioned earlier that the changes observed as a result of the administration of the POI took place immediately after the two week training period. As compared to this, the changes observed on the basis of the Leary Interpersonal Checklist were evidenced between the first and the third testing, i.e. were noticable six months after training.

These results can be interpreted by saying that different kinds of behaviors are changed as a result of exposition to Human Relations Training. In order to gain more definitive knowledge of these behaviors, it was decided to factor analyze the pretest scores of all the subscales of the POI and the Leary Interpersonal Checklist.

Thurstone's (17, 18) centroid method of factoring using orthogonal rotations was used. A twelve factor solution was obtained. Table 27 on page 74 lists the factor loadings of the four main factors obtained by this analysis. The rest of the factors obtained will not be listed here, as their factor loadings are very low and hence are considered unimportant.

The four factors reported in Table 27 page 74. can be interpreted as follows:

FACTOR A: It will be noticed that seven POI subscales (listed on Table 27) have high loadings on this factor. It seems that there is a common personality trait which is responsible for one's time competence, existentiality, feeling reactivity, self-acceptance, acceptance of aggression, capacity for intimate contact and a health balance between inner directedness and other directedness as defined by Shostrom (12). All the personality characteristics mentioned in this paragraph are attributes of self-actualization according to Shostrom and hence Factor A might be called a factor of self-actualization. It seems that behavior which characterizes this trait changes as a result of Human Relations Training immediately after exposition to such a training.

FACTOR B: We notice that the Leary Interpersonal Checklist scales have high factor loadings on this scale. The HI scale has a loading of .59768, the JK scale has a loading of .73504, the LM scale has a loading of .63124 and the NO scale has a loading of .59327. According to the Interpersonal Diagnosis Multilevel Personality Pattern of Leary (7), these subscales are close together in the circle describing the personality configuration.

This factor can be interpreted by saying that there seems to be a common personality trait which is responsible for a person being self-effacing and masochistic, and his being docile, dependent and a clinging vine. Strangely enough, the same personality trait seems to be responsible for a person's being too cooperative and overconventional. The same trait seems to be responsible for a person who spoils others with kindness, is too willing to give to others and one who is overprotective of others and is generous to a fault. It seems that the kinds of behavior mentioned above are modified not immediately after Human Relations Training (like Factor A) but a change in them is noticed after a lapse of time (i.e. approximately six months).

FACTOR C: It is evident from Table 27 that two subscales of the POI get high factor loadings on this factor, namely T_C and T_I.

This factor can be interpreted by saying that the Time Ratio (page 15, 12) as defined by Shostrom is dependent on a personality trait which has little in common with the kinds of behaviors described under Factor A above. Since Time Ratio is quite important in the concept of self-actualization, it can be said that this factor represents another facet of self-actualization which is not related to Factor A. The kinds of behavior assessed by this factor is modified immediately after Human Relations Training.

FACTOR D: Leary's AP subscale has a loading of .52055 on this factor, and we also notice that the POI SAV subscale has a factor loading of .60042; POI Sr subscale has a factor loading of .55889 and the POI Sy subscale has a factor loading of .52078.

It seems that there is a personality trait which is present in a person being managerial-autocratic (pg 25); and the same trait seems to be responsible for a person's synergy, self-regard and self-actualizing value (pg. 12). In other words, there seems to be a basic personality characteristic which operates in a person's being a good and forceful leader, and this characteristic seems to play a part in a person's ability to like oneself because of one's strength as a person; and a person's ability to hold and live by values of self-actualizing people and his ability to see opposites of life as meaningfully related. Again this factor seems to be measuring another facet of self-actualization. Some of the behaviors assessed by this factor (subscales AP and Sr) seem to change as a result of Human Relations Training after a lapse of time as compared to Factor A where behavior changes were noticed immediately after the end of training.

TABLE 27

RELEVANT FACTOR LOADINGS OF POI AND LEARY INTERPERSONAL CHECKLIST SUBSCALES

FACTOR A		FACTOR B		FACTOR C		FACTOR D	
VARIABLE	LOADING	VARIABLE	LOADING	VARIABLE	LOADING	VARIABLE	LOADING
POI-I Scale	.81164	Leary-HI Scale	.59768	POI-T_C Scale	.84151	Leary-AP Scale	.52055
POI-Ex Scale	.72489	Leary-JK Scale	.73504	POI-T_I Scale	.82331	POI-Sav Scale	.60042
POI-Fr Scale	.70437	Leary-LM Scale	.63124			POI-Sr Scale	.55889
POI-Sa Scale	.54970	Leary-NO Scale	.59327			POI-Sy Scale	.52078
POI-A Scale	.61585						
POI-C Scale	.70150						
POI-O Scale	.80731						

*This Table gives factor loadings whose value is above .5. Factor loadings less than .5 have not been included.

5. Motivation Analysis Test

The Motivation Analysis Test (henceforth, MAT) has been developed by Cattell (3) and has been used extensively in education research (2,3). MAT concentrates on ten psychologically meaningful unitary motivation systems, established by comprehensive and objective factor analytic research. According to Cattell (4), the ten dynamic structures in MAT were chosen carefully to give the most dynamically, clinically useful measures among the roughly twenty dynamic factors which research to date has established to be representative and comprehensive in coverage of adult motivation. Five of the dimensions are basic drives (technically ergs), and five are sentiment structures. Cattell uses the term erg instead of drives because the latter term drags in all manners of clinical and other assumptions about "instincts" etc.; whereas ergic patterns according to Cattell are experimentally demonstrable. In popular terms an erg is a drive or a source of reactive energy directed towards a particular goal, such as fear, mating, assertiveness, etc. By contrast a sentiment is an acquired aggregate of attitudes, built up by learning and social experience, but also like an erg, a source of motivation and interest. Both ergs and sentiments, though essentially common in form, are developed to different degrees in different people. Table 28 briefly describes the ergs and sentiments that are measured by MAT.

TABLE 28

THE TEN DYNAMIC STRUCTURES MEASURED IN MAT

	Title	Symbol on the Records	Brief Description
ERGS (Drives)	Mating Erg	(Ma)	Strength of the normal, heterosexual or mating drive.
	Assertiveness Erg	(As)	Strength of the drive of self-assertion, mastery, and achievement.
	Fear (Escape) Erg	(Fr)	Level of alertness to external dangers [This is not anxiety; see (34) and p. 22]
	Narcism-comfort Erg	(Na)	Level of drive to sensuous, indulgent satisfactions.
	Pugnacity-sadism Erg	(Pg)	Strength of destructive, hostile impulses.
SENTIMENTS	Self-concept Sentiment	(SS)	Level of concern about the self-concept, social repute, and more remote rewards.
	Superego Sentiment	(SE)	Strength of development of conscience.
	Career Sentiment	(Ca)	Amount of development of interests in a career.
	Sweetheart-spouse Sentiment	(Sw)	Strength of attachment to wife (husband) or sweetheart.
	Home-parental Sentiment	(Ho)	Strength of attitudes attaching to the parental home.

MAT data was analyzed to answer the following questions:

1. Are the experimental group changes significantly different than the control group changes?

2. What role do the following variables play in MAT changes in the experimental group:

a. Age
b. Sex
c. Marital Status
d. Years of Teaching
e. Years in Profession
f. Income
g. Church Affiliation
h. Type of Group, i.e., a typical T-group vs. a back home group

The results of this analysis will be presented with reference to the above questions.

A comparison of pretest MAT scores of the experimental and control groups indicated that the difference between these two groups were not significant; hence, they can be considered comparable.

An analysis of variance was undertaken to study the differences between the first and the third testings of the experimental group. This analysis endeavored to find out if the change scores (between the first and the third testings) discriminated between the experimental and control subjects.

The overall F ratio as a result of this analysis is 2.3606 which is significant at better than the .01 level. This indicates that as a result of exposition to Human Relations Training the experimental group changed significantly as compared to the control group.

The F ratio for changes in the Career Sentiment between the experimental and the control group was 10.36 which is significant at better than the .01 level. This would imply that the experimental group developed more interests in their career both at a conscious and unconscious level (as measured by MAT) as a result of their exposition to Human Relations Training.

The F ratio for a similar change for the Superego Sentiment is 3.33 which is significant at the .05 level. This can be interpreted by saying that the experimental group developed their strength of conscious as a result of the Human Relations Training.

The F ratio for change in Self Concept Sentiment was 4.37 which is significant at better than the .05 level. This implies that the experimental group developed more concern for their self and became more sensitive to remote rewards.

The F ratio for Pugnacity-Sadism Erg was 4.54 which is significant at better than the 5% level. This can be interpreted by saying that the Human Relations Training resulted in the lessening of the destructive, hostile impulses in the experimental group.

The F ratio (5.90) was significant at the 2% level of confidence for Assertiveness Erg. This can be interpreted by saying that the experimental group became more self-assertive and achievement oriented as a result of exposition to Human Relations Training.

The following conclusions can be drawn from the analysis of variance that was completed to study the effects of Human Relations Training on the variables measured by MAT in terms of sex. All the changes studied were between the first and third testing for the experimental group.

1. It seems that all members become less oriented towards home and parents as a result of the training experience, but men do so more than women. The F ratio for sex difference is 2.02 which is significant at better than the .05 level.

This change in orientation seems to occur at the unintegrated (unconscious) level as measured by MAT (pg33). Due to the very powerful group norms in a T-group, this change in orientation is not surprising to the present writer. It is of interest to note that it seems to persist months after the intensive training (third testing was done after six months of the two week intensive training).

2. Men seem to become more narcissistic as a result of exposition the Human Relations Training. The F ratio in this context was 8.62 which is significant at better than the .01 level. This finding can be interpreted by saying that narcissism probably goes hand in hand with increased self insight which results in most Human Relations Training situations.

3. Interestingly enough, women seem to become less superego oriented than men. The F ratio for unintegrated superego changes was 2.61 which is significant at better than the .05 level.

4. Men become more spouse-sweetheart oriented as a result of exposition to Human Relations Training. The F ratio for Sweetheart-Spouse Sentiment (pg.76) was 4.45 which is significant at better than the .05 level.

5. It seems that men become more career oriented (F = 3.30) than women as a result of training.

The following conclusions are of interest so far as marital status and MAT changes for the experimental group (between the first and third testings) are concerned.

1. Married persons seemed to decrease in their career interest as measured by the changes in Career Sentiment (pg.76). The F ratio was 5.67 which is significant at better than the .05 level.

2. Spouse-sweetheart interest increased in married persons as compared to nonmarried persons (F ratio = 4.37 - significant at better than the .05 level).

The following conclusions can be drawn about the role of age and MAT changes.

1. Older persons seem to become less narcissistic than younger ones (F ratio = 8.62 - significant at better than the .01 level).

2. Self Sentiment changes are less in older persons than in younger ones (F ratio = 8.00 - significant at better than the .01 level).

3. Mating (pg.76) increases less in the older person (F = 3.17 - significant at better than the .05 level).

4. Interestingly enough, older persons become more pugnacious (F for Pugnacity-Sadism Erg = 5.10.- significant at better than the .01 level).

5. Home Parental Sentiment (pg.76) decreases more among older persons (F ratio = 10.61 - significant at better than the .01 level).

As regards the number of years of teaching experience, the following results are of interest.

1. Persons who have taught longer increase in Narcism-Comfort Erg (pg 76) least. The F ratio for this was 8.51 which is significant at better than the .01 level of confidence.

2. Pugnacity-Sadism Erg (pg 76) increases in those with longer teaching experience as a result of their exposition to the Human Relations Training program. The F ratio obtained was 8.166 which is significant at better than the .01 level.

3. The strength of Home-Parental Sentiment (pg 76) decreases more in those persons who have taught longer. The F ratio obtained was 8.247.

4. Fear Erg (pg 76) decreases more in persons who have taught longer. This difference was significant at the 5% level (F ratio = 2.20).

5. Persons with longer teaching experience become more assertive. The F ratio value was 2.218 which is significant at the 5% level of confidence.

The relationships of years in profession to MAT changes are similar to the relationships described above with respect to number of years of teaching experience.

MAT changes do not seem to relate to income level. Similarly, church affiliation does not seem to have any consistent relationship to MAT changes in the present analysis.

As regards the type of group to which a person belongs, the following conclusions can be drawn from the present analysis.

It seems that as a result of Human Relations Training, groups that were composed of persons who had known each other prior to the start of the training developed a greater interest in their careers (F ratio for career change was 2.58 which is significant at the 5% level) as compared to groups that were composed of persons who did not know each other before the start of the training.

Persons in "back home" groups gained more in Self Sentiment. The F ratio in this case was 2.76 which is significant at better than the .05 level.

It is interesting to note that persons in a typical T-group (i.e. a group composed of strangers) became more assertive than persons in the "back home" group. The F ratio in this case was 3.87 which is significant at better than the .05 level. It can be hypothesized that the relative anonymity afforded by a typical

T-group probably gives an individual a greater chance to exercise self-assertion as compared to a group situation where one is well-known to others and where one's role in the group has been structured before one comes into the group.

EXTERNAL CRITERIA

1. Ratings by Principals

Ryan's (11) characteristics of Teachers Rating Scale was used to get ratings by principals of two groups of teachers. One group (called the experimental group) was comprised of teachers who had been exposed to Human Relations Training. The other group of teachers (called the control group) were those individuals who were comparable to the experimental group but were not exposed to Human Relations Training.

In application, the Characteristics of Teachers Rating Scale resulted in difficulties as far as the statistical analysis was concerned. Designed as a forced choice instrument in which the rater was to check either a positive or negative statement about the teacher being rated, the results showed that the raters were extremely reluctant to check the negative items of the scale and left many items blank. This caused the analysis to be somewhat indirect in that all subjects were not rated on exactly the same number of items. For the positive statements the difference between the experimental and control groups was significant at 10% level. This would indicate that there is a tendency for the teachers exposed to Human Relations Training to be viewed positively by the principals. There was no difference between the experimental and control groups so far as the negative statements are concerned. A significant difference ($p < .01$) was found in the number of blanks per questionnaire, with the experimental group receiving fewer blank ratings. Table 29 (page 84) gives details of this analysis.

These results may have resulted from several sources, e.g. a bias of the raters in favor of teachers known to have been in a training program, or on the other hand, a greater ease in rating the experimental group.

An additional analysis of the results accounting for the unequal numbers of items for each subject was performed by analyzing the results item by item in terms of which group has the higher percentage of members checked positively for a given item. This analysis showed that on twenty of the twenty-five items, a higher percentage of the experimental group was checked positively. Table 30 and Figure 22 (page 85-86) give details of this analysis. This difference was found statistically significant ($p < .001$), using the Sign test (13), suggesting that indeed the experimental group as a whole was rated more favorably by their immediate supervisors.

The implication of these findings seems to be that teachers exposed to Human Relations Training are viewed more positively by their principals and supervisors.

TABLE 29

Principals' Ratings of
Teachers Characteristics

	EXPERIMENTAL GROUP	SIGNIFICANCE OF DIFFERENCES	CONTROL GROUP
No.	107		55
No. Positive Statements	Mean - 19.36 S.D. - 5.49	NS $p < .10$	16.96 6.56
No. Negative Statements	Mean - 2.20 S.D. - 3.18	NS	2.42 4.10
No. Blank Items	Mean - 3.39 S.D. - 4.29	$p < .01$	5.66 4.28

TABLE 30

Item Analysis of Principals Rating of Teachers, Per Cents of Teachers Receiving Positive Ratings

ITEM	EXPERIMENTAL GROUP PER CENT POSITIVE	CONTROL GROUP PER CENT POSITIVE	SIGN OF DIFF
1	83	82	+
2	94	82	+
3	80	60	+
4	72	78	-
5	73	53	+
6	64	49	+
7	87	93	-
8	83	78	+
9	84	84	0
10	90	87	+
11	76	76	0
12	85	69	+
13	81	71	+
14	52	58	-
15	91	84	+
16	67	56	+
17	79	44	+
18	73	53	+
19	73	45	+
20	69	49	+
21	76	67	+
22	71	55	+
23	75	69	+
24	89	85	+
25	68	65	+

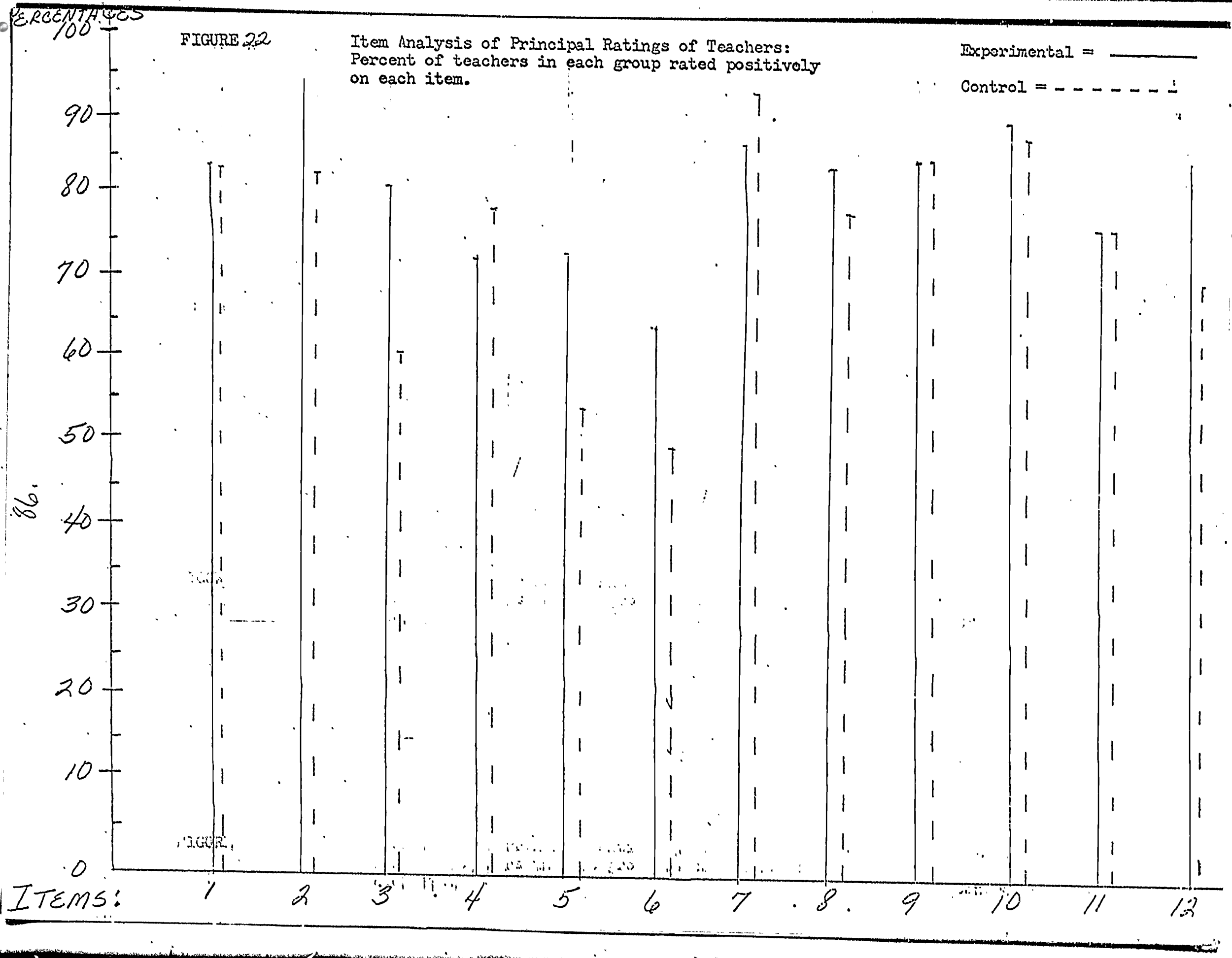
Sign test 20+, 3-, $p < .001$

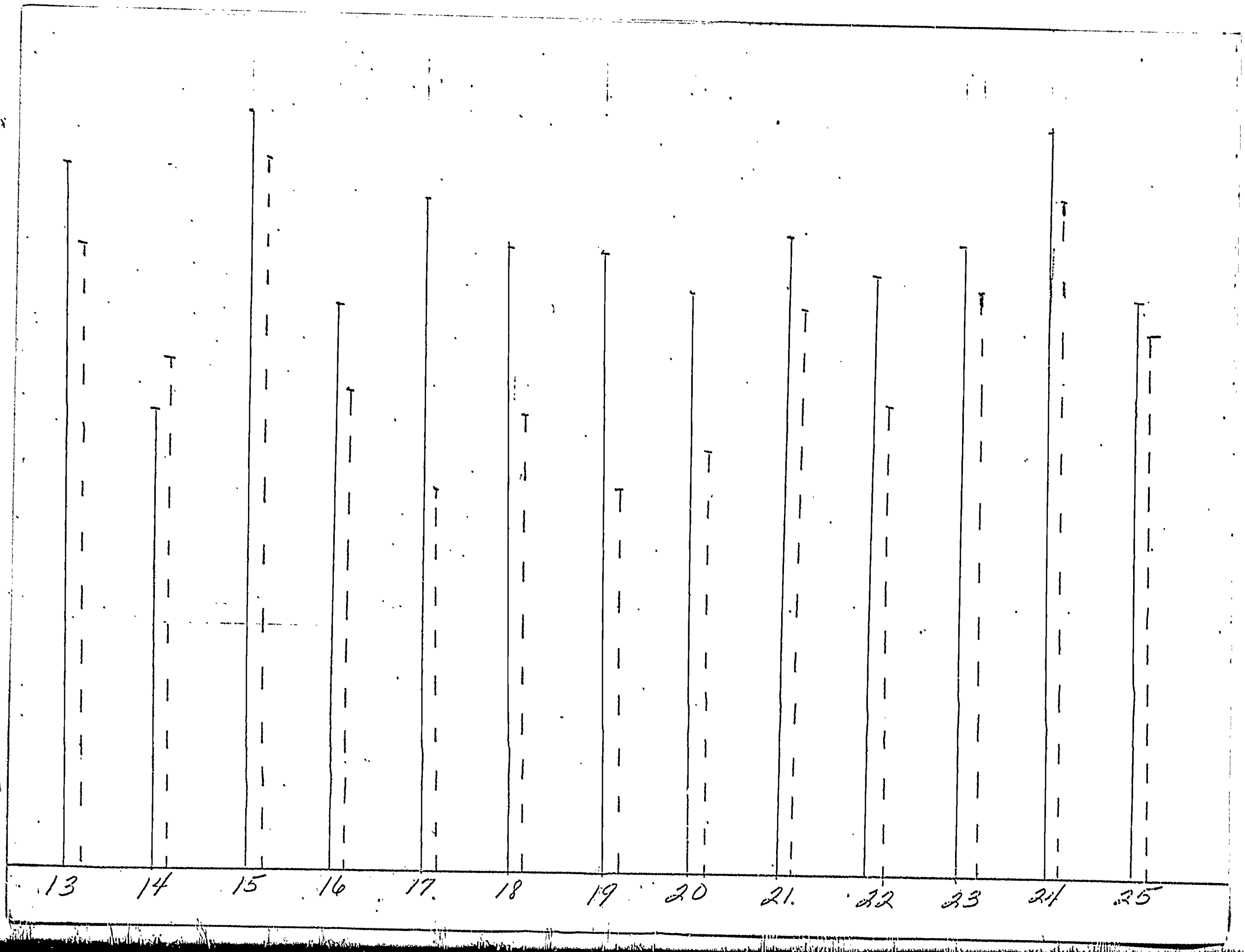
FIGURE 22

Item Analysis of Principal Ratings of Teachers: Percent of teachers in each group rated positively on each item.

Experimental = _____

Control = - - - - - - -

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2. The Picture Test

One of the external criterion measures to assess the effectiveness of the Human Relations Training was a test given to the students taught by teachers who had undergone the training. A group of students similar in background and age, etc., was used as a control group.

The students examined were 110 in all. Sixty of these students had been taught by teachers who had been through the Human Relations Training and fifty of those who had not been through such training. The sixty students that comprised the experimental group consisted of eleventh and twelfth graders, 32 males and 28 females. Their ages ranged from 17 to 20. The control group similarly consisted of twelfth graders, 50 in all, 22 of whom were male and 28 female. Their age range also was from 17 to 20. The students came from similar socio-economic backgrounds and from school districts which were regarded as constituting similar groups in terms of most major dimensions.

The test consisted of six pictures, five of these chosen from the Michigan Picture Test (2) and one from the Thematic Apperception Test (9). The first picture depicted a classroom scene of a boy standing next to the teacher's desk with the teacher in her chair and other children in the classroom. The second picture depicted a boy standing beside a desk behind which an older man sat. The third picture depicted a girl sitting alone in an otherwise vacant classroom. The fourth picture depicted four figures in the middle of the road supposedly walking down that road. A fifth picture was that of a streak of lightning in the sky during the dark night with houselights and other clues of a town. The last picture was a blank card from the Thematic Apperception Test (9). The instructions given were those used for the Thematic Apperception Test (9), namely that the students had to write stories centering around the pictures and state the present, the past, the future and the feelings of the characters in the story.

The responses to these cards were examined in order to get an assessment of the students' attitudes towards the school situation as such. More specifically, assessment was made of the students' perception of themselves in their interaction with their teachers, their perception of the teachers, their general attitude towards the school and their attitudes towards their own role within the context of the school situation. It was felt that the blank card mentioned above gave indication of the general attitude of the student towards the school, their teacher, the testing situation as such and was symbolic of the student's overall reaction to their general role as a student. Most of these assessments will be discussed below.

The responses of the students were examined at great length in order to get some idea of how the students perceive themselves within the context of the school situation. The pictures invariably brought out the theme of a school in progress. The classroom situation depicted in Card 1, the second Card which almost invariably brought the theme of the principal and the student, Card 111 which depicted the child alone in a classroom as well as Card 1V with the students walking down, in almost all cases with very few exceptions, brought forth themes related to school life. The last two cards sometimes did the same thing indirectly. On the basis of these responses the contents of the themes presented were analyzed and a frequency count made of the number of times a theme was expressed as an indication of the student's perception of his own role. As Table 3/ indicates, there is a marked difference between the two groups. Whereas 70% of the experimental group consisting of a total of sixty students perceived the student's role as being positive only 32% of the control group with its total of fifty did so. This implied that the students saw themselves as learning, trying to understand, expressing some sense of adequacy as well as a sense of importance about what they did. These responses ranged from the student's perception of indulging in activities of learning, etc., to an expression of their own adequacy and wish for improving themselves. Card 111 depicting the adult man with a smaller child was almost invariably seen as a case of some deviant behavior on the child's part. Both the control and the experimental groups tended to perceive this as a case of a child faced with having violated some rule of the school. The difference is marked in the reaction of the students to the situation and gave an indication of how they deal with it. 68% of the experimental group felt that the hero had done something wrong but that the future would bring forth a correction of this misdeed usually through punishment or related intermediate methods used by the authority concerned. As compared with this, only 26% of the control group expressed such sentiments. In these same themes the respondents expressed feelings of feeling bad, scared, or made some kind of a self-depreciatory remark. Here the differences are not as marked but still continue to be present so that 40% of the experimental group and 62% of the control group expressed these feelings. The theme of deviant behavior, as mentioned above, was perceived by 87% of the experimental group and 94% of the control group. Several students expressed the idea of either playing "hooky" or feeling revengeful, resentful and angry at the teacher. The differences here again are in the predicted direction so that 27% of the experimental group and 80% of the control group feel that such a solution is the best adjustment. The intensity of the children's negative feelings in this context are quite marked. For the control group, it took strong forms such as "hits the teacher, will get even with her someday," "the boy has been unjustly sent to the principal," "the cat (the boy) in the leather jacket may at any moment pull a knife on the guy with the tie

(teacher)," or "these children are mad at their teacher" and for the experimental group examples were of "the child's feelings are anger at her teacher," "some kid beat the heck out of her teacher," and "the boy probably tells the teacher he was a nasty old man." In spite of the specific test directions not all the students made any statement about the future but some of the respondents did so. Here again, the differences hold up though they are not as marked as the above mentioned dimensions. Thirty-six per cent of the control group felt that their future was bad or uncertain whereas only 10% of the experimental group said so. As opposed to this, 40% of the experimental group mentioned that their future was either good or to be better and only 32% of the control's said the same thing.

Linked closely with the student's perception of his own role in this context was an assessment of a general attitude of how helpless or effective a student feels. This attitude does not give the content, i.e. the helplessness is not necessarily an indication of complete compliance nor a sense of effectiveness, an indication of very positive attitudes. The attitude refers to the degree to which the student felt that he could do something about his situation or felt that he was completely at the mercy of the forces around him. The students' responses were rated along a five-point scale ranging from the extremely internally oriented to an extremely external orientation. Neither ends of the five-point scale, namely the completely internal orientation nor the completely external orientation, were present frequently. In fact only two of the students from the experimental group expressed an extremely internal orientation. These were therefore regarded as part of a tendency towards an internal orientation. The other categories were a mixed orientation and a tendency towards an external orientation. The last category, namely an extremely external orientation, was dropped from the statistical analysis since none of the respondents could be classified as such. A chi square test was run on the results of these which was significant at more than the .02 level. The experimental group as the data (Table 32) shows tends to be more internally oriented and the control group more externally oriented. There seemed to be no difference in the groups as far as the mixed orientation, namely neither internal or external orientation, was concerned. A look at the responses suggested that some of the internal orientation also involved negative attitudes towards the teacher where the student feels that he will get even with the teacher or that he will do something to irritate her. This was more prominant in the control group than in the experimental group. As Rotter (20) has pointed out, the importance of this attitude in the general adjustment of a person in his life is extremely important. It may well be assumed that those students who feel completely at

the mercy of the social forces surrounding them, namely the school situation, are more liable to have difficulty in making affective adjustment towards life. As has been mentioned above, some of the internally oriented responses indicate antisocial behavior which is very likely to lead the student into conflict with the social forces later on, but it is apparent that if a person feels extremely helpless, there is very little he is liable to do or be able to take the responsibility for his actions since he does not see himself as emanating any effective measures on his own.

The next major dimension for which the responses were assessed was the perception of the teacher. As the Leary Checklist (pages 99) showed, the students had some differences in their overt perception of their teachers though generally they tended to be rather uncomplimentary. The picture test being examined here showed somewhat more marked differences especially as far as the positive perception of the teacher was concerned. The positive perception involved seeing the teacher as a source of identification where she was fulfilling her chief function of being a teacher and was helpful, understanding and supportive. A negative perception consisted of such themes as the teacher being inadequate, boring or extremely punishing. A glance at Table 33 will show that 65% of the experimental group and only 30% of the control group expressed positive feelings towards their teachers. This is markedly more so than the results of the Leary Checklist suggested, and it may be pointed out that the picture test would be a stronger indication of the kind of identifications that accrue with the teacher than the overt verbal statements which the Leary Checklist brings forth. As far as the negative sentiments were concerned, there were again very marked differences in the perceptions of the two groups; 43% of the experimental group and 92% of the control group saw the teacher as punishing, as unjustly punitive or unfair. Some of these perceptions also involved seeing the teacher as inadequate and boring in person. As mentioned above, Card 11 invariably brought forth the theme of the principal talking to a student. There were less than ten respondents who saw the older person in the picture as representing either an uncle, a warden or some other authority figure. These responses were again sorted out into positive remarks about the principal or negative remarks about the principal. The experimental group had more or less the same amount of the two kinds of responses in the two categories, that is 38% of their remarks were positive and 42% were negative. In contrast with this, the control group showed a marked preference for negative remarks towards the principal so that 66% of the group saw the principal as being extremely negative and only 22% saw the principal as being positive. The positive remarks about the principal showed an indication

of a conviction that the principal must punish the child for his own future good or he was a source of a gratifying identification in some other way. At times this was brought forth in the theme of the principal trying to help the child see right from wrong or in generally counseling him for his own good. The negative remarks consisted of the principal being "mad, unfair, and extremely punitive."

Not every student made direct references to the school. The result is that we do not have responses of every child on a direct expression of their sentiments about school but only in some cases. Here again there is a marked difference between the two groups, 10% of the experimental and only 2% of the control expressed pleasant sentiments towards the schools and saw this as a worthwhile experience. In comparison with this, 18% of the experimental and 32% of the control saw the school as something to be avoided and as generally a very unpleasant part of their life.

The last dimension to be studied was the student's reactions to the Blank Card mentioned above. Since the Card asked for the student to make a story of his own, it brought forth a range of responses which were regarded as symbolic expression of their general attitude of their own role within the school situation. The responses ranged from extreme hostility towards the examiner to an expression of the bright future which lay ahead for the students as they left the school. It was felt that the positive responses in this case were a combination of the student's perception of his role within the school situation, his general attitude about how effective his own behavior could be in shaping his life as well as his general reaction to the teacher's role and other adult figures. Some of the students gave no response to the Card as such, however, they made some remarks so that their statement could be divided into a positive statement, a negative statement or a neutral statement. The positive remarks generally state that they could not see anything but they generally had a good feeling about the Card; the negative remarks stated that they saw nothing in the picture and made some hostile comment about being asked to do such a "stupid" thing. The neutral category consisted of remarks where the student gave no indication of his feelings about the Card either positive or negative. Some of the respondents proceeded to see something which ranged from a symbolic expression of their own future to a concrete picture. These could also be classified as being generally, positive, negative or neutral. Both sets of responses to the Blank Card were combined and a chi square computed for differences between the experimental and control groups. A look at Table 36 will show that the x^2 differences between these categories is 24.43 and for this size sample is significant at beyond the .001 level. A look at the data shows that here again the marked differences come from the positive and negative categories which contribute most of the difference. The differences again appear to be in the predicted directions so that the

experimental group tends to give more positive remarks as opposed to the control and fewer negative remarks as opposed to the control. The highest frequency is that of the negative remarks made by the control group.

In summary then, it is apparent that the students do not form dichotomous groups. They do tend to see themselves as being involved in deviant behaviors and perceive themselves as being in the wrong within the school context. It seems that both groups when shown the picture where the child is facing an adult, tend to see deviant acts where the child has done something wrong. Since the test was given in a school situation, it had all the associations of the school attached to it. The interesting comment to be made, however, here is that the interactions with the teacher do bring forth either completely negative or constructive responses to these situations. It can therefore be stated that obviously the teachers who have been through the Human Relations Training bring forth, in at least some of the students, a sense of identification with themselves as well as a sense of constructive action being available to the students within the total school situation. Since these are high school students who are at the threshold of graduation, it may logically be assumed that their attitude towards their teachers and the school are bound to effect their attitude towards the general adult society that they enter fully after their graduation. It is also apparent that it cannot be logically assumed that the control group consisted of students only with negative reactions, but that the teachers in these situations apparently failed to bring forth a positive interaction between themselves and the students.

It is apparent that if a student has been interacting with a teacher who has been through the Human Relations Training, he is more likely to be involved with such activities as learning, studying, preparing for the future, as feeling a sense of identity with the teacher whose punishing activities he perceived as being for his own good, as seeing the future to be good and as seeing his own actions to some extent being determined by himself than if he gets a teacher who has not had such training. The student may still manage to arrive at the same point as indeed some do, but apparently his interactions with the school environment tend to reduce the possibility of his being able to do so.

TABLE 31
PERCEPTION OF SELF

	Experimental				Control			
	Male	Female	Total	%	Male	Female	Total	%
Positive (Student Role & Adequacy)	18	24	42	70%	6	10	16	32%
Done something wrong (guilty); will correct	20	21	41	68%	4	9	13	26%
Feeling bad; scared; self-depreciatory remarks	17	7	24	40%	11	20	31	62%
Deviant behavior	26	26	52	87%	19	28	47	94%
"Laying out" Revengeful & angry at teacher	10	6	16	27%	15	25	40	80%
Future bad or uncertain	4	2	6	10%	7	11	18	36%
Future good or better	7	17	24	40%	6	10	16	32%

TABLE 32

INTERNAL - EXTERNAL ORIENTATION

	Experimental	Control	
Internal	28	11	39
Neither Internal or External	15	14	29
External	17	25	42
	60	50	110

$\chi^2 = 8.07$

p .02

TABLE 33

PERCEPTION OF TEACHER

	Experimental				Control			
Teacher	Male	Female	Total	%	Male	Female	Total	%
Positive	20	19	39	65%	3	12	15	30%
Negative	18	8	26	43%	23	23	46	92%

TABLE 34

PERCEPTION OF PRINCIPAL

Principal								
Positive	12	11	23	38%	2	9	11	22%
Negative	12	13	25	42%	17	16	33	66%

TABLE 35

PERCEPTION OF THE SCHOOL

School								
Pleasant	3	3	6	10%	0	1	1	2%
Unpleasant	5	6	11	18%	8	8	16	32%

TABLE 36

RESPONSE TO CARD VI (BLANK CARD)

	Experimental	Control	
Positive	25	6	31
Negative	9	29	38
Neutral	26	15	41
	60	50	

$\chi^2 = 24.43$

$p < .001$

3. Students Ratings of Teachers

Two comparable groups of high school students were selected for this part of the study. There were approximately 50 students in each group. One group (called the experimental group) was taught by teachers who had been exposed to Human Relations Training. The other group (called the control group) had students who were taught by teachers who had not been exposed to Human Relations Training. These two groups were asked to complete the Leary Interpersonal Checklist for themselves and for their teachers. The preliminary result of this comparison are presented below.

No significant differences were found between the two groups of students when their ratings of themselves were compared. This analysis, summarized in Table 37, was performed to insure that the two groups of raters were comparable. This allows any differences in the ratings of the teachers to be more likely related to the teachers' behavior than to biases in the samples of students.

By inspection, it can easily be seen that these students have a very uncomplementary view of teachers in general, whether they are the teachers who have had Human Relations Training or not. When the student raters' view of their teachers is compared with those teachers' view of themselves, gross discrepancies appear. (See Figure 1, 2, and 3, pages 31-33). The students seem to have in general a picture of teachers as hostile, authoritarian, rigid people with few of the saving graces of concern for others, love or modesty. This cultural stereotype (perhaps only an exaggeration of any adolescent's view of an adult authority figure) seems to pervade the ratings and to overpower the discrimination power of any given scale since no significant differences were found between the rating of the teachers of either group. (See Table 38, page 100).

However, close inspection of the mean ratings of the groups on the eight subscales (See Figure 3, page 33) shows that on the four more negative scales, the control group has higher scores and on the four more positive scales the experimental group has higher means. This observation was in the expected direction and was followed up by an analysis of the two groups using combined scores of what Leary (7) calls Dominance (Dom) and Love (Lov) derived from a differential weighting and combination of the various positive and negative subscales. This analysis is summarized in Table 39.

As can be seen from the analysis, the results are statistically significant and indicate that the teachers in the experimental group are seen as less hostile and more accepting than the control group teachers. This confirms the tendency noted in the initial analysis although the levels of the scores still indicate a very unflattering picture of teachers in general when viewed by their students. In any case, it can be surmised that teachers who have been exposed to Human Relations Training

seem to relate in a more positive manner to the students as compared to teachers who have not been exposed to such training.

TABLE 37
STUDENTS' RATINGS OF THEMSELVES
ON THE INTERPERSONAL CHECK LIST
Means and Significance Tests

Scale		Experimental Group	Control Group	Significance
AP	Mean	4.68	3.84	NS
	Variance	5.32	6.49	
BC	Mean	4.92	4.47	NS
	Variance	4.46	5.54	
DE	Mean	4.41	4.20	NS
	Variance	4.47	6.59	
FG	Mean	4.98	4.92	NS
	Variance	6.30	9.99	
HI	Mean	5.06	5.20	NS
	Variance	7.05	7.18	
JK	Mean	5.51	5.59	NS
	Variance	9.36	9.03	
LM	Mean	7.35	7.12	NS
	Variance	9.85	8.26	
NO	Mean	5.03	5.00	NS
	Variance	10.28	11.33	

TABLE 38
STUDENTS' RATINGS OF TEACHERS
ON THE INTERPERSONAL CHECK LIST
Means and Significance Tests

Teacher Ratings

Scale		Experimental Group	Control Group	Significance
AP	Mean	8.16	8.61	NS
	Variance	5.91	7.49	
BC	Mean	7.38	8.10	NS
	Variance	7.33	8.56	
DE	Mean	7.56	8.20	NS
	Variance	6.79	6.94	
FG	Mean	6.19	6.96	NS
	Variance	11.81	13.49	
HI	Mean	3.10	2.43	NS
	Variance	6.28	3.78	
JK	Mean	4.52	3.67	NS
	Variance	8.53	5.67	
LM	Mean	4.87	4.13	NS
	Variance	13.70	12.48	
NO	Mean	4.29	3.59	NS
	Variance	10.61	7.07	

TABLE 39

STUDENTS' RATINGS OF TEACHERS:
Dominance (DOM) and Love (LOV) Scores,**
Means and Significance Tests

Love (LOV)

	Experimental Group	Control Group	Significance*
Mean	-5.79	-9.52	
Variance	82.83	110.19	$p<.025$

Dominance (DOM)

	Experimental Group	Control Group	Significance*
Mean	5.73	6.92	
Variance	14.12	13.85	$p\cong.05$

*A one-tailed significance test was employed on both scores with the rationale that the experimental group would be higher on LOV and lower on DOM, which was confirmed.

**DOM = 0.7 (BC+NO-FG-JK) +AP-HI

LOV = 0.7 (JK+NO-BC-FG) +LM-DE

ANALYSIS OF FEEDBACK QUESTIONNAIRE

The following conclusions can be drawn from the responses to this questionnaire:

1. 92.5% of the participants felt that they were able to express their feelings more freely towards their colleagues as a result of participating in the two weeks' training program.

2. 90.5% felt that they wer able to express their feelings more freely towards their superiors.

3. 90% felt that they were able to express their feelings more freely towards their subordinates.

4. 89% felt that they were able to express their feelings more freely towards their relatives and friends.

5. 88% felt that they could convey their thoughts and intentions more clearly.

6. 75.5% felt that they had become more sensitive to the opinions of others about them.

7. 94.1% felt that they could understand other persons' point of view better regardless of whether they agreed with them or not.

8. 93.1% felt that as a result of this experience they could make themselves understood better.

9. 96.1% felt that they could work better as a member of a group when faced with new problems.

10. 92% felt that they could clarify the nature of the problem better and also come out with more effective solutions.

All the above percentages are statistically significant. Pages 103-106 contain the detailed Tables for the above conclusions.

TABLE 40

Question : Do you feel that you are able to express your feelings more freely towards your

a. Colleagues ____yes ____no
b. Superiors ____yes ____no
c. Subordinates ____yes ____no
d. Friends and relatives ____yes ____no

	YES #	YES %	NO #	NO %	UNANSWERED #	UNANSWERED %
A.	126	92.5	9	6.5	1	1
B.	123	90.5	10	7.5	3	2
C.	123	90	9	7	4	3
D.	121	89	12	9	3	2

TABLE 41

Question : Do you feel that you can convey your thoughts and intentions more clearly?

____yes ____no

YES #	YES %	NO #	NO %
120	88.0	16	12.0

TABLE 42

Question : Are you more sensitive to the opinions of others about you?

_____yes _____no

YES		NO		PARTLY	
#	%	#	%	#	%
103	75.5	32	23.5	1	1

TABLE 43

Question : Do you feel that you can understand other persons' points of view better regardless of whether you agree with them or not?

_____yes _____no

YES		NO	
#	%	#	%
128	94	8	6

TABLE 44

Question : Has this experience helped you in understanding other people better and making yourself understood?

_____yes _____no

YES		NO		MAYBE		UNANSWERED	
#	%	#	%	#	%	#	%
127	93	7	5	1	1	1	1

TABLE 45

Question : Do you feel that you can work better as a member of a group when faced with new problems?

_____yes _____no

a. Do you feel that you can clarify the nature of the problem better?

_____yes _____no

b. Do you feel that you can come out with more effective solutions?

_____yes _____no

	YES		NO		UNANSWERED	
	#	%	#	%	#	%
	130	96	6	4	0	0
A.	125	92	8	6	3	2
B.	125	92	8	6	3	2

TABLE 46

Question : If such a training program were offered again:

a. Would you like to participate again?

_____yes _____no

b. Would you like for your friends to participate?

_____yes _____no

	YES		NO		BOTH		NEITHER	
	#	%	#	%	#	%	#	%
A.	108	79.5	14	10.5	2	1	12	9
B.	120	88.5	2	1	0	0	14	10.5

Summary:

An effort was made to assess the effects of Human Relations Training on educators. This evaluation utilized internal and external criteria and matched control groups. Internal criteria were measured by the F Scale, the Personal Orientation Inventory, Semantic Differential, Leary's Interpersonal Checklist and the Motivation Analysis Test. External criteria were assessed by Ryan's Rating Scale, the Michigan Picture Test and the Leary Interpersonal Checklist.

Effects of Human Relations Training were studied by examining changes in each of these measures. The implications of the results obtained were discussed in detail.

It seems that educators exposed to Human Relations Training became less authoritarian and more self-actualized. They developed better interpersonal relationships in addition to developing greater self-insight and leadership skills.

A factor analysis was attempted to explain differential changes in behavior over a period of time. Four major factors were described in detail in this context. An effort was made to study the importance of variables like age, sex, marital status, years of teaching experience, church affiliation, etc. in Human Relations Training. The relevant importance of each of these in terms of the different measures was described. An attempt was made to predict changes as a result of Human Relations Training on the basis of prediction equations.

Educators exposed to Human Relations Training were perceived more positively by their supervisors as well as by their students. Students' perceptions of their teachers were described in detail.

It can be safely concluded that Human Relations Training can play a crucial role in the training of educators and thereby in the process of education. Not only does such training help them as persons, but it seems that this improvement in their selves is reflected in a positive manner in their external environment, namely the schools. One might hazard a guess that if all our educators could be exposed to such training at periodic time intervals, the whole process of education would function more efficiently and smoothly.

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