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ABSTRACT

This study tested the hypothesis that education students who participate in a structured human relations laboratory will demonstrate attitudes which are significantly different from those of students trained in a traditional approach to a general methods course. Ninety-one students in three sections were randomly assigned to an experimental section and a control section. Both sections were taught from common syllabi, and each instructor taught one experimental section and one control section. The following six constructs were identified, defined, and measured to test the hypothesis: (a) attitudes toward courses, (b) beliefs about the educative process, (c) interpersonal communication, (d) self-perception, (e) indirect verbal behavior, and (f) behavior in interpersonal situations. Data presented in the study supported the specific hypothesis relating to attitudes toward courses, and partially supported the hypothesis concerning beliefs about the educative process. The data did not, however, support the specific hypotheses concerning the other four constructs. Examined as a whole, the data was sufficient to reject the initial research hypothesis. (PB)

AN EXPERIENTIAL AND A TRADITIONAL APPROACH IN PREPARING TEACHERS

by

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INTRODUCTION

A recent trend in research on teaching has been toward examining teacher attitude and the effect of such attitudes on pupils. Various writers attest to the importance of teacher attitude and its consequent effect on what the individual does as a teacher (Gage; Hyman; Smith, 1971). Smith, Cohen, and Pearl were led to conclude that teacher attitudes are ". . . too important to leave the shaping of them to the accidents of human associations or to the interests of individual instructors. . ." (p. 92).

At the same time, extensive research and analysis of teaching has brought about considerable change in professional education courses at the undergraduate level. Through a variety of new instructional techniques, emphasis has continued to be placed on certain cognitive knowledge needed by teachers; in addition, affective learning has also been emphasized (Brown, Weinstein and Fantini). In one way or another, these new techniques are, in theory, designed to develop actual teaching skills, knowledge, or changed attitudes toward teaching and pupils, or both.

One of the major concerns of educational psychologists has been the emotional and social adjustment of pupils in the school setting (Gage). Concern for the uniqueness of the development of each individual is of greatest importance in education according to humanistic psychologists (Mason). In terms of the activities of teachers, this philosophy emphasizes the necessity for teachers to develop skills which promote their humanizing influences and functions with particular concern for interaction and interpersonal relationships between teachers and pupils as well as between teachers and their colleagues. To function humanistically, teachers must develop skills involving sensitivity to the feelings and needs of those with whom they interact while carrying out the instructional mission of the classroom (Crist).

Teachers' conceptions of their roles can be influenced extensively as demonstrated by the fact that ". . . teachers from one college differ markedly in such conceptions from those trained at another college with a different orientation toward the teacher's role" (Gage, p. 147). Teacher educators, then, should begin to develop teacher education programs which make it possible for the future teacher to become aware of his attitudes. In addition, the teacher training program should provide the student opportunities to learn about sensitivity to others and interpersonal relationships together with opportunities to think about and practice change behaviors (Levy; Smith, 1971).

Two basic approaches for changing teacher attitude are through information input and through experience (Loree). Human relations training has been developed as one technique to promote change in teachers' attitudes, and thus behavior, usually via a combination of experiences and information input within a laboratory setting. However, assessment of the results of human relations training as presented in the literature has been difficult, if not impossible, because of the meager detail available on the type of training involved. Such a situation has also precluded replication of the research.

A solution to determining the results of human relations training in terms of change in participants may be available in structured human relations laboratories which have been developed for use in teacher education programs. Previous evaluations of structured human relations laboratories in teacher education have usually focused on whether the teacher-in-training liked the experience or the appropriateness of the organization of the laboratory (Adamson; Jung, et al; Kampsnider). Unfortunately, there has been limited empirical research on such laboratories in an effort to determine what changes, if any, occurred in the knowledge, skills, attitudes, or behavior of the participants.

OBJECTIVES

In order to intellignetly revise teacher education programs, teacher educators need to know what changes occur in actual teaching skills, knowledge, or attitudes as a result of each component in the program. This study focuses on how to prepare teachers, with particular emphasis on the development of attitudinal and behavioral change as a result of participating in an education course. More specifically, the purpose of this study is to consider whether participation in a structured human relations laboratory in a pre-service teacher education program alters interpersonal communication in groups, individual self-perception, beliefs about the educative process, attitudes toward courses, verbal behavior in a teaching setting, and behavior in interpersonal situations.

The research hypothesis being tested is: Education students who participate in a structured human relations laboratory will demonstrate attitudes and behaviors which are significantly different from those of students trained in a traditional approach to a general methods course. Six specific hypotheses (see below) were derived from the research hypothesis to measure each of the constructs identified.

METHODS AND TECHNIQUES

The independent variable in this experiement was the instructional experience received by the student. In one case, education students participated in a laboratory experience while in the second instructional experience students received a more traditional approach to a general methods course. The post-test differences between the experimental and control groups on the variables used to measure the constructs served as the dependent variables.

A pilot experiment was conducted Fall Quarter, 1972, to determine what changes needed to be made in the original conception of the study. The experiment was then conducted in six of ten sections of Education 305A, Methods of Teaching

(Secondary), at Iowa State University during Winter Quarter, 1973. The students involved, after being initially assigned by computer to three sections of the course, were randomized into two sections meeting at the same time, an experimental and a control section. Each experimental section used the activities of the Interaction Laboratory for Teacher Development (Thiokol Chemical Corporation), adapted to fit the time constraints of the quarter system, and each control section used the traditional approach of lecture, class discussion, and student presentations. Data were gathered on forty-six students who completed the experimental treatment and forty-five students who completed the control treatment. Both the experimental and control sections were taught from common syllabi developed for each treatment and prepared by the three instructors involved. Each of the instructors taught one experimental section and one control section.

DEFINITION OF CONSTRUCTS AND DATA SOURCE

The six constructs on which the hypotheses of this study are based are defined below:

1. Interpersonal communication. The construct "interpersonal communication" is defined by Kurpius as "The ability to transmit attitudes, values, feelings, ideas, beliefs, and knowlege from one person to another" (p. 256). In this study, the definition is restricted to verbal transmission of "attitudes, values, feelings, ideas, beliefs, and knowledge from one person to another." This definition, then, indicates that the data used to measure the construct were acquired from verbal communication. For the purposes of this research, "interpersonal communication" is defined operationally in terms of the Hill Interaction Matrix, a process and outcome system which ". . . yields reliable quantitative indices of group interaction . . . (which) can be interpreted to produce meaningful and significant descriptions of total group operation so that groups can be systematically compared. . ." (Hill, p. 57). As originally developed, the Hill

Interaction Matrix ". . . was intended to measure objectively all kinds of groups. . ." (Hill, p. 5).

Each of the six groups participating in the experiment was video-taped in a discussion at the beginning and at the end of the quarter. Three graduate students were identified to rate a ten-minute segment of each taped discussion. The tapes were randomized prior to analysis and the raters were unaware of which tapes were of pre-test and post-test discussion, as well as which tapes were of experimental or control groups. Interrater reliability was determined by correlating the recordings of each interaction for each of the raters. A Spearman-Brown average inter-item reliability of 0.78 was determined. Rater reliability over time was determined to be 0.58. One pre-test tape and one post-test tape was randomly selected to determine intrarater reliability.

2. Self-perception. The construct which is usually used to define what a person believes himself to be is "self-concept." Because of the difficulty in defining this construct, the construct "self-perception" is used and is defined as ". . . what a person is willing or able to divulge . . ." about himself (Combs et al, p. 52). The definition then indicates that the data used to measure the construct are acquired from students' self-reports. For the purposes of this research, self-perception is defined operationally in terms of the scale scores Personal Adjustment, Intraception, Nurturance, and Abasement from Gough and Heilbrun's The Adjective Check List.

3. Beliefs about the educative process. The construct "beliefs about the educative process" is defined by Wehling and Charters as ". . . the principal dimensions of teachers' belief systems regarding the classroom teaching-learning process" (p. 7). For the purposes of this study, "teacher-education students' belief systems" is substituted for "teachers' belief systems" so the definition of beliefs about the educative process reads "the principal dimensions of teacher-education students' belief systems regarding the classroom teaching-learning process." This definition indicates that the data used to measure the construct

were acquired from self-reports of teacher education students. In this research, "beliefs about the educative process" is defined operationally in terms of the eight scale scores from Wehling and Charters' Teacher Conceptions of the Educative Process Questionnaire (TCEPQ).

4. Attitudes toward courses. The construct "attitudes toward courses" hinges basically on the definition of "attitude." Borg and Gall indicate that an attitude ". . . is usually thought of as having three components: an affective component, which consists of the individual's feelings about the attitude object; a cognitive component, which is the individual's beliefs or knowledge about the attitude object; and a behavior component, which is the individual's predisposition to act toward the attitude object in a particular way" (p. 183). The affective component of an attitude is that which is of concern in this research, and thus the construct "attitudes toward courses" is restricted to the attitude object "courses," meaning the education course which the student completed. For the purposes of this research, "attitudes toward courses" is defined operationally in terms of the questions from the Iowa State University "Government of the Student Body Instructor Evaluation Device" which measures student attitude toward course content and attitude toward the instructor.

5. Indirect verbal behavior. The construct "indirect verbal behavior" is defined as verbal behavior of teachers which ". . . encourages student participation and . . . increases his freedom of action. . ." (Flanders, p. 21). These behaviors, then, indicate ". . . the amount of freedom the teacher grants to the student. . ." (Amidon and Hough, p. 121). In this study, indirect verbal behavior is defined operationally in terms of the revised i/d ratio of the Flanders Interaction Analysis system because the revised i/d ratio focuses on motivation and control of students in the classroom and is less concerned with actual presentation of subject matter. ". . . It (the revised i/d ratio) is independent of communication patterns (like drill) that are unique to subject matter" (Amidon and Hough, p. 225).

Five students were randomly chosen from each of the six sections involved in

the experiment and directed to prepare three five-to-eight-minute lessons which would be video-taped. These microteachers were further directed to "Use the skills which you have learned and which have been presented to you in class handouts in any way which seems appropriate for students to learn the cognitive material with which you are dealing." Four members of each group served as "students" while the fifth member taught.

6. Behavior in interpersonal situations. The construct "behavior in interpersonal situations" is defined by Schutz as the way ". . . an individual characteristically relates to other people" (1967, p. 4). For the purposes of this study, this definition is used. However, it must be understood that the data used to measure the construct were acquired from self-reports of the teacher-education students involved in the experiment. "Behavior in interpersonal situations" is defined operationally for this study in terms of the six scale-scores from Schutz's Fundamental Interpersonal Relations Orientation-Behavior questionnaire (FIRO-B).

RESULTS AND DISCUSSION

The research hypothesis tested in this study is: Education students who participate in a structured human relations laboratory will demonstrate attitudes and behavior which are significantly different from those of students trained in a traditional approach to a general methods course. Specific directional hypotheses are derived for each of the six constructs measured. The hypotheses being tested are presented for each construct together with subhypotheses where appropriate.

Construct 1: Interpersonal Communication

Hypothesis 1: The level of interpersonal communication will be significantly higher for students trained in a human relations laboratory than for students trained in a traditional approach to a general methods course.

The data used in testing the hypothesis related to interpersonal communication are presented in Table 1. The computed t value of 0.41 did not approach significance. Therefore, the hypothesis that the level of interpersonal communication will be significantly higher for students trained in a human relations laboratory than for students trained in a traditional appraoch to a general methods course is rejected. However, in post hoc analyses, t tests on the means for each section within the laboratory and control group indicate some statistically significant differences. These data are presented in Tables 2 and 3.

Table 1. T test of post-test data on interpersonal communication

Group	N[b]	Mean	Standard deviation	T[a] value
Laboratory	473	7.24	4.32	0.41
Control	534	7.36	4.96	

[a]Table values for t (one-tailed) at infinite degrees of freedom are 1.65 at .05 and 2.33 at .01 levels of significance.
[b]The number of ratings of statements by three raters.

Table 2. T tests of post-test data on interpersonal communication for laboratory sections by instructor

Instructor	N[b]	Mean	Standard deviation	T[a] value
1	191	8.16	5.01	0.14
2	159	8.23	4.39	
1	191	8.16	5.01	5.88**
3	123	5.34	3.57	
2	159	8.23	4.39	6.15**
3	123	5.34	3.57	

[a]Table values for t (two-tailed) at infinite degrees of freedom are 1.96 at .05 and 2.58 at .01 levels of significance.
[b]The number of ratings of statements by three raters.
**Significant at P<0.01.

Table 3. T tests of post-test data on interpersonal communication for Control sections by instructor

Instructor	N[b]	Mean	Standard deviation	T[a] value
1	167	8.51	4.75	2.63**
2	174	7.14	5.02	
1	167	8.51	4.75	4.02**
3	193	6.42	5.13	
2	174	7.14	5.02	1.36
3	193	6.42	5.13	

[a]Table values for t (two-tailed) at infinite degrees of freedom are 1.96 at .05 and 2.58 at .01 levels of significance.
[b]The number of ratings of statements by three raters.
**Significant at $P<0.01$.

As indicated above, post-hoc analysis of the differences in Interpersonal Communication between sections within the Laboratory and Control groups (there were three Laboratory and three Control sections in each group) indicated differences between the subgroups. Highly significant differences were found in interpersonal communication between the section led by instructor 1 compared with that led by instructor 3 for both the Laboratory and Control sections. A highly significant difference was also found in level of interpersonal communication when the Laboratory group led by instructor 2 was compared with that led by instructor 3. This was not true when comparing the groups led by instructors 2 and 3 for the Control sections.

From the data presented, it appears that the different instructors affected their students in different ways. Support for such an effect on students by their instructors has been suggested in the literature (Loree). In this case, it would seem that the level of Interpersonal Communication depended more upon the instructor and the leadership provided the group than upon the treatment given.

Construct 2: Self-perception

Hypothesis 2: Self-perception will be significantly different for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

Self-perception is defined operationally in terms of the four scale scores Personal Adjustment, Intraception, Nurturance, and Abasement from Gough and Heilbrun's Adjective Check List. The directional subhypotheses are presented for each of these variables together with data used in comparing means between the Laboratory and Control treatments. Two of the four variables, Personal Adjustment and Nurturance, indicated highly significant pre-test differences (.01 level) between treatments while Intraception indicated a significant difference (.05 level) between treatments. Since none of the post-test differences was significant between Laboratory and Control treatments, analysis of covariance data are not presented.

Subhypothesis 2a. The mean score for Personal Adjustment will be significantly higher for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 2a are presented in Table 4. The computed t-value of -0.19 did not approach significance. Therefore, subhypothesis 2a is rejected.

Table 4. T tests of post-test data on self-perception

Variable	Group	N	Mean	Standard deviation	T[a] value
Personal adjustment	Laboratory	46	49.20	8.75	-0.19
	Control	45	49.58	10.08	
Intraception	Laboratory	46	50.46	11.27	-0.11
	Control	45	50.71	10.11	
Nurturance	Laboratory	46	50.39	9.15	-0.95
	Control	45	52.07	7.63	
Abasement	Laboratory	46	47.74	8.16	0.75
	Control	45	49.02	8.20	

[a]Table values for t (one-tailed) at 89 degrees of freedom are 1.67 at .05 and 2.37 at .01 levels of significance.

Subhypothesis 2b: The mean score for Intraception will be significantly higher for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 2b are presented in Table 4. The t-value computed of -0.11 again did not approach significance. Therefore, subhypothesis 2b is rejected.

Subhypothesis 2c: The mean score for Nurturance will be significantly higher for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 2c are presented in Table 4. The computed t-value of -0.95 did not approach significance. Therefore, subhypothesis 2c is rejected.

Subhypothesis 2d. The mean score for Abasement will be significantly lower for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 2d are presented in Table 4. The computed t-value of 0.75 did not approach significance. Therefore, subhypothesis 2d is rejected.

None of the mean differences on the four variables measured in examining the construct Self-perception as defined in this study approached statistical significance. These variables were Personal Adjustment, Intraception, Nurturance, and Abasement from Gough and Heilbrun's The Adjective Check List. Since none of these differences approached significance, the hypothesis that self-perception would be significantly different for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course was rejected. These results seem to indicate that personality variables are not significantly affected by the Interaction Laboratory for Teacher Development.

These results appear consistent with previous research in pre-service teacher

education (Calliotte, Gregg, Thorman, Webb), where it was also determined that personality variables were not significantly affected by a human relations laboratory. Reviewers of research on sensitivity training, both in education and management development (Campbell, Cooper and Mangham), seem also to have reached the same conclusion. Research reviewed on in-service teachers indicated mixed results on personality variables (Bowers, Kampsnider, Khanna, Lee).

Construct 3: Beliefs about the Education Process

Hypothesis 3: Beliefs about the educative process will be significantly different for students trained in a human relations laboratory than for students trained in a traditional approach to a general methods course.

Beliefs about the educative process is defined operationally in terms of the eight scale scores from Wehling and Charters' Teacher Conceptions of the Educative Process Questionnaire. These scales are Subject Matter Emphasis, Personal Adjustment Ideology, Student Autonomy vs. Teacher Direction, Emotional Disengagement, Consideration of Student Viewpoint, Classroom Order, Student Challenge, and Integrative Learning. The directional subhypotheses for each of these variables are presented with the relevant data.

There were no significant pre-test differences between the Laboratory and Control treatments on any of these eight variables.

Subhypothesis 3a. The mean score for Subject Matter Emphasis will be significantly higher (indicating less concern) for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 3a are presented in Table 5. The calculated t-value of 3.31 compared with the table t of 2.37 is significant at the .01 level of probability. Therefore, subhypothesis 3a is supported.

Table 5. T tests of post-test data on beliefs about the educative process

Variable	Group	N	Mean	Standard deviation	T[a] value
Subject matter emphasis	Laboratory	46	3.87	0.43	3.31**
	Control	45	3.52	0.56	
Personal adjustment ideology	Laboratory	46	2.45	0.49	0.04
	Control	45	2.45	0.42	
Student autonomy vs. teacher direction	Laboratory	46	2.93	0.45	2.18*
	Control	45	3.15	0.49	
Emotional disengagement	Laboratory	46	4.57	0.59	2.49**
	Control	45	4.22	0.73	
Consideration of student viewpoint	Laboratory	46	2.66	0.50	-2.27*
	Control	45	2.44	0.39	
Classroom order	Laboratory	46	3.66	0.52	2.64**
	Control	45	3.35	0.61	
Student challenge	Laboratory	46	2.58	0.49	1.26
	Control	45	2.46	0.44	
Integrative learning	Laboratory	46	2.63	0.51	-3.20**
	Control	45	2.32	0.44	

[a]Table values for t (one-tailed) at 89 degrees of freedom are 1.67 at .05 and 2.37 at .01 levels of significance.

*Significant at $P<0.05$.

**Significant at $P<0.01$.

Subhypothesis 3b: The mean score for Personal Adjustment Ideology will be significantly lower (indicating more concern) for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 3b are presented in Table 5. The computed t-value of 0.04 did not approach significance. Therefore, subhypothesis 3b is rejected.

Subhypothesis 3c: The mean score for Student Autonomy vs. Teacher Direction will be significantly lower (indicating a more favorable attitude to student autonomy) for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 3c are presented in Table 5. The calculated t-value of 2.18 compared with the table t of 1.66 is significant. Therefore, subhypothesis 3c is supported.

Subhypothesis 3d: The mean score for Emotional Disengagement will be significantly higher (indicating less concern) for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 3d are presented in Table 5. The calculated t-value of 2.49 compared with the table t of 2.37 is significant at the .01 level of probability. Therefore, subhypothesis 3d is supported.

Subhypothesis 3e: The mean score for Consideration of Student Viewpoint will be significantly lower (indicating more concern) for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 3e are presented in Table 5. The calculated t-value of 2.27 is opposite the direction hypothesized. Therefore, subhypothesis 3e is rejected.

Subhypothesis 3f: The mean score for Classroom Order will be significantly higher (indicating less concern) for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 3f are presented in Table 5. The calculated t-value of 2.64 compared with the table t of 2.37 is significant at the .01 level of probability. Therefore, subhypothesis 3f is supported.

Subhypothesis 3g: The mean score for Student Challenge will be significantly higher (indicating less concern) for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 3g are presented in Table 5. The calculated t-value of 1.26 compared with the table t of 1.66 is not significant. Therefore, subhypothesis 3g is rejected.

Subhypothesis 3h: The mean score for Integrative Learning will be significantly lower (indicating more concern) for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 3h are presented in Table 5. The calculated t-value of 3.20 is opposite the direction hypothesized. Therefore, subhypothesis 3h is rejected.

Four of the eight variables measured in examining the construct Beliefs about the Educative Process indicated significant differences in the hypothesized direction between subjects in the Laboratory and Control groups. These variables are: Subject Matter Emphasis ($P<.01$); Student Autonomy vs. Teacher Direction ($P .05$); Emotional Disengagement ($P<.01$); and Classroom Order ($P<.01$). Data on two variables, Personal Adjustment Ideology and Student Challenge, indicate no significant differences between groups.

Significant differences between the Laboratory and Control subjects are also indicated on two variables, Consideration of Student Viewpoint ($P<.05$) and Integrative Learning ($P<.01$). However, these differences are opposite the direction hypothesized by the researcher. These results appear to confound the initial interpretation of the data presented on the construct Beliefs about the

Educative Process. An analysis of the results on these two variables follows.

According to the developers of the Teacher Conceptions of the Educative Process Questionnaire (TCEPQ), the scale Consideration of Student Viewpoint

> . . . represents teacher acceptance of empathy as an instructional strategy. For the teacher effectively to influence students, he must have the capacity to take their perspective on the world and to give them his warmth and personal support as needed. He must be sensitive to the feelings of students and display friendliness and consideration in his relations with them . . . (Wehling and Charters, p. 14).

This definition of Consideration of Student Viewpoint, together with knowledge of the objectives of the Laboratory, seems to indicate a hypothesis that greater concern for the student point of view will be expressed by subjects in the Interaction Laboratory.

However, after indicating that all eight dimensions of the TCEPQ were substantially independent of one another, Wehling and Charters point out that descriptions of some of their dimensions ". . . seem to imply, on logical or perhaps semantic grounds, connections among them" (p. 21). However, they argued to the contrary when they indicated that

> In the case of Consideration of Student Viewpoint and Emotional Disengagement, two dimensions of belief that would seem to be incompatible and, thus, negatively related to one another, the dependency may be more apparent than real. We feel there is no inconsistency in believing that the teacher should appreciate as fully as possible the feelings and views of students, even display warmth and affection toward them (Consideration of Student Viewpoint), and at the same time believing that the teacher must not become too personally involved in student affairs (Emotional Disengagement) . . . (Wehling and Charters, p. 21).

The argument presented seems logical, yet the data in this experiment indicate quite the opposite. Specifically, the data indicate that the Laboratory subjects were more willing to be emotionally involved with students than the control subjects, and yet they were less considerate of the student's viewpoint. Perhaps these data support Loree when he indicates that

> There is some evidence of a relationship between teachers' beliefs and . . . the behavior of the teacher in the classroom . . . . However, there remains much to be learned concerning the conditions under which behaviors and beliefs correspond (p. 102).

The results of this research appear to indicate that pre-service teachers who participated in the Laboratory are more favorable in attitude toward emotional involvement with students. However, when given opportunity to indicate how they will behave in relation to students, the Laboratory subjects gave less consideration to the student viewpoint than the Control subjects.

An alternative hypothesis for explaining results opposite those hypothesized for the variable consideration of Student Viewpoint is that, if teacher educators wish to develop teachers who are emotionally involved with their students, a model or set of behaviors must be provided for developing this emotional involvement. To assume transfer from attitude to behavior without such a model may be difficult, if not impossible.

A third possible explanation for these confusing results on the variable Consideration of Student Viewpoint is that a construct was identified and particular variables were chosen to measure that construct. However, for some unknown reason, there is no consistency in the data results.

The second variable on which the data presented were opposite the direction hypothesized was Integrative Learning. According to Wehling and Charters, Integrative Learning

> . . . represents the teacher's belief that students "truly understand" what they are taught only when they are brought to see relationships between the subject at hand and broader aspects of their world or are able to connect the subject to their own experiences. In this view, learning extends beyond the confines of a single course or grade to encompass the more generalized goals of education. The belief deals with teaching methods, but it also reflects on conception of learning as the acquisition of meanings, not just facts (pp. 14-15).

The importance of integrating knowledge across curricular lines was not considered in the Laboratory since the focus of the Laboratory is on relationships between people in the educational setting. At the same time, the Control subjects studied more traditional topics found in a general methods course such as objectives of instruction, sequencing and planning instruction, various methods and techniques

available for instruction, and evaluation. As a result of dealing with these topics, the data presented indicate a greater concern on the part of the control subjects for integrating knowledge. To have hypothesized greater concern for Integrative Learning for students in the Laboratory without providing basic cognitive knowledge and skills seems an erroneous assumption on the part of the investigator.

It would appear, given the data presented in Table 5, that there is a construct Beliefs about the Educative Process which can be measured. It also appears that the Laboratory affected attitudes of pre-service teachers in that it seemed to develop significantly less concern for Subject Matter, Emotional Disengagement, Classroom Order and more concern for Student Autonomy. These results also seem to indicate that the Laboratory did not affect attitudes of pre-service teachers in terms of Personal Adjustment Ideology and Student Challenge. The data presented on Consideration of Student Viewpoint and Integrative Learning confound the indications on this construct but not sufficiently to reject the hypothesis. Therefore, the hypothesis that beliefs about the educative process will be significantly different for students trained in a human relations laboratory than for students trained in a traditional approach to a general methods course was partially supported.

Construct 4: Attitudes toward Courses

Hypothesis 4: Attitude toward a general methods course will be significantly more favorable for students trained in a human relations laboratory than for students trained in a traditional approach to a general methods course.

Attitudes toward courses were defined operationally in terms of the two questions from the Iowa State University Government of the Student Body Instructor Evaluation Device which measure student attitude toward course content and attitude toward the instructor. The directional subhypotheses for each of these variables are presented with the relevant data.

Subhypothesis 4a: The mean score for Attitude toward Course Content will be significantly higher for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 4a are presented in Table 6. The calculated t-value of 2.41 compared with the table t of 2.37 is significant at the .01 level of probability. Therefore, subhypothesis 4a is supported.

Table 6. T tests of post-test data on attitudes toward courses

Variable	Group	N	Mean	Standard deviation	T[a] value
Attitude toward course content	Laboratory	46	4.23	0.91	2.41**
	Control	45	3.70	1.19	
Attitude toward instructor	Laboratory	46	4.36	0.89	1.81*
	Control	45	3.93	1.33	

[a]Table values for t (one-tailed) at 89 degrees of freedom are 1.67 at .05 and 2.37 at .01 levels of significance.

*Significant at P<0.05.

**Significant at P<0.01.

Subhypothesis 4b: The mean score for Attitude toward Instructor will be significantly higher for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 4b are presented in Table 6. The calculated t-value of 1.81 compared with the table t of 1.66 is significant at the .05 level of probability. Therefore, hypothesis 4b is supported.

The data presented in Table 6 indicate significant differences between the Laboratory and the Control subjects on both variables, Attitude toward Course Content ($P<.01$) and Attitude toward Instructor ($P<.05$). These results are entirely consistent with previous studies (Calliotte, Marshall, McLeish, Thorman, Webb) in pre-service teacher education where a form of human relations training was used in the experimental treatment. None of the research reviewed evaluated attitude toward the instructor. It seems reasonable, however, that if students held a favorable attitude toward an experience, they would probably hold a favorable attitude toward the instructor.

It appears to the investigator that given the data and the analysis presented that there is a construct Attitude toward Courses which can be measured. It also appears that the Laboratory and the instructor are viewed more favorably by Laboratory students. Therefore, the hypothesis that attitude toward a general methods course will be significantly more favorable for students trained in a human relations laboratory than for students trained in a traditional approach to a general methods course is supported.

Construct 5: Indirect Verbal Behavior

Hypothesis 5: Verbal behavior in the microteaching setting will be more indirect (include more of the type of teacher behaviors which encourage pupil participation in the activities of the classroom) for students trained in a human relations laboratory than for students trained in a traditional approach to a general methods course.

Indirect Verbal Behavior is defined operationally in terms of the revised i/d ratio included in the Flanders Interaction Analysis system (Amidon and Flanders).

The data used in testing Hypothesis 5 are presented in Table 7. The computed t-value of 0.50 did not approach significance. Therefore, Hypothesis 5 is rejected.

Table 7. T test of data on indirect verbal behavior

Group	N	Mean	Standard deviation	T value[a]
Laboratory	15	0.63	0.26	0.50
Control	15	0.68	0.28	

[a]Table values for t (one-tailed) at 28 degrees of freedom are 1.70 at .05 and 2.47 at .01 levels of significance.

As defined by Amidon and Flanders, the construct Indirect Verbal Behavior is teacher verbal behavior which encourages the student to participate in class discussion by allowing him greater freedom of action. The results of this research indicate no statistically significant difference between the Laboratory and the Control microteachers on this variable. Therefore, the hypothesis that verbal behavior in the microteaching setting will be more indirect for students trained in a human relations laboratory than for students trained in a traditional approach to a general methods course is rejected.

Reliability of raters on the taped microteaching presentations over time was a particular problem in evaluating the data presented on this construct. Spearman-Brown average interitem correlations of 0.01 and 0.20 indicated poor intrarater reliability for the two teaching presentations evaluated. Therefore, Scott's Coefficient was used. Scott's Coefficient indicated 0.62 and 0.79 average reliability of the two raters over time for the two teaching presentations evaluated.

Instruction in the use of the Flanders system was not given to either Laboratory or Control groups. To expect pre-service teachers to demonstrate such

concerns without being presented a specific behavior model is perhaps an inappropriate expectation. This is supported by Maxey whose research indicated that not until after instruction in Flanders' Interaction Analysis system were differences in microteaching behavior observed in an experiment which involved sensitivity training and instruction in the Flanders system.

Construct 6: Behavior in Interpersonal Situations

Hypothesis 6: Behavior in interpersonal siutations will be significantly different for students trained in a human relations laboratory than for students trained in a traditional approach to a general methods course.

Behavior in Interpersonal Situations is defined operationally in terms of the six scale scores from Schutz's Fundamental Interpersonal Relations Orientation--Behavior questionnaire (Schutz, 1967). These scales are Expressed Inclusion, Wanted Inclusion, Expressed Control, Wanted Control, Expressed Affection, and Wanted Affection. The directional subhypotheses for each of these variables are presented with the relevant data.

Subhypothesis 6a: There will be significantly less variance in Expressed Inclusion for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 6a are presented in Table 8. The calculated F-value of 1.89 compared with the table F of 1.64 is significant. Therefore, subhypothesis 6a is supported.

Subhypothesis 6b: There will be a significantly less variance in Wanted Inclusion for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 6b are presented in Table 8. The calculated F-value of 1.09 compared with the table F of 1.64 is not significant. Therefore, subhypothesis 6b is rejected.

Subhypothesis 6c: There will be significantly less variance in Expressed Control for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 6c are presented in Table 8. The calculated F-value of 1.17 compared with the table F of 1.64 is not significant. Therefore, subhypothesis 6c is rejected.

Table 8. F tests of post-test data on behavior in interpersonal situations.

Variable	Group	N	Mean	Variance	F
Expressed Inclusion	Laboratory	46	5.48	2.97	1.89*[a]
	Control	45	5.11	5.60	
Wanted Inclusion	Laboratory	46	4.87	11.54	1.09[a]
	Control	45	5.13	12.52	
Expressed Control	Laboratory	46	2.98	4.91	1.17[a]
	Control	45	3.58	5.75	
Wanted Control	Laboratory	46	3.57	4.34	-1.26[b]
	Control	45	3.84	3.45	
Expressed Affection	Laboratory	46	4.74	5.66	1.04[a]
	Control	45	4.49	5.89	
Wanted Affection	Laboratory	46	5.30	5.64	1.22[a]
	Control	45	5.31	6.85	

[a]Table values for F 44, 45 are 1.64 at .05 and 2.02 at .01 levels of significance.

[b]Table values for F 45, 44 are 1.65 at .05 and 2.03 at .01 levels of significance.

*Significant at $P<0.05$.

Subhypothesis 6d: There will be significantly less variance in Wanted Control for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

Table 8 presents the post-test data used in testing subhypothesis 6d. The calculated F-value of 1.26 compared with the table F of 1.65 is not significant. Therefore, subhypothesis 6d is rejected.

Subhypothesis 6e: There will be significantly less variance in Expressed Affection for students trained in a human relations laboratory than for education students trained in a traditional approach to a general methods course.

The post-test data used in testing subhypothesis 6f are presented in Table 8. The calculated F-value of 1.22 compared with the table F of 1.64 is not significant. Therefore, subhypothesis 6f is rejected.

It was hypothesized that there would be less variance for the Laboratory subjects when compared with the Control subjects on the six variables measured relative to the construct Behavior in Interpersonal Situations. Of the six variables in Schutz's Fundamental Interpersonal Relations Orientation--Behavior questionnaire (FIRO-B) (Expressed Inclusion, Wanted Inclusion, Expressed Control, Wanted Control, Expressed Affection, and Wanted Affection), only one indicates a statistically significant F ratio between the Laboratory and Control subjects. That variable is Expressed Inclusion ($P<.05$), the data on which indicate significantly less variance for the Laboratory subjects. Four of the five remaining variables (Wanted Inclusion, Expressed Control, Expressed Affection, and Wanted Affection), in terms of the variance of the data from the mean, support the hypothesis of less variance for the Laboratory subjects though they are not statistically significant. On one variable, Wanted Control, the data indicate less variance for subjects in the Control group, though the difference again is not statistically significant. Analysis of these results involves assessment of the effect of the Laboratory and what the FIRO-B questionnaire purports to measure.

The developers of the Laboratory indicate that

> . . . the training program utilizes the group setting to allow each individual to examine his or her style of interacting with others. (The activities of the laboratory) . . . allow students to receive feedback about their effectiveness with other people . . . (Thiokol Chemical Corporation, p. 1).

The developers of the Interaction Laboratory also suggest that through the use of constructive feedback in the Laboratory, ". . . it is hoped individual students will gain insight into their personal style of interacting with others . . ." (Thiokol Chemical Corporation, p. 10). Thus the objectives of the Laboratory seem to indicate that one of its major goals is to provide participants with information about the way they behave in interpersonal situations.

Schutz's FIRO theory identifies three types of interpersonal behavior: ". . . (1) deficient--indicating that the individual is not trying directly to satisfy the need, (2) excessive--indicating that the individual is constantly trying to satisfy the need, and (3) ideal--indicating satisfaction of the need . . ." (Schutz, 1966, p. 25). This "ideal" type of interpersonal behavior, according to the FIRO theory, is found between the two extreme forms of behavior. Such "ideal" behavior appears to be the type established as an objective for the participants in the Interaction Laboratory for Teacher Development.

The hypothesis that behavior in interpersonal situations will be significantly different for students trained in a human relations laboratory than for students trained in a traditional approach to a general methods course is rejected since the data on only one variable, Expressed Inclusion, indicates a significant difference favoring the Laboratory subjects.

SUMMARY AND CONCLUSIONS

Six constructs were identified, defined, and measured in this investigative research in an effort to test the research hypothesis that education students who participate in a structured human relations laboratory will demonstrate attitudes and behaviors which are significantly different from those of students trained in a traditional approach to a general methods course in education. One specific hypothesis derived from the research hypothesis, that related to the construct "attitudes toward courses," is supported by the data presented in the study. Data presented on the hypothesis dealing with the construct "beliefs about the educative process" is partially supported by the data of the study. The hypotheses concerned with the constructs "interpersonal communication," "self-perception," "indirect verbal behavior," and "behavior in interpersonal situations" were rejected.

Examined as a whole, the data of this study are sufficient to reject the research hypothesis that education students who participate in a structured human relations laboratory will demonstrate attitudes and behaviors which are significantly different from those of students trained in a traditional approach to a general methods course. Rejection of the research hypothesis is particularly requisite as a result of considering that the halo effect resulting from participation in a human relations laboratory could have influenced the data presented on the hypothesis dealing with the construct "attitudes toward courses," the only hypothesis supported by the data of the study.

The extensive data presented in this study, both of a self-report and of an observational nature, should cause those who plan to use the Interaction Laboratory for Teacher Development as a form of human relations training in a pre-service teacher education program to proceed with caution. However, further analysis of the data of this study, beyond the original objectives of the study, may identify particular types of students for whom structured human relations

training is more appropriate, e.g., students whose pretest data is high or low on a particular variable.

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