

ABSTRACT

STUDENT PERCEIVED BEHAVIORAL CHANGES OCCURRING IN A SECONDARY SCHOOL FACULTY AS A RESULT OF A HUMAN RELATIONS IN-SERVICE WORKSHOP

by William Jay Bailey

The purpose of this research was to determine the effect of sensitivity training upon a high school faculty. The underlying rationale for this kind of research was the value judgment that there is a need to help teachers become more aware of themselves and others as they face the ever-increasing demands that are being thrust upon them in modern society.

The study utilized student reactions to teachers in a pre-test, post-test, post-test design with a non-equivalent control. The instrument for all testings was the Student-Opinion Questionnaire furnished by The Student Reaction Center of Western Michigan University. Some data are available which substantiates the reliability and validity of this instrument.

After the initial student opinions were recorded, the experimental faculty participated in a concentrated three day and night sensitivity training laboratory workshop. The training program was patterned after the National

Training Laboratories of the National Educational Association. This organization is dedicated to the improvement of human relations, sensitivity to others, and self awareness. The participants of the workshop spent most of their time in small groups which have been referred to as T-Groups.

Findings

The statistical results were produced using analysis of co-variance in a computer program at the Michigan State University Computer Center. Four hypotheses were tested. The alpha level was set at .05 and all hypotheses were found not to be significant. The hypotheses were:

Hypothesis I: There will be a difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test and the three week post-test using item 9 (the General Teaching Ability of This Teacher) from the Student-Opinion Questionnaire.

Hypothesis II: There will be a difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test and the three months' post-test using item 9 (The General Teaching Ability of This Teacher) from the Student-Opinion Questionnaire.

Hypothesis III: There will be a difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test and the three week post-test using the combined mean scores for the first eight items of the Student-Opinion Questionnaire.

Hypothesis IV: There will be a difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test and the three months' post-test using the combined mean scores for the first eight items of the Student-Opinion Questionnaire.

Each item on the instrument was investigated to determine if it would show significant differences when the experimental school was compared to the control school.

The results are as follows:

Ability of the Teacher to Explain Clearly

significant at the .05 level on the first post-test

Ability of This Teacher to Keep Good Discipline

significant at the .10 level on the second post-test

Skill This Teacher has to Get Students to Think for Themselves

significant at the .10 level on the first post-test

All other items on both post-tests and the additional post-tests of the above items were not significant.

The remaining items are listed below:

The Knowledge This Teacher Has of the Subject Taught

This Teacher's Fairness in Dealing with Students

The Sympathetic Understanding Shown by This Teacher

The Ability This Teacher Has to Make Classes Interesting

The Ability of This Teacher to Get Things Done in an

Efficient and Businesslike Manner

The Amount of Work Required or Expected by This Teacher

Before the participating teachers returned home, they were asked to react to the experience at the completion of the laboratory. They rated the workshop very highly.

Four individual teachers were studied in a modified case study approach in an attempt to delineate some of the kinds of changes that took place. One of these dealt with the teacher who exhibited the greatest change. Another study dealt with a teacher whose initial scores were extremely high, and her lower post-tests scores were explained by the "regression to the mean" theory. Many of the experimental teachers were rated very highly on the pre-test. One teacher was studied because of her gradual, cautious acceptance of the program and her gradual, steady improvement back home. The fourth teacher was selected because he was the lowest ranked teacher of the staff to begin with and seemed to be unable to make a great change in the image of his students on the post-tests.

Conclusions

The following conclusions may be drawn from the results in this study within its limitations.

1. Sensitivity training as it has been defined here and in the conditions of the lab setting for this study did not cause students to rate their teachers higher on the question, The General Teaching Ability of This Teacher.

2. Sensitivity training as it has been defined here and in the conditions of the lab setting for this study, did not cause students to rate their teachers higher on the combined items of the Questionnaire.

3. Concerning the above two items, the timing of the administration of the post-test instrument made no difference in recording significant changes in teachers.

4. Teacher's scores on the item, Ability of the Teacher to Explain Clearly were significantly higher on the first post-test (three weeks), than the teachers of the control school.

5. When teachers themselves were asked to evaluate their experiences during the lab, the majority expressed having very positive experiences.

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DEDICATION

To Doris Elaine for the courage she showed
and for the love she gave throughout this endeavor.

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CHAPTER I

INTRODUCTION

Background of the Problem

The significance of the teacher in the educational process is well established through our historical and cultural inheritance. Perhaps the major problem facing education today is providing the teacher with opportunities to maintain and improve his or her significance in the process because society and the environment continually change.

Perhaps it is the nature of the race that each generation, slowing to the end of its journey, views with misgivings the altered or vanishing landmarks upon which it has so long depended. Certainly it is the nature of civilization to be marked and controlled by the ever-whirling wheels of change.¹

Preparing students for this constantly changing world is a difficult task for the teacher. School systems should assume the responsibility of conducting change process operations. Possibly the logical focus of these change operations should be the teacher and change should occur "within" the teacher if it is to have lasting impact.

¹James Peyton, A Multidisciplinary Focus on Educational Change, Bulletin of the Bureau of School Service, Vol. XXXVIII, Dec. 1965, No. 2 (Preface remarks). (Lexington, Kentucky: College of Education, University of Kentucky.)

In-service programs should be directed at changing the teacher who possesses a personality that inhibits change to a teacher who has a personality that welcomes change. The target then should be the teacher per se or the teacher's "personality."

It is postulated that educational institutions need methods and procedures of conducting in-service programs that will focus on teacher characteristics and the teacher's personality. Teachers are needed who are flexible, adaptive, creative, and open to change. However, bringing about change in teachers is difficult because their ego becomes involved in the change as it may affect their values. Sharp² speaks to this point stating:

Probably the most difficult job of the curriculum worker is that of bringing about a change in the ego-involved values of a teacher without hurting his ego.

Introduction to this Study

The introduction to this problem calls heavily upon Jersild for some of the background rationale for the investigation of teacher personality. Jersild's book, When Teachers Face Themselves, points out poignantly the problems of an interpersonal nature that the teacher must face. For example, in the introduction of the book the

²George Sharp, Curriculum Development as Re-education of the Teacher (New York: Bureau of Publications, Teachers College, Columbia University, 1951), p. 31.

point is made for attention in these important areas when he says:³

This book is one of a series of writings carrying the theme that education should help children and adults to know themselves and to develop healthy attitudes of self acceptance. The present volume considers what the concepts of understanding and self acceptance mean for teachers.

A position was taken by Jersild for his experimentation that points dramatically to the necessity for the continued endeavors incorporated in this study. To quote the position:⁴

An essential function of good education is to help the growing child to know himself and to grow in healthy attitudes of self acceptance.

A teacher cannot make such headway in understanding others or in helping others to understand themselves unless he is endeavoring to understand himself. If he is not engaged in this endeavor he will continue to see those whom he teaches through the bias and distortions of his own unrecognized needs, fears, desires, anxieties, hostile impulses, and so on.

The process of gaining knowledge of self and the struggle for self fulfillment and self acceptance is not something an instructor teaches others. It is not something he does to or for them. It is something for which he himself must be involved.

In his chapter "Anxiety," Jersild explains the point further by stating, "For a teacher to know those whom he teaches and their anxieties, he must know himself and seek to face his own anxieties."⁵

³Arthur T. Jersild, When Teachers Face Themselves (New York: Bureau of Publications, Teachers College, Columbia University, 1955), p. 2.

⁴Ibid., p. 13.

⁵Ibid., p. 26.

The Rationale for this Study

These preceding points are significant reason for this writer to propose that in-service education programs, at least in part, should deal with the teacher directly. The teacher must face his own personality, the same personality that his students face every day. How do we look at teacher characteristics and how do we improve them? A judgment is made that there is a paucity of scientific information available concerning the characteristics of teachers. Yet logically this is an imperative area of study. Flanders is perhaps the most productive in this area and his work is applicable to the problems and background for this study. In one sense his research is asking, does the teacher know himself. He has proved that we need to reduce the discrepancy between the intentions of the teacher and his overt behavior while teaching. He states:⁶

From the research accomplished so far . . . it seems clear that teachers do have different attitudes toward teaching and philosophical values about education. These differences have been measured. Yet research to date has produced remarkably few significant relationships between such measures and various criteria of teaching performance.

In order that we might combat this difference, Flanders suggests that the groundwork has been laid for more, . . . recent educational philosophers and psychologists to take up the idea that in-service education

⁶Ned A. Flanders, Project Director, Helping Teachers Change Their Behavior (Ann Arbor, Michigan: The University of Michigan, School of Education, 1963), p. 2.

means more than merely acquiring new knowledge, and must include also an actual change in teacher behavior.⁷

Flanders has developed a system of interaction analysis which records the behavior of the teacher and has proved to be helpful in improving teaching characteristics. However the procedures require a skilled team of observers which places restrictions on the program.

One way to approach in-service education is to supply teachers with evidence of research and change. Bocks⁸ study found that the introduction of research evidence did not change teacher's attitudes about promotion and non-promotion practices.

Alam⁹ found that teachers' expressed attitudes do tend to become less favorable as the year progresses, and that the teachers' expressed attitude towards their students showed the most significant shift. In the implications of his study he states,¹⁰

How can a profession sustain itself if its members are unable to maintain healthy attitudes? The evidence from the study suggests that the practice of required involvement in the self

⁷Ibid., p. 5.

⁸William M. Bocks, The Relationship of Teacher Characteristics to Belief Changes Following Introduction of Non-Promotion Research Evidence (unpublished Ph.D. dissertation, Michigan State University, 1966).

⁹Dale V. Alam, The Relationship Between School Self-Evaluation Procedures and Changes in Teachers' Expressed Attitudes in Six Areas of Professional Human Relations (unpublished doctoral dissertation, University of Florida, 1966).

¹⁰Ibid., p. 71.

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evaluation process fails to provide the help which enables teachers to maintain healthy attitudes. What are the factors that contribute to unfavorable attitude shifts? Are there professional activities and responsibilities experienced by teachers that may reduce negative attitude shifts?

He further asks,¹¹ "What types of in-service programs do tend to provide a favorable attitude shift on the part of teachers?"

Teaching is obviously a human relations phenomenon. Consequently it seems important that teachers bring into this phenomenon or classroom arena the best possible "personality." Personality seems to be very adequately defined and expressed in positive, mentally healthy terms in the language of Carl Rogers. In describing the fully functioning person, Rogers postulates,

The three trends that I have tried to describe-- towards openness of experience, living as a process and trust of one's own experiencing -- add up to the fact that the person in whom they are observed is becoming a more fully functioning person.¹²

In describing the process of working towards this process, Rogers¹³ continually refers to the terminology of sensitivity, feelings, trust, freedom (psychological), and creativity. Programs of in-service, then, should attempt to develop these kinds of things within the teachers' personalities.

¹¹Ibid., p. 73.

¹²Carl R. Rogers, "Toward Becoming a Fully Functioning Person," Perceiving, Behaving, Becoming (Washington, D.C.: Association for Supervision and Curriculum Development, National Education Association, 1962), p. 29.

¹³Ibid., p. 31.

Combs expresses the same thought by categorizing four characteristics of the perceptual field which always seem to underlie the behavior of the truly adequate person:¹⁴

1. a positive view of self
2. identification with others
3. openness to experience and acceptance
4. a rich and available perceptual field

If the readers will accept the position that the personality factors illuminated previously warrant attention for in-service programs, then the next question is one of selecting a type of program that will fulfill the above mentioned needs. One of the successful types of experiences and activities is laboratory sensitivity training, sometimes called the T-Group. The T-Group is successful in working with "normals" in a group process situation. It does not have the treatment image that group therapy has.¹⁵

Many recent authors refer to creating change through the group process in general and to T-Grouping in particular. Some of these are: Benne, Bennis, Bradford, Cartwright, Charters and Gage, Hare, Lippitt, Lifton and Toobert.¹⁶

Since 1947 the National Training Laboratories has been offering programs that use the T-Group method for creating change.¹⁷ This approach was observed in this study.

¹⁴Arthur W. Combs, "A Perceptual View of the Adequate Personality," op. cit., p. 51.

¹⁵Mathew B. Miles, "The Training Group," The Planning of Change, Warren G. Bennis, et al. (New York: Holt, Rinehart & Winston, 1962), p. 717.

¹⁶The reader is referred to the bibliography.

¹⁷See Appendix A for brief history and purposes of The National Training Laboratories.

It would appear that there is need to investigate sensitivity training with teachers. In fifty-two references used in Stocks¹⁸ review of research on T-Groups, no mention is made of teachers having a T-Group experience and being evaluated by students afterwards. She describes the T-Group as a rich field for investigation.

The last area of background information pertinent to this study concerns the area of student reactions to their teachers. A few studies have shown the value of using the student in the evaluation, improvement, and image-reaction of the teacher. Student evaluations have been handled reluctantly in the past probably because of the personal factors involved in the teachers concerned. Since the student is the product of education's endeavors, since the students have daily contact with the teacher, and since the teacher's behavior does have a direct effect upon the student; this study will use the high school student's opinions for instrumentation of the change process evaluation. The major task of the construction of this dissertation, then; is to combine the personality needs of teachers, with the T-Group method of helping form the desired personality, and evaluating this change, if any, through the use of the teacher's continual spectator, the

¹⁸Dorothy Stock, "A Survey of Research on T-Groups," L. Bradford, J. Gibb, K. Benne, T-Group Theory & Laboratory Method (New York: John Wiley and Sons, 1964), p. 439.

student. A search of research findings, books, and periodicals reveals no prior study that combines these factors as a broad perspective of building in-service training programs.

If change in teachers is observable by and has an effect upon the students, then change should be recorded by students. The students are the product of the educational process and should be one of the eventual criteria for evaluating in-service programs.

General Questions

It has been established that laboratory training can be an effective process designed to bring about change in humans.¹⁹ The following general questions are raised which lead to the generation of the hypotheses to be investigated in this study.

✓ 1) Can laboratory training change teachers to a degree that can be related to a change in their teacher characteristics?

✓ 2) Can this change be identified by students and tested through research methods utilizing data from students' opinions of teachers?

✓ 3) Is this change one that results in an improved teacher from the point of view of secondary students?

4) What are some of the more salient individual experiences exhibited by selected teachers for case study purposes?

¹⁹Stock, Ibid.

5) What particular items on the evaluation instrument were changed most drastically?

6) Is an in-service program or workshop consisting of laboratory training of sufficient impact to create change after a three-day exposure?

7) Is the employment of a team of outside "change agents" a warranted venture for this type of in-service program?

In an attempt to answer some of these questions, the following hypotheses were tested.

Statement of the Research Hypotheses

Hypothesis I: There will be a difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test B (three weeks) using item 9 (the General Teaching Ability of This Teacher) from the Student-Opinion Questionnaire (See Appendix B).

Hypothesis II: There will be a difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test C (three months) using item 9 (The General Teaching Ability of This Teacher) from the Student-Opinion Questionnaire.

Hypothesis III: There will be a difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test B (three weeks) using the combined mean scores for the first eight items of the Student-Opinion Questionnaire.

Hypothesis IV: There will be a difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test C (three months) using the combined mean scores for the first eight items of the Student-Opinion Questionnaire.

Limitations of this Study

This study has the following limitations:

1. It is restricted to senior high school teachers.
2. It is restricted to one faculty for the experimental school and to one faculty for the control school.
3. The control school provides a non-equivalent research control.
4. There are two timing limitations:
 - a) It was not possible for teachers of either building to give the instrument at the same time.
 - b) It was not possible for each school to give the tests simultaneously.

5. Because both schools are innovative and experimental, they may possess built-in "halo" affects.
6. Not all of the teachers of both the experimental school and the control school were available for study.
7. A question could be raised as to values emphasized in the teacher characteristics used on the instrument. Perhaps a higher score on a particular item or characteristic is not considered an improvement.
8. If changes do occur, they may not be long lasting.
9. The particular aspects of this sensitivity training laboratory may not be typical of laboratories in general. In other words, the setting, the skill and techniques of the trainers, and the daily program could legitimately vary enough between laboratories so that conclusions could be affected. No attempt was made to compare this laboratory to others.

Thus inferences may be drawn from these results only to the population and the conditions studied.

Definition of Terms

T-Groups. The name applied to the laboratory learning groups designed to train the participants in self-awareness, and sensitivity to others; and to form a climate of trust in the group through expressing "real feelings" in the "here and now" atmosphere of process awareness. (See Appendix A.)

In-service. An engagement within a local school staff in activities designed to improve instruction.

Western Michigan Student Reaction Center. A service provided by the University to provide teachers with reports about opinions expressed by their students. The director is Dr. Roy C. Bryan.

Student Opinion Questionnaire. The form used by the Center, Form 7. (See Appendix B.)

Poway High School. A progressive, innovative high school in California. It has 850 students and thirty-nine teachers. The school is further identified for their Stanford Computer Scheduling, an 80-course curriculum, flexible scheduling, team teaching, etc. The school is located in Poway, California, and is a demonstration school for the Institute for the Development of Educational Activities.

St. Clair High School. The control school is also described as innovative but is located in Michigan. The students number slightly over 700 and there are thirty-one teachers. They are scheduled by Stanford, and offer flexible scheduling, team teaching and a ninety-course curriculum.

IDEA. The Institute for the Development of Educational Activities is a subsidiary of Kettering Foundation, Dayton, Ohio.

Teacher Characteristics. These are defined by the Student-Opinion Questionnaire from the Student Reaction Center at Western Michigan University. (See Appendix B.)

Brief Description of the Design

The teachers of both the experimental school, Poway High School in California and the control school, St. Clair High School in Michigan administered to their students three separate testings of the Student-Opinion Questionnaire. The results from both schools are reported in a pre-test, a post-test three weeks later and a second post-test three months later. The questionnaire is a standardized form from the Student Reaction Center at Western Michigan University. Between the pre-test and the first post-test, the teachers of Poway attended a three-day laboratory training workshop sponsored by IDEA. St. Clair High School served as a non-equivalent control type, but the two schools have many things in common such as flexible scheduling and team teaching and they are of the same approximate size.

CHAPTER II

REVIEW OF RELATED RESEARCH AND LITERATURE

The second chapter is devoted to a review of the literature and the research that relates to the three basic areas of this study. The first of these concerns in-service education programs that are designed for personality and human relations training, the second part deals with sensitivity training and its significance, and the last area of this chapter is a report of student evaluation of teachers.

In-Service Programs

In-service programs are not new to American education. However, in-service programs that deal with the general area of the personality and mental health of teachers directly are rather scarce. Many programs both successful and unsuccessful, are never published, publicized, researched, or evaluated. A recent study¹ showed that only one half of one percent of over 1500 IDEA grants made in a large state for experimental educational programs--grants

¹D. W. Johnson, "Title III and the Dynamics of Educational Change in California Schools," as reported by M. B. Miles (ed.), Innovations in Education (New York: Bureau of Publications, Teachers College, Columbia University, 1965), pp. 157-182.

which required evaluation--were evaluated in any systematic manner. Many of these programs obviously dealt with in-service oriented projects. Consequently research of the literature in this area is limited.

It seems obvious that many of the teacher's problems will not be solved through regular meetings of the faculty. Twenty years ago, Symonds² discovered that teachers have many problems, and that many concern social and personal adjustment. Teachers felt that many of these could be solved through meetings; but not one of the teachers felt free to discuss these problems in faculty meetings. They sought other sources or lived with their problems without receiving aid.

When Daines³ surveyed and analyzed fifty instructional problems of elementary school staffs through a survey sent to teachers, principals and superintendents, he found:

1. Teachers selected similar problems.
2. Administrators were unable to determine in identical order all of the problems which teachers said were important.
3. The workshop method of training was selected as the most important.
4. Teachers need opportunities to designate the problems and ideas for curriculum improvement.
5. Regular faculty meetings at the local level were inadequate for this purpose.

²P. M. Symonds, "How Teachers Solve Personal Problems," Journal of Educational Research, Vol. 38 (October, 1945), pp. 641-52.

³Delva Daines, Analysis of Fifty Instructional Problems of Elementary School Staffs in the State of Idaho and the Implications for In-Service Growth Programs, Publication No. 17 (unpublished doctoral dissertation, State College of Washington, 1956), p. 503.

Some in-service programs have proved effective. An assessment is made in the Encyclopedia of Educational Research as follows:⁴

EVALUATION OF IN-SERVICE EDUCATION PROGRAMS.

The most recent development in in-service education has been a tendency to evaluate the effects of in-service activities upon classroom instruction and teacher adjustment. Weber presented a list of 18 criteria for a good in-service education program --criteria which took into consideration teacher's problems, their educational philosophy and personal and emotional needs, the rewards for service, and the living and working conditions. In a study of in-service education programs conducted at the county level, Emans found significant differences at the one-percent level in mean scores of 118 teachers on attitude scales taken before and after the in-service education experience. Henderson evaluated the program of 26 workshops by securing pretest and final test results on an Inventory of Attitude Toward Teaching, questionnaire replies, and letters of inquiry. Changes in democratic attitudes, were significant at the one per cent level.

In addition, the Encyclopedia of Educational Research reports:⁵

Some evidence has been submitted which seems to indicate that teachers are not always conscious of their needs--some of which are quite personal in character. Oliver found little relationship between teacher beliefs and their classroom practices. The teachers in his study showed a high degree of acceptance of certain principles of education and child development which Oliver did not find to be reflected in instructional activities. Evidence of need for personal and social adjustment was shown by Symonds who analyzed the autobiographies of fifty teachers to secure clues as to possible dynamic factors responsible for the development of needs. He postulated the influence of certain

⁴W. Harris (eds.), The Encyclopedia of Educational Research (New York: The Macmillan Co., 1960), p. 707.

⁵Ibid., p. 704.

factors in choosing teaching as a profession and the influence of teaching experience on the personality of the teacher. In an attempt to discover personality characteristics and needs of teachers which would be increased with experience, Jackson and Guba used the Edwards Personal Preference Schedule to secure responses from 366 public school teachers with varying amounts of experience and from a group of liberal arts students with which comparisons were made. Their evidence seemed to point to an occupational syndrome of needs which emerges with experience in teaching, but they raise the question as to whether occupational activities tend to develop the pattern of needs or whether the pattern of needs which characterize teachers may be the result of progressive elimination of those teachers who fail to conform to characteristics peculiar to teachers as a group. The question may also be raised as to whether a good program of in-service education to meet the needs of teachers would alter the pattern of characteristics usually found in a group of teachers.

This suggests the need for psychologically based in-service programs. Even when the in-service is psychologically based, retention may be slight. This fact becomes a limitation of this study

Williams⁶ has done research on teacher behavioral changes after in-service training but reports that there is a great tendency to revert to the original behavioral patterns, even after initial enthusiasm.

A unique training program was conducted by Spotts⁷ who tested several propositions concerning the effects of

⁶J. D. Williams, "Method-Reversion: The Problem of Sustaining Change in Teacher-Behavior," Educational Research (The National Foundation of Educational Research in England and Wales), Vol. VIII, No. 2, 1966.

⁷Jules E. Spotts, "Some Effects of Exposure to a Psychotherapy Rating Task in Teachers of Emotionally Disturbed Adolescents," (unpublished doctoral dissertation, University of Wisconsin, 1965).

exposure to a psychotherapy rating task in a group of teachers of mentally disturbed adolescents. This training seems to elicit a more empathetic response of teachers to students.

Mariner⁸ conducted a longevity study of the effects of psychiatric aid to teachers and other school employees and reports progress was made, but that expense of treatment and the "treatment effect" reduced the effectiveness and continuation of the program.

Ten years ago Walker⁹ reported a program that was designed to aid teachers in dealing with children that had psychiatric problems. Part of the training involved some psychiatric-client (teacher) time and was reported as being helpful although the project was not reported in research terms as such.

Some procedures center around small groups, discussions and participatory activities. Gordon¹⁰ used a group discussion procedure as an in-service program to facilitate faculty growth.

A somewhat related study by Dysart¹¹ showed that

⁸H. S. Mariner, "Group Psychiatric Consultation with Public School Personnel," Personnel and Guidance Journal, 40:254-258, Nov., 1961.

⁹Walker, Warren and others, "The Psychiatric Interview and Teacher Training," Mental Hygiene, 40:406-12, 1956.

¹⁰Ira J. Gordon, "The Creation of an Effective Faculty Advisory Training Program Through Group Procedures," (unpublished doctoral dissertation, Teachers College, Columbia University, 1950).

¹¹James M. Dysart, "A Study of the In-Service Training in Sociometry and Sociodrama on Teacher-Pupil Rapport and Social Climate in the Classroom," (unpublished doctoral dissertation, New York University, 1952).

the climate of the classroom could be improved by in-service training emphasizing role playing, sociodramas, and group dynamics.

Sargent¹² did a study of Innovative administrators and their training and re-educative practices. He found that the innovative administrators used discussion, free criticism periods, and general catharsis techniques along with granting greater teacher autonomy to bring about change.

A study designed to test the effectiveness of individual conferences as a teacher growth technique was done by Kaiseley.¹³ The study used a modified case study approach and through non-directive conferences came to the following conclusions which are applicable to this study:

1. The teacher centered approach enabled a better supervisory service to function in a better relationship.
2. An examination of attitude change of the immediate nature was not discernable, but was predicted to improve at a later date.
3. It prevented a tendency toward negative attitude change that may be present towards the end of any school year.

It is interesting to note that Bowers¹⁴ states that

¹²Harold R. Sargent, "A Test of Motivational Appeals Judged Effective by Chief School Administrators to Induce Teacher Acceptance of Educational Innovation" (unpublished doctoral dissertation, Pennsylvania State University, 1965).

¹³V. V. Kaiseley, "A Study of the Individual-Teacher Conference as a Supervisory Technique" (unpublished doctoral dissertation, Ohio State University, 1956).

¹⁴N. D. Bowers and R. S. Soar, Studies of Human Relations in the Teaching-Learning Process (Nashville, Tennessee: Coop. Res. Prog., U.S. Office of Education: 1960, North Carolina, South Carolina, 1961).

the teachers who were immature or who perceived their surroundings inaccurately did not profit from in-service programs that were aimed at human relations training for teachers.

Two specialists in faculty-administrative relations, Blumberg and Amidon,¹⁵ make a strong plea to administrators to deal more directly with the interactive nature of their supervisory confrontations. They suggest approaches for both teachers and administrators which will replace defensiveness with supportiveness.

An entire book by Sharp¹⁶ is devoted to the thesis that teachers need improved psychological orientation if they are to keep up with curriculum changes. He suggests some ways for accomplishing this but does not have research evidence of successful programs.

Although there seems to be a paucity of research that attacks the immediate problem suggested in this thesis, there does seem to be a trend that is predictable. An article by Cunningham¹⁷ states that the nature of the in-service offerings will probably shift to include a process focus as well as a content focus.

¹⁵Arthur Blumberg and Edmund Amidon, "Teacher Perceptions of Supervisory Teacher Interaction," Administrator's Notebook, Vol. XIV, Sept. 1965, No. 1.

¹⁶George Sharp, Curriculum Development as Reeducation of the Teacher (New York: Bureau of Publications, Teachers College, Columbia University, 1951).

¹⁷Luvern L. Cunningham, "Improved Possibilities for In-Service Education," Administrators' Notebook, Vol. XIV, Jan. 1966, No. 5, University of Chicago.

Sensitivity Training

It would appear that most of the research that has been done that deals with the T-Group has concentrated on the process and on esoteric measurements from within the laboratories. Even the experimentation that deals with transfer and back-home changes as a result of laboratory training has generally used subjective and personal judgments as criteria. The research based on the psychological field created by people around participants is scarce. Most of the change measured has dealt with types of changes, pre-post lab changes, types of personalities that change and why, and leadership (trainer) skills or differences. These are a kind of in-group measurement.

While the history of the National Training Laboratories has been filled with research orientation, there has been a gradual shift of emphasis. This shift has been from studies dealing with group function to studies in more recent years concerned with individual learning.¹⁸ In connection with individual learning, it is Stock's conclusion that¹⁹ . . . "it is possible that what people say they want to learn does not jibe with what actually happens as a result of the T-Group."

¹⁸Dorothy Stock, "A Survey of Research on T-Groups," T-Group Theory and Laboratory Method: Innovation in Re-education, Leland P. Bradford, et al., Eds. (New York: John Wiley & Sons, Inc., 1964), p. 437.

¹⁹Ibid., p. 409.

She further states that what is important in the final analysis is how the participant experiences and perceives the T-Group as it moves along and how he later organizes and structures his T-Group experiences and infuses them with personal meaning.²⁰

This, however, may not be sufficient rationale for a school administrator when he selects an in-service education program from one of several sources. He may want more tangible evidence that this training will be perceived by those working with the participants in order to receive full benefit of the money expended. Thus the rationale that if students can perceive changes for the better, the laboratory method for in-service may be a feasible approach. As Stock emphasizes:²¹

The learnings which an individual gains at a human relations laboratory are valuable to the extent that he is able to utilize them in groups which are important in his backhome setting.

Watson²² attempted to get at this problem when he attempted to identify the learnings which occurred at the laboratory, the kinds of learning which could be transferred to the backhome job situation, and factors which might be related to differences in learning and in the application

²⁰ Ibid., p. 409.

²¹ Ibid., p. 420.

²² J. R. Watson, Ronald Lippitt, D. Kallen, and S. Zipf, "Evaluations of a Human Relations Laboratory Program," Typewritten manuscript, Research Center for Group Dynamics The University of Michigan, 1961.

of learnings. In general, they found that the better the attitude about laboratory training, the more significant the change back home. Again, data were collected through questionnaires and interviews from the participants themselves.

Achieving change is a difficult process, but measuring change is even more difficult. Recently there has been an influx of experimental research projects that deal with measuring change as a result of some form of small group process and primarily sensitivity training. Miles²³ makes a plea for the use of the T-Group as a result of the research that has been reported.

In a more recent and extensive project Miles²⁴ reports several results significant to this study. Although this project of Miles dealt with principals, not teachers, it showed that changes as a result of laboratory training seem primarily associated with active "unfrozen" participation at the laboratory, and with reception of feedback. The underlying theory attempted to specify the contributions of personality variables, organizational press, and involvement in training processes during the laboratory to obtained on-the-job change. In general, valid experimental-control differences were found. He also reports that

²³Mathew B. Miles, "The Training Group," The Planning of Change, Warren G. Bennis, et al. (New York: Holt, Rinehart & Winston, 1962).

²⁴Mathew B. Miles, "Changes During and Following Laboratory Training: A Clinical-Experimental Study," The Journal of Applied Behavioral Science, Vol. 1, No. 3, July-August-September, 1965.

practical experience in training suggests rather clearly that people of a wide range of personality types can profit from laboratory training. Perhaps the most significant recommendation to come from Miles' study is²⁵ "Any evaluation study must deal with the longer-term, more basic criterion problem." The other significant observation to come out of the research was,²⁶

Apparently, a competent professional can see changes in participants during the laboratory, changes which are associated with later improvement on the job, while the changes noted by participants themselves, though phenomenologically real, are not predictive of later changes. Finally, personality variables did not show a relationship with change in job behavior of these subjects.

In summary, Miles seems to be saying that personality changes do take place as a result of sensitivity training but these changes are difficult to measure and to transfer to backhome situations.

The Evaluation Committee of the Second American National Red Cross School for Management Development²⁷ reported that 60 percent of the participants who participated in a laboratory program when measured on an analysis of work problems changed in a constructive way. Again, however, the instrumentation was a self evaluation process.

²⁵ Ibid., p. 224.

²⁶ Ibid., p. 226.

²⁷ J. C. Glidewell, "Changes to Approaches to Work Problems Analysis During Management Training," (unpublished mimeographed manuscript, 22 p., (Washington, D.C.: Second American National Red Cross School for Management Development, 1956.)

The length of time of laboratory experiences is debatable. It naturally depends upon numerous factors such as goals, time available, financial expenditure, etc. Many recent applications of the training procedure have centered around school staff workshops. IDEA, a Kettering Foundation project, has sponsored many of these kinds of in-service experiences for their schools. Can change be accomplished in time shorter than the original month long approach at Bethel? Stock²⁸ reports that the relative effects of two week labs as compared to three week labs has not been determined, and that there is a great need to research the question of time factors.

Lippitt²⁹ reports using feedback to check on changes in individual behavior as a result of laboratory training. He used non-participant observers who rated all of the subjects before and after the feedback period. A larger share from the feedback group showed more change than did the non-feedback group but this testing was not by objective observers in close proximity to the training period. This study utilized evaluation of change which was observed by those people with whom the subjects taught and worked.

²⁸Stock, op. cit., p. 395.

²⁹G. Lippitt, "Effects of Information About Group Desire for change on Members of a Group" (unpublished doctoral dissertation, American University, 1959).

Douglas Bunker³⁰ conducted a study to determine whether Miles' findings relative to behavior changes among school principals can be extended to an occupationally diverse, larger group of participants in training laboratories, and to provide an empirical application of the dimensions of change in on-the-job performance which might be associated with laboratory education. The focus of his inquiry was upon the changes in individual behavior, but the research methods were designed to tap those types of changes which are most visible and organizationally consequential. Participants were rated after ten months back on the job by self-descriptions from both experimental and control subjects, from peers, superiors and subordinates. In general his conclusions showed back-home change, but found that laboratory training outcomes tend to be rather individual and varied. The fact that such changes were visible to others in the organization, leaves room for the presumption that these individual effects had organizational impact. Further, Argyris³¹ reports that changes initiated in the laboratory setting can be applied over time in work relationships and, as seen by subordinates, in the home environment.

³⁰Douglas R. Bunker, "The Effect of Laboratory Education Upon Individual Behavior," Number Four Subscription Service, National Training Laboratory, National Education Association, Washington, D.C. (unpublished manuscript), Graduate School of Business Administration, Harvard University, 1963.

³¹Chris Argyris, Interpersonal Competence and Organizational Effectiveness (Homewood, Illinois: Irwin-Dorsey, 1961), see Chapter 10.

Cartwright³² found that human relations workshops were more productive when they involved training teams from the same institutions than if they came to the workshops as isolates. He also states that the back-home change is related to the type of laboratory group characteristics with which he identifies, and to his group membership status.

Lippitt³³ also found strong evidence of the importance of training teams rather than the training of individuals. He found that isolates with greater potential for change, produced less in their backhome situations than individuals with less potential who were trained as group members.

With the same focus Miles³⁴ reports that we need research in four areas, one being family groups. He states:

Third, one wishes for inquiry into so called "family group" training, where the target of concern is a group or some larger system, rather than the individual as such. In what degree do such approaches owe their apparent success to durable changes in persons, as contrasted with mere reorientation of the systems in which they operate?

³²Dorwin Cartwright, "Achieving Change in People: Application of Group Dynamics Theory," W. W. Charters and N. L. Gage, Readings in the Social Psychology of Education (Boston: Allyn and Bacon, Inc., 1963).

³³Ronald Lippitt, "Training in Community Relations," as reported in Group Development, Leland P. Bradford, ed. National Training Laboratories, Washington, D.C., 1961, (New York: Harper and Brothers, 1949), p. 102.

³⁴Mathew B. Miles, "Human Relations Training: Current Status," Issues in Training, Irving Wescher and Edgar Schein, eds. (Washington, D.C.: National Training Laboratories, National Educational Association, 1962), p. 10.

Stock³⁵ is referred to again to summarize the research in sensitivity training that is applicable to this study. In fifty-two references used in her bibliography of the review of research on T-Groups no mention is made of teachers being evaluated on change by students as a result of a training experience.

Student Evaluation of Teachers

✓ The practice of collecting ratings of teachers from their pupils has had a moderate vogue for about thirty years. Advocates of this practice have claimed many values for such ratings, among them the improvement of teacher behavior.³⁶

Following is some of the research and literature that pertains to this thesis. ✓ Morsh and Wilder³⁷ conclude that research did not show that feedback to teachers changed their teaching behavior, and Savage³⁸ had similar results when she was unable to demonstrate that teachers change as a result of student opinion feedback.

✓ Gage³⁹ et al , summarized that feedback of pupil ratings can be used to improve teacher behavior. They

³⁵ Stock, op. cit., p. 439.

³⁶ N. L. Gage, Philip J. Runkel, and B. B. Chatterjee, "Changing Teacher Behavior Through Feedback from Pupils: An Application of Equilibrium Theory," W. W. Charters, Jr. and N. L. Gage, Readings in the Social Psychology of Education, (Boston: Allyn and Bacon, Inc., 1963), p. 173.

³⁷ J. E. Morsh and Elenor W. Wilder, "Identifying the Effective Instructor: A Review of the Quantitative Studies, 1900-1952" (Lackland AFB, San Antonio, Texas: Air Force Personnel and Training Research Center, Research Bulletin, TR 54-44), p. 39, 1953.

³⁸ Marjorie L. Savage, "Pupil Ratings Used in Student Teaching," American Vocational Journal, 1962, 37, pp. 97-101.

³⁹ Gage, op. cit., p. 173.

leave to further study the question of whether a procedure specifically designed to maximize influence on the teacher would produce change great enough to have educational significance or not.

✓ Many kinds of instruments that in some way relate a student's reaction to his teacher have been used in the educational scene. The University of Michigan and Michigan State University are examples of institutions that use student evaluation of instructors. The rationale for the use varies. Sometimes it serves as an administrative evaluation and other times it is used as feedback to the instructor for the purpose of improvement of instruction. Ryan⁴⁰ has a teacher characteristic schedule which has been adopted to student use.

✓ In another reporting by Ryan^{41, 42} teacher evaluation was approached through a project which involved three kinds of criteria through observation, namely: warm and friendly, responsible and systematic, and stimulating and imaginative. The first phase, involving both student and adult observations, provided data for suggested clues regarding the characteristics of teachers which might be

⁴⁰David G. Ryan, "Teacher Personnel Research," California Journal of Educational Research, Vol. 4, 19-27, pp. 73-83, 1953.

⁴¹David G. Ryans, "Investigation of Teacher Characteristics," Educational Record, Vol. 34: 370-396, 1953.

⁴²David G. Ryans, "Theory Development and the Study of Teacher Behavior," Journal of Educational Psychology, Vol. 47, pp. 462-475, 1956,

classified as "good" or "bad." In a second phase of investigation, Ryan points out that the so-called "good" teachers had characteristics such as favorable opinions of students, favorable opinion of democratic classroom procedures, favorable opinions of administrators, and favorable opinions of child-centered classrooms. The studies failed to distinguish the great share of "average" teachers. The studies also seem to indicate that pupil behavior is more related to teacher behavior in the elementary school than it is in the high school.

✓ Eidsmore⁴³ has authored an instrument which contains seventeen items on which students rate their teachers using a scale from 1-9. It has been suggested for use in both high school and college as an opportunity for introspection. There are no data on reliability or validity.

The Wilson Teacher Appraisal Scale⁴⁴ is another instrument of the same variety but designed for grades 7-11. Remmer⁴⁵ has been involved with two such scales, The Purdue Rating Scale for Instructors and The Purdue Instructor Performance Indicator. The latter (1960) is an improvement over the older one as it uses a forced choice technique and has high validity and reliability.

⁴³Oscar K. Buros(ed.), Mental Measurements Yearbook, (6th edition; Highland, New Jersey: The Gryphon Press, 1965), p. 949.

⁴⁴Ibid., p. 952.

⁴⁵Ibid., p. 950 and p. 949.

✓ The question of mutual influence of the teacher-student relationship is pertinent to this study. Yee⁴⁶ reported statistically significant results when he tested the direction of attitude change between teacher and student. He showed that teacher attitudes cause pupil attitudes to change, although it was not explored to see if the students were aware of teacher changes in attitudes.

✓ Phillips⁴⁷ studied factors of importance in the classroom as seen by students. These were ranked and compared to some traditional ways of evaluating teachers. He concluded that different teachers can arouse the same student response in different ways, and that there was a difference, although not predictable, between individual and group ratings.

The value of evaluating teachers by students is difficult to assess. ✓ Biddle and Ellena⁴⁸ who have published one of the more thorough books dealing with teacher effectiveness, make mention of several references to studies and suggestions for the use of students for teacher evaluation. In general they report that the

⁴⁶Albert H. Yee, "Causality in the Relationship Between Teacher and Pupils' Interpersonal Attitudes," (unpublished doctoral dissertation, Stanford University, 1965).

⁴⁷B. N. Phillips, "The Individual and The Classroom Group as Frames of Reference in Determining Teacher Effectiveness," The Journal of Educational Research, Vol. 58: 128, Nov., 1964.

⁴⁸Bruce J. Biddle and William J. Ellena, editors, Contemporary Research on Teacher Effectiveness (New York: Holt, Rinehart and Winston, 1964), p. vi.

research on teacher effectiveness is scanty, particularly by the use of students.

✓ A study by Blair⁴⁹ evaluated the classroom effectiveness of teachers as perceived by high school students. Using the critical incidence technique he analyzed ineffective and effective teaching methods as seen by students.

✓ Correlations between the teachers' personality and the effect on childrens' personality were statistically significant in a study done by McCallon.⁵⁰ He also used the student (5th and 6th graders) in his instrumentation. A highly significant positive correlation was found by Brown⁵¹ to exist between pupils' ratings of the behavioral characteristics of teachers and pupils' attitudes towards teachers.

Fare⁵² came to the conclusion that certain teacher personality factors should be considered as possible contributory causes to pupil adjustment or maladjustment.

⁴⁹John Blair, "Classroom Effectiveness of Teachers as Seen by High School Students," (unpublished doctoral dissertation, University of Missouri, 1962).

⁵⁰Earl L. McCallon, "Selected Teacher Characteristics and Self-Ideal, Self-Concepts of Grade School Children," (unpublished doctoral dissertation, University of Arkansas, 1965).

⁵¹Iva D. Brown, "Role Perceptions of Secondary Teachers as Related to Pupils' Perceptions of Teachers' Behavioral Characteristics," (unpublished doctoral dissertation, University of Georgia, 1966).

⁵²Don E. Fare, "Teacher-Related Anxiety in Elementary School Children," (unpublished doctoral dissertation, Texas Technological College, 1964).

A University of Michigan professor, Flanders,⁵³ has used students to measure the effect of teacher influence on students attitudes. He found that teachers' attitudes can be observed by students and that they affect student attitudes. His work is based on pupil attitude tests.

Stewart and Malpass⁵⁴ report that they found a significant relationship between grade estimates of college students and their ratings of selected instructor characteristics. Students expecting high grades rated their instructors higher than did those expecting low grades. This does not mean that grading affects instructor ratings but that poor students are not expecting good instruction nor good grades in the future. This does not necessarily conflict with Bryan.

Pupils were used by Cheong⁵⁵ to investigate the relationships between teacher and ideal teacher discrepancies, and six dependent variables. He combined many of the research ideas of the past dealing with student evaluation of teachers and found the students' opinions very valuable in his study.

⁵³N. A. Flanders, Teacher Influence on Pupil Attitudes and Achievement, Final Report, Cooperative Research Project No. 397, (Washington, D.C.: U.S. Office of Education, U.S. Government Printing Office, 1960).

⁵⁴Clifford T. Stewart and Leslie F. Malpass, "Estimates of Achievement and Ratings of Instructors," The Journal of Educational Research, Vol. 59, No. 8, April, 1966.

⁵⁵George S. Cheong and M. Vere De Vault, "Pupils' Perceptions of Teachers," The Journal of Educational Research, Vol. 59, No. 10, August, 1966.

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An older study by Ward⁵⁶ also used student perceptions to help teachers 25 years ago. Reference to Bryan's^{57, 58, 59} work is thoroughly covered in Chapter III of this thesis. Suffice it to say here that Bryan claims students are very accurate judges of teacher behavior and are sensitive to teaching techniques and characteristics and thus their opinions can be used to improve teachers.

Summary

A review of the literature reveals a long history of writings and research in the areas of in-service training and student evaluation of teachers. In general there have been no patterns or general conclusions that are specifically helpful to this study. Many of the projects reported showed insufficient evidence, lack of significant differences, or use of instruments that have not been validated or have not been shown to be reliable. It is obvious that more research is needed in these two areas.

⁵⁶W. D. Ward, et al., "The Training of Teaching-Personality by Means of Student Ratings," School and Society, LIII, 1941, pp. 188-93.

⁵⁷Roy C. Bryan, A Service Designed to Improve the High School Teacher's Image with Students, pamphlet printed by Western Michigan University, Kalamazoo, Michigan, 1963.

⁵⁸Roy C. Bryan, Reactions to Teachers by Students, Parents and Administrators, Cooperative Research Project No. 668, Western Michigan University, Kalamazoo, Michigan, 1963.

⁵⁹Roy C. Bryan, Twelve Teachers and Their Effects on Students, Faculty contributions, Series LV, No. 4, School of Graduate Studies, Western Michigan University, Kalamazoo, Michigan, 1959.

One trend seems to be evident for each area. In the field of teacher evaluation by students there seems to be enough evidence that warrants student evaluation of teachers as a feasible activity. The difficulty comes in the application of this activity. In the field of in-service education there seems to be a trend to emphasize the psychological aspects. The personality characteristics of teachers proves to be a constant, intriguing source for investigation.

Laboratory sensitivity training has been constantly researched since its inception, but there would appear to be a need for further studies that deal with back-home changes as judged by the people around the subjects in their daily lives.

The research reviewed gives impetus to the research contained in this study. It shows that while there are no other studies that have addressed themselves to the specific considerations of this thesis, there is supporting evidence behind the theories involved.

CHAPTER III

PROCEDURES

The purpose of this chapter is to explain the design of the study, the procedures used in the collection of data, the sources of data, instrumentation, and the methods of data analysis.

Design of the Study

This study was designed to assess the impact of laboratory learning on a high school staff as measured in part by the students of those teachers involved. The design follows the basic pattern of "The Nonequivalent Control Group Design," Number 10, as described by Gage, reported by Campbell and Stanley.¹ The significant part of this design is that the control and experimental groups do not have pre-experimental sampling equivalence, however, the main effects of history, maturation, testing, and instrumentation are controlled. A pre-test, post-test, post-test design was used as shown in the table below.

¹Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research (Chicago: Rand McNally & Co., 1966), p. 47.

Table 1. Table showing the research design.

Subjects	Pre-Test	Treat- ment	Three Wks. Post-test	Three Mo. Post-test
	A		B	C
Poway High School Teaching Staff N = 25	Western Michigan University Student Opinion Questionnaire	Three Day Labor-atory Training	W.M.U.S.O.Q.	W.M.U.S.O.Q.
	0	X	0	0
	0		0	0
St. Clair High School Teaching Staff N = 27	W.M.U.S.O.Q.		W.M.U.S.O.Q.	W.M.U.S.O.Q.

There were two timing limitations to this study which should be explained in terms of the design. One was that in neither the experimental school nor in the control school was it possible for all teachers to give the instrument to their students at the same time. Both schools operate on a modular, varied-period time schedule, so teachers had to administer the instrument at their convenience. This means that in some instances some students may have been asked to report on more than one teacher. This should not be a serious limiting factor,

however, because Bryan^{2,3} has shown that students in general are consistent in their rating of teachers, i.e., poor teachers are generally rated poor by most students. (Reliability coefficients for the different scaled questionnaire questions ranges from .83 to .94).

The other timing limitation may have some effect on an alternate hypothesis such as history. The experimental school and the control school were not able to give the tests simultaneously, although the time intervals were approximately the same. This represents a "time-skid." Since this was unavoidable, it will have to stand as a limitation or as a source of an alternate hypothesis if change occurs. Since it is difficult to control changes outside of the experimental treatment (history) anyway, the timing differential adds to this limitation.

Poway High School was tested not more than five days and less than two days prior to the in-service experience which occurred on October 29-November 1, 1966, two months after the school had started. The first post-test was administered no later than three weeks after the workshop, and the second post-test was administered no later than

²Roy C. Bryan, Pupil Ratings of Secondary School Teachers, Contributions to Education No. 708 (New York: Bureau of Publications, Teachers College, Columbia University, 1937), p. 37.

³Roy C. Bryan, "Factors to Consider when Interpreting Your Image Report," (unpublished document, Student Reaction Center, Western Michigan University, Kalamazoo, Michigan, Fall, 1966), p. 1.

three months after the workshop.

The control school testings used the same time intervals but were tested the last week of November, the middle of December and the middle of March. As far as could be determined by either school there were no drastic situations or activities that occurred around testing times that might have obviously affected a great share of the students' reactions.

Collection of the Data

The procedures used for the administration of the student-opinion form were the same as prescribed by the Student Reaction Center except that teachers were not mailed the results until after the entire study was completed. Western Michigan's Student Reaction Center mails the forms and the instructions to the individual teachers at each school. Within the time limits set by this study the teachers administered the forms to the classes of their choice, at their convenience. The teachers exchanged rooms for the administration or asked free teachers to come to their room for the testing. The teacher of the class was not present at the time of the testing. The students did not sign the forms. After they had completed the questions (average time 20 minutes) they were collected by the visiting teacher and placed in an envelope provided and sealed in front of the students. The visiting teacher then mailed the forms to Western

Michigan University for analysis and computation of the results. The results were mailed to this investigator. The same proceedings were used in each testing at each school. See Appendix C for copy of instructions.

The timing or the spacing of the testing intervals for the two post-tests was an arbitrary decision. Overt behavioral changes have been difficult to measure as a result of T-Group experiences and the purpose of the two post-testings was two-fold. One was to attempt to determine what is the best time to check for change. Secondly, if there is change in three weeks for example, is it still discernible later, three months for example? Time, money, school organizational patterns, and the scope of this thesis restricted additional post-test intervals.

Personal and Subjective Information

At the first meeting of the workshop, the teachers were asked to complete a form which supplied personal, educational, and occupational information (see Appendix D). Daily-Meeting reaction sheets administered at the end of each of the first two days of the workshop gave an indication of the progress that was being made, and Summary of Workshop Experiences forms were given at the end of the laboratory experience to assess the subjects' evaluation of the three days. (See Appendices E and F.) These self-evaluation forms, the demographic information, informal interviews with participants and trainers during the workshop, notes taken at the staff meeting, and a follow-up

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visit to the school the first day of operation after the workshop provided the sources of subjective data. Four teachers are used as subjects for case studies based on the above subjective data, along with their Student-Opinion reports.

Sources of Data

Teachers. All of the teachers of the experimental school, Poway Senior High School, Poway, California, were asked if they wished to participate in the workshop. This included giving up three nights and three days away from home. Two of these days would have been normal working days, but one was a Sunday. It was explained that if they did not care to come, they could work at the school on the days when the lab was in session (not Sunday). Advanced information concerning laboratory, sensitivity training was sent to each teacher on the staff. The instructional staff of the school at that time numbered thirty-eight. Nine of the staff did not come to the workshop. Seven of the nine had conflicts, only two chose not to come. Four of the teachers that came must be considered drop-outs for reasons unknown to this investigator. Either all of the opinionnaires were not administered, or the results were not returned. The remaining twenty-five teachers compose the source of this study.

Teachers. The teachers of the control school, St. Clair Senior High School, St. Clair, Michigan, were asked

if they wanted to participate in the study as control teachers. The entire staff of thirty-one full-time teachers volunteered. Four teachers were unable to complete the testings. The remaining twenty-seven teachers constituted the control group.

Students. The students involved represent "typical" classes of each teacher and numbered from twenty-five to forty per teacher. This student load represented one or two classes and in most cases was the small group discussion segment of the varied-period schedule. There are exceptions to this from some of the activity classes such as art, typing, and physical education. Because of the style of scheduling, some of the students may have been asked to react to more than one teacher. This problem has been referred to in the earlier part of this chapter. In all cases the same students were used each time the tests were administered and the same problem existed in the control school because they have the same style of scheduling.

Poway Senior High School, Poway, California. The experimental school operates under a flexible, varied-period or modular schedule. They use Stanford University's scheduling and computer facilities. The 1966-67 school year is the second year of this kind of scheduling. They have a fourteen-module day with each module being twenty-four minutes in length. The school has approximately 850 students and an instructional staff of thirty-eight. The

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average teacher is scheduled to no more than 65 percent of the total time. The student-teacher ratio is about twenty-three to one. The day is scheduled into large groups, small groups, and individual study time. The course of study includes nearly eighty different courses. The school serves as a demonstration school for Stanford and for the Institute for the Development of Educational Activities. The school represents a middle class, suburban community near San Diego, California.

Control School. The control school was St. Clair Senior High School, St. Clair, Michigan. A suitable control school was difficult to obtain. An attempt was made to secure one in California that would resemble Poway in addition to other considerations, such as climatic and geographical conditions. The result was that schools located near Poway were very conscious of Poway's recent innovations and did not want to risk comparison. The administrators of six schools in all were contacted and they refused. The next solution was to find a school that would serve and was still somewhat comparable.

St. Clair High School is also described as being located in a middle class community and is located on the eastern Michigan coastline near Lake Huron which is thirty miles north of Detroit, Michigan. The students number slightly over 700 and the teachers number about thirty-one. They have recently undergone some curriculum and organizational

changes and advertise their new program as being "A Step Towards a Personalized and Quality Program." They are scheduled by Stanford, and have been identified as an outstanding, innovative school. Michigan State University's Department of Administration and Higher Education has spent considerable time with them in consulting work. A student's time may be divided into small groups, large groups, independent study, and laboratory instruction. Their course of study includes nearly ninety different courses. This is their first year for a flexible schedule. Data were available for only twenty-seven teachers because of inaccurate reporting.

Instrumentation

The basic instrument of this study was the Western Michigan Student-Opinion Questionnaire. The reason for its selection was three-fold.

One, it provided a standardized, valid instrument with which students could react to their teachers' behavior and is calibrated in a statistically convenient manner. The second reason was that the instrument itself was worthy of more study, research, and recommendations because it is being used extensively as a means of teacher evaluation and improvement. Over 800 teachers used this questionnaire in 1965-66. Thirdly, it appeared to represent conventional teacher characteristics so that if change occurred there would be more general agreement as to the "worth" of the treatment.

The questionnaire contains space for responses to fourteen questions. The first eight are categories of individual characteristics, and the ninth item is for scoring an all-around teaching item. The tenth deals with a critique of the amount of homework given and the remaining questions are to be answered in sentence form and serve as subjective impressions of the teacher and the class.

(See Appendix B for a copy of the form.) The form and the statistical and analytical service is provided by the Western Michigan University Student Reaction Center under the direction of Dr. Roy C. Bryan. Dr. Bryan has spent many years of his professional career, from his dissertation in 1937 until the present time, developing this form.

✓ Bryan⁴ has established this instrument as reliable and valid. Concerning the "halo" he states:

The general estimate of a teacher by students, or "halo effect," does not prevent students from expressing independent judgment on the different questions. Students are able to identify specific weak and strong points in a teacher's personality and methods. That students show more discrimination (freedom from halo) than do administrators, has been demonstrated.

As reported earlier in this chapter, students in general are consistent in their ratings of teachers. He also reports that marks or grades, and class size do not interfere with the validity of the students' reactions

⁴Roy C. Bryan, Reactions to Teachers by Students, Parents and Administrators, Cooperative Research Project No. 668, sponsored by the U.S. Office of Education, Western Michigan University, 1963, p. 10.

which makes their comments all the more important. In another source, Bryan⁵ states:

Reports from students can help teachers to (1) determine the degree to which desirable characteristics exist, (2) discover unsuspected weaknesses and strengths, (3) maintain good public relations, (4) discover gaps between theory and practice, (5) get the proper balance in emphasis between competing factors in the teaching situation and (6) get recognition for excellent teaching. This does not mean that every teacher will always be helped in all these ways. These are possible benefits. Most teachers who have used a systematic procedure to learn what effects they are having on students have received one or more of these benefits.

In another study, Bryan⁶ found that two-thirds or more of thirty-two Michigan administrators and forty-seven out of state administrators agreed that fairness, sense of humor, and friendliness can be judged better by students than by administrators. Bryan⁷ reports reliability coefficients of .90 or above on several situations and reports that validity is as high as are the conditions under which the ratings are obtained.

Regarding subject matter differences in the instrument that might affect teacher image reports, Bryan⁸ states:

⁵Roy C. Bryan, Twelve Teachers and Their Effects on Students, Faculty Contributions, Series IV, No. 4 (Kalamazoo, Michigan: School of Graduate Studies, Western Michigan University, 1959), p. 2.

⁶Roy C. Bryan, op. cit., p.3.

⁷Roy C. Bryan, op. cit., p. 34.

⁸Roy C. Bryan, Director, 1965-66 Report, the Student Reaction Center, Western Michigan University, Kalamazoo, Michigan, 1966, p. 5.

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Do teachers of any one subject have an advantage over teachers of other subjects when trying to give clear explanations? Does a high rank in ability to explain clearly come to history teachers easier or more frequently than to mathematics teachers? Are science teachers at a disadvantage to English teachers when competing for a good student-reaction average on ability to explain clearly? Is it more difficult to explain well in one subject area than in another? These are different ways of asking the same question.

In an effort to answer this question, the data shown below were assembled. The following norms for each of the named subject areas are based on student-reaction averages from a minimum of 200 classes taught by 100 or more teachers. Those for "all subjects" are based on 600 classes taught by 300 teachers.

		Eng.	F. Lang.	Sci.	Math.	Soc. Stud.	All Subjects
Percentile	75:	89	89	88	88	89	89
Percentile	50:	85	85	85	85	86	86
Percentile	25:	80	80	80	81	82	81

These data indicate that the median student-reaction average (percentile 50) received by teachers in each of the six groups on question 2 (clarity of explanations) is either 85 or 86. The average which falls at percentile 25 in all groups is 81±1. Finally, the average which falls at percentile 75 is either 88 or 89 for each group. These data lend support to the conclusion that teachers of any one subject probably have no advantage over the teachers of other subjects when it comes to giving clear explanations. This should be regarded as a tentative conclusion because norms for all subjects are not yet available.

Quoting Bryan:⁹

Some people wrongly assume that the composite picture students have of a teacher differs greatly from class to class and changes markedly from time to time. Such is not the case.

⁹ Roy C. Bryan, A Service Designed to Improve the High School Teacher's Image with Students, Western Michigan Student Reaction Center, Western Michigan University, Kalamazoo, Michigan, 1964, p. 10.

There is almost always close agreement between classes taught by the same teacher if the classes are similar--similar with respect to grade level, subject, procedures, and ability. If classes are dissimilar in one or more respects, the student-reaction averages may differ.

When the student-reaction averages obtained from two chemistry classes taught by each of 38 teachers were correlated, the median coefficient obtained on the series of questions is .80. The corresponding median coefficient for administrators, who used the same questionnaire, is .68. This means that there is more agreement between two classes of students than between two administrators. Also students show more discrimination from question to question (less halo effect) than do administrators. That is, students are less likely to give the same or similar answers to all questions.

When students are reacting to the same teacher in the same class situation, the agreement is even higher. For example, when student-reaction averages from chance halves of a class taught by each of 50 teachers were correlated, the reliability coefficients on the series of questions range from .86 to .92. These reliability coefficients compare favorably with those of the better standardized tests. The fact that there is a difference of opinion within chance-half groups of students does not mean that there is not close agreement between the halves. One chance-half group will usually contain about the same number of dissenters from majority opinion as the other.



These and other data indicate that different groups of students have much the same image of the same teachers and that a teacher's best chance of gaining an improved image rests not in waiting for former students to mature but rather in increasing his prestige with students currently in his classroom. The students' image of a teacher has stability and is not likely to be changed without well-directed effort.

Description of the Laboratory Workshop

The workshop was held in Lake Arrowhead, California, at the University of California Conference Center. The Center is located in a rustic setting at the mile-high

San Bernadino Mountains. The participants arrived at the Center by bus and returned the same way. Two basic phases of the laboratory were in operation. [Large group meetings were held about two times a day to improve communication skills, to offer theory sessions on group dynamics, and to give participants periods for expressing individual creativity. Also, announcements, reports and some of the data were collected at these meetings. The bulk of the lab experience was spent in the T-Group or vacuum lab in which participants received feedback from their group members with intentions of making them more aware of themselves and others. Opportunity was also present for individual members to bring forth personal problems to the group for support, understanding, and counseling.

There were four of these groups lead by four experienced trainers and each assisted by one co-trainer or trainer in training. Each group contained approximately nine members, some of which were not teachers but non-instructional personnel in the school such as librarians, counselors, secretaries, and administrators. Each night several groups continued on their own after the official group meetings were over and the participants reported that this time was very meaningful for them.

Time was allotted for rest and recreation after the noon meal and most people took advantage of the beautiful scenery and facilities of the setting. The weather was beautiful. The meals were excellent by any standard.

Every condition seemed to be "perfect" for a laboratory experience.

The laboratory groups were heterogeniously grouped (not randomly). As near as possible, sex, age, teaching assignment, and position in the school system were factors considered for the balancing effects in the grouping procedures. The placement procedure was a function of the lab staff with the help of the school administrators.

In a broader aspect the groups were homogeneous in that they were all employees of the Poway School System and were classroom teachers, predominantly. While groups selected for a balance of "affective-personality" types may be more conducive to eliciting a wide range of issues and effective interaction, no attempt was made at this laboratory for this kind of group make-up.

Therefore, while the intra-grouping was heterogeneous, the total population of the laboratory was rather homogeneously oriented, which according to Stock¹⁰ is less effective.

Treatment of Data

Analysis of covariance was used to test for significant differences in the experimental school and the control school. It was used to test the four major hypotheses and to investigate any differences between the schools on each individual item of the instrument. The results

¹⁰Stock, in Bradford, Bigg and Benne, op. cit., p. 404.

of the individual items were treated as supplemental information.

The analysis was computed at the Michigan State University Computer Laboratory. The student image reports were computerized at Western Michigan University at the Student Reaction Center.

The remaining reporting was subjective, modified case studies on selected teachers using the data collected at the workshop along with the reports from the Student Reaction Center.

Summary

This chapter explained the general procedures for the study. The design was explained as well as the timing of the administrations of the instrument. The process of collecting the data from the instruments and from the personal and subjective reporting was discussed. Also included were brief descriptions of the sources of the data, the lab, and the treatment of data. A detailed report was presented concerning the important facets of the instrument, The Student-Opinion Questionnaire.

CHAPTER IV

ANALYSIS OF DATA

Introduction

The following chapter includes an analysis of the data obtained from the pre-test and the two post-tests of the Student-Opinion Questionnaire. The research hypotheses are restated here in a series of statistical null hypotheses for the facilitation of the analysis. The statistical techniques used are explained and the results are reported. Supplemental results from the individual items of the questionnaire are reported. The chapter includes a summary evaluation of the in-service experience from the point of view of the participants as well as a summary of the information collected about the faculty of the experimental school. It also includes several analyses of a few selected teachers. These teachers are most representative of the faculty members who have implications for more detailed study.

Analysis of Covariance

The analysis of covariance was computed at the Michigan State University Computer Laboratory using 3600 Fortran and Compass. The alpha level was set at .05.

Analysis of covariance was selected because it was deemed the most powerful and sensitive test available for this study. Specifically, it was applicable because the covariance test equates or adjusts the pre-tests statistically before they are compared to the post-tests. This was important in this study because of the differences exhibited between the schools on the pre-tests. The chart below portrays the pre-test mean scores for each school which are approximately one full point apart on the five point scale.

Table 2. Table showing the differences on pre-test scores.

Poway-Experimental	Mean Scores Item 9 = 3.669	Mean Scores Item (1-8) = 3.549
St. Clair-Control	Mean Scores Item 9 = 2.634	Mean Scores Item (1-8) = 2.650
Differences	1.035	.899

To substantiate the use of covariance a referral is made to McNemar¹ in his chapter on analysis of covariance.

There are times when it is more practical to use intact groups which may differ in important aspects, and occasionally we may wish to make an unanticipated comparison which does not seem justifiable in the light of known differences between groups. If experimental control is not feasible, then we resort to statistical allowances.

¹Quinn McNemar, Psychological Statistics (New York: John Wiley & Sons, 1965), p. 362.

He further states:²

The (covariance) method is applicable whenever it seems desirable to correct a difference on a dependent variable for a known difference on another variable which for some reason could not be controlled by matching or random sampling.

McNemar's³ final remarks regarding the covariance adjustment to make statistical allowances for uncontrolled differences are:

. . . the net change may be thought of as the final difference between the two groups corrected for their initial differences . . . group differences on final scores (dependent variables) should be corrected for group differences on initial standing as a uncontrolled variable.

Kerlinger⁴ adds to this as he reports:

Analysis of covariance is a form of analysis of variance that tests the significance of the differences between means of final experimental data by taking into account and adjusting initial differences in the data.

A significant statement is made by Campbell and Stanley⁵ in their discussion of Design 10, the Non-equivalent Control Group Design and the selection of the proper statistics.

²Ibid., p. 362.

³Ibid., p. 371.

⁴Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, Inc., 1965), p. 347.

⁵Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research (Chicago, Ill.: Rand McNally & Co., 1966), p. 49.

Simple gain scores are also applicable but usually less desirable than analysis of covariance.

The program of covariance designated for this data originated at the University of California and has been adopted for use at Michigan State University by Alan M. Lesgold⁶ of the Computer Institute for Social Science Research.

Findings of the Study

Null Hypothesis

H_{0_1} : There is no significant difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test B using item 9 (The General Teaching Ability of This Teacher) from the Student-Opinion Questionnaire. The null hypothesis failed to be rejected -- see Appendix H -- Table 17.

H_{0_2} : There is no significant difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test C using item 9 (The General Teaching Ability of This Teacher) from the Student-Opinion Questionnaire. The null

⁶Alan M. Lesgold, "Technical Report 37, BMD04V, Analysis of Covariance with Multiple Covariates," Michigan State University, Computer Institute for Social Science Research, East Lansing, Michigan, 1965.

hypothesis failed to be rejected -- see Appendix H -- Table 18.

H_0 : There is no significant difference in the change
 3 among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test B using the combined mean scores for the first eight items of the Student-Opinion Questionnaire. The null hypothesis failed to be rejected -- see Appendix H -- Table 21.

H_0 : There is no significant difference in the change
 4 among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test C using the combined mean scores for the first eight items of the Student-Opinion Questionnaire. The null hypothesis failed to be rejected -- see Appendix H -- Table 22.

In each case the F ratio was tested at the .05 alpha level. Significant difference required an F scale of 4.04 from the F scale tables. Hypothesis I had a computed F ratio of .748, and hypothesis II, the same item but tested three months after treatment, had an F ratio of .855. The Hypothesis designed to test the significant differences on the combined items were also not significant with a .001 and a .557 F ratio respectively.

The remaining individual items were also tested for significant differences in the same manner as the items used for the four hypothesis (see Appendix H). These items were not predictable by this investigator, and therefore are entered in this study as supplemental information. The following is a summary of the results of the individual items:

The Knowledge This Teacher Has of the Subject Taught

Test B, F ratio, 1.280, Not significant

Test C, F ratio, .464, Not significant

The Ability of This Teacher to Explain Clearly

Test B, F ratio, 4.911, Significant at the .05 level

Test C, F ratio, 1.216, Not significant

This Teacher's Fairness in Dealing with Students

Test B, F ratio, .178, Not significant

Test C, F ratio, 2.531, Not significant

The Ability of This Teacher to Keep Good Discipline

Test B, F ratio, 1.164, Not significant

Test C, F ratio, 3.531, Not significant at .05 level,
significant at .10

The Sympathetic Understanding Shown by this Teacher

Test B, F ratio, .376, Not significant

Test C, F ratio, .143, Not significant

The Ability of This Teacher to Make Classes Interesting

Test B, F ratio, .369, Not significant

Test C, F ratio, 1.680, Not significant

The Ability of This Teacher to Get Things Done in an Efficient and Businesslike Manner

Test B, F ratio, .012, Not significant

Test C, F ratio, .273, Not significant

The Skill This Teacher Has to Get Students to Think for Themselves

Test B, F ratio, 3.040, Not significant at the .05 level,
significant at .10.

Test C, F ratio, 1.744, Not significant

The Amount of Work Required or Expected by This Teacher

Test B, F ratio, 2.236, Not significant

Test A, F ratio, .841, Not significant

Caution is in order for the significant difference found in item number 2, Test B. Twenty-two items were tested under the same conditions. It is not strange that 5 percent of the items, generally, would show significance. Also in Test C it dropped below the .05 level, which would indicate that the change was not long lasting. Two items fell within the 10 percent range, The Skill This Teacher Has to Get Students to Think for Themselves and The Ability of This Teacher to Keep Good Discipline. These scores are below acceptable probability levels, but they might bear watching in any subsequent replicate studies.

Report of Demographic Information

Certain demographic information was gathered from the twenty-five participating teachers of the experimental school which denotes group characteristics. The spread of the subjects taught was fairly conventional even though not all of the staff are part of this study. The list includes 1 Art, 1 Business, 3 Math, 1 Home Economics, 2 Foreign Language, 6 Social Science, 1 Physical Education, 4 Science, and 6 English teachers. There were a predominance of males as they outnumbered the females 16 to 9. The total number of teaching years for all twenty-five were averaged and found to be 5.84 years. The mean amount of years these teachers taught at Poway was less, being 2.8 years. Eighteen of the teachers were married and seven were single, with the married teachers having an average of 1.4 children. The average age of the teachers was found to be 30.84 years. Two of the twenty-five had experienced sensitivity training previously, but for the rest it was a new experience. In general, the faculty seemed to represent a fairly typical teaching staff in regards to the above criteria.

Evaluation of the In-Service Experience by the Teachers

The results of the summary of the workshop experiences evaluation instrument completed by the laboratory participants at the close of the workshop are shown below. It can be safely inferred from these data that the lab was a success in terms of the questions asked, see Appendix F.

Table 3. Teachers' response to question number one: "How do you feel about the workshop in general?"

Evaluators	Very Dis- satisfied	Somewhat Dis- satisfied	Neutral	Somewhat Satisfied	Very Satisfied
25 teachers	0	0	0	6	19
Additional participants*	0	0	0	1	5
Totals	0	0	0	7	24

*Additional participants refers to non-instructional personnel or teachers not included in the basic study because of "drop-out" problems. They did, however, participate in the workshop, and may have influenced the back-home environment.

Table 4. Teachers' response to question number two: "How do you feel about the T-Group as a means of increasing your sensitivity to the needs of others?"

Evaluators	Very In- effective	Somewhat In- effective	Neutral	Somewhat Effective	Very Effective
25 teachers	0	0	1	5	19
Additional participants*	0	0	0	1	5
Totals	0	0	1	6	24

Table 5. Response to question number three: "What are the possibilities of transferring these workshop experiences towards establishing improved communications with your students?"

Evaluators	Very Un- likely	Somewhat Unlikely	Neutral	Somewhat Likely	Very Likely
24 teachers	0	0	2	10	12
Additional participants*	0	0	0	1	5
Totals	0	0	2	11	17

At the conclusion of the lab, in addition to the checklist, all participants were asked to comment on their experiences and to evaluate possible outcomes (see Appendix F). The twenty-five teachers in this study showed that they felt that the experience was very worthwhile and that it had carry-over possibilities. The following is an aggregate of these comments. It gives a flavor of the atmosphere present at the end of the lab, and shows the success (in terms of the participants) of the lab.

How do you feel about the workshop in general?

I felt I helped others and vice versa with individual problems and needs. . . . A very real experience--overwhelming in terms of expectations. . . . learned a great deal about myself and my lack of perceiving and communicating with others. . . . A new and exceptional experience--I think it cleared the air--it did for me. . . . I understand my colleagues better so I think I'll be less "agitatable." . . . Maybe had it been longer it would have been a great deal more successful. . . I felt that I have come closer to the understanding of myself and for a warmer feeling toward others. . . . The most gratifying and helpful experience of my life. . . . I was dissatisfied at the beginning but as the time went on I began to feel better when I was able to express some problems. . . . Communicated on feeling level. Trust in group. Others concern for me as a person. . . . A very worthwhile, meaningful experience. A great feeling for all the group members from me. Probably could have given of myself more. . . . Being challenged, accepted, frustrated, rejected all in some way gets significant. . . . I feel the expression of emotion is not to be surpassed and that other people feel the same way. I am not now afraid to "break the ice." . . . Is the time in with the professional-pre-existing associations a good idea? Can carryover of hostilities be a danger? Can the carryover of limited T-Group good relationships be divisive in a faculty as a whole? . . . I wish we had one more day. I hope this doesn't wear off. . . . Norm was an excellent group director. The group responded to each other and the directions and results were more than satisfying.

How do you feel about the T-Group as a means of increasing your sensitivity to the needs of others?

A means of looking at other people and seeing them for real. . . . Possibilities seem rather fantastic to me. I know of no other means at this point that could come close to achieving the same goal. . . . A large group of even thirty, disperses attention too much--"T Group permits fairly large amounts of time in contrast to usual environment. . . . Can't think of a more effective way. . . . I can't put these particular feelings into words at this time. . . . Barriers can be broken down and self can be accepted. . . . You learn to say what you feel and can communicate with others. . . . Realize problems of others. . . . Realize problems of others. . . . Should not stay or judge on surface level. . . . Helped me to find out how I come across to others--made me aware of the need to keep getting feedback, to make sure what I think I'm communicating is in fact being communicated--make me aware of how they perceive me and that that's important. . . . Very effective. I gave more than I usually do, because I trust, respect, and feel with the group members. I want to give. Can't give as much in society, because I don't know how they feel. Must be more "out going," accept people for what they are. I should make my feelings known to them. . . . I hope very much that my sensitivity will be increased. . . . Could have been smaller (??) . . . I feel others should be exposed to this type of experience. . . . I don't think I can establish this kind of rapport with students, but I think the rapport in my group will increase. . . . It brought out the fact that every individual has needs and needs to share these needs with others.

What are the possibilities of transferring these workshop experiences toward establishing improved communications with your students?

Seeing students and the other people with whom I come into contact as "people" with needs and desires to be satisfied. No "walls". . . . I learned from all the members of the group and especially our leaders, the kinds of things not to say--some clues--able to think with people in terms of their feelings more accurately. . . . The same comment as before--need to become more focal on student feelings and awareness of each other in small groups. . . . Much good can come from continuing this activity

with others. . . . I would not feel very competent at trying this yet I believe I have a feel for the process--or the action involved. . . . I think the whole program was tremendous . . . I'm not sure how to administer it. . . . Will be able to learn the needs and desires and personality of my students. Will be able to communicate with students. . . . Get across to groups and individuals how you feel about them. Accepting them as individuals. Have them say how they feel about you. Get across to students that you like them and that you feel with them. Although not sure how they will and should be communicated, I know they will. . . . They are more likely to respect my emotions and accept me as a person free to be myself. . . . We are not a feeling expressing society--Emphasis on this is further pressure to change which may generate reaction to such experimentation from now psych oriented factions and the ignorant. . . . Students need this situation we have here. . . . If this experience is to be of educational value it must have some effect in the classroom. There are many aspects of contact with students which can be improved by the things that happened here.

Other general comments:

I am more aware of my relative maturity. . . . This is one of the most complete feeling experiences I have had comparable to religious experiences and family experiences. . . . I feel that I have understood myself much better now. . . . I feel that I may be more receptive to the individual needs of my students and by recognizing these feelings in others I can help create an environment of acceptance that will be more conducive to learning. . . . Hope to improve communication with wife and family. . . . Great, great . . . I feel like I care. . . . This was a great experience. Some of the problems that came up within the group are mine. Expressing true feelings, letting myself go improved as days passed but did not reach emotional limit, my fault. Group tried. I tried. However, I feel much better and almost satisfied. Our group leader and his assistant are marvelous persons. I like them both and I know they like me. I feel better about myself. I like myself, in turn, I like others, who have shown they like me and that I should like myself. Since I like myself and can accept myself, I can like and accept others. This I would like to achieve to a high and lasting degree. . . . Helped as an individual! The program has enabled me to look at the problems of others and my own problems and see the effects of these problems in our behavior. This can be transferred

to the classroom situation and I hope to be able to recognize the problems of students and be a more effective teacher. . . . I want to do this again.

Individual Cases

Naturally all people are not going to be affected in the same way as a result of a "treatment" experiment. There is reason to suspect that some will "improve" and some will "get worse" depending on the experimental treatment and the values placed on the instrumentation. In this study as in many others dealing with the behavioral sciences, no significant differences were found when the total staff was compared to the total staff of the control school. The purpose of this next section is to relate some of the information that was gathered on some of the significant individuals. It will not be a technical case study but rather a profile and description of a teacher that for some reason has been selected for more individualized treatment. All four selected would be considered experienced teachers. The ultimate purpose is to determine what kinds of people seem to gain the most from sensitivity training. This section can only begin to approach this question.

Case Number One

This person was selected because she represents the highest individual gains on the main items, i.e., The General (all-around) Teaching Ability of this Teacher and

the composite mean scores on items one through eight. Compared to the twenty-five Poway teachers of this study, she had an average mean score on the pre-test and above average on post-testings. Case number one is female, has taught for six years, and has had a total of twelve years' experience in teaching. She is teaching in her major field, has obtained the bachelor's degree and has done some limited graduate study. She has been married for twenty-three years and has three boys. She had not participated in laboratory training previously.

Below is a composite profile showing the changes in scores between the three testings.

In item ten, homework, the variation was slight going from 2.8 on A to 2.5 on B to 3.0 on C all of which denotes that the assignments are reasonable.

Below and on the following pages are the successive comments that students made about this teacher. They are listed by the individual questions on each page going from Test A to Test B to Test C.

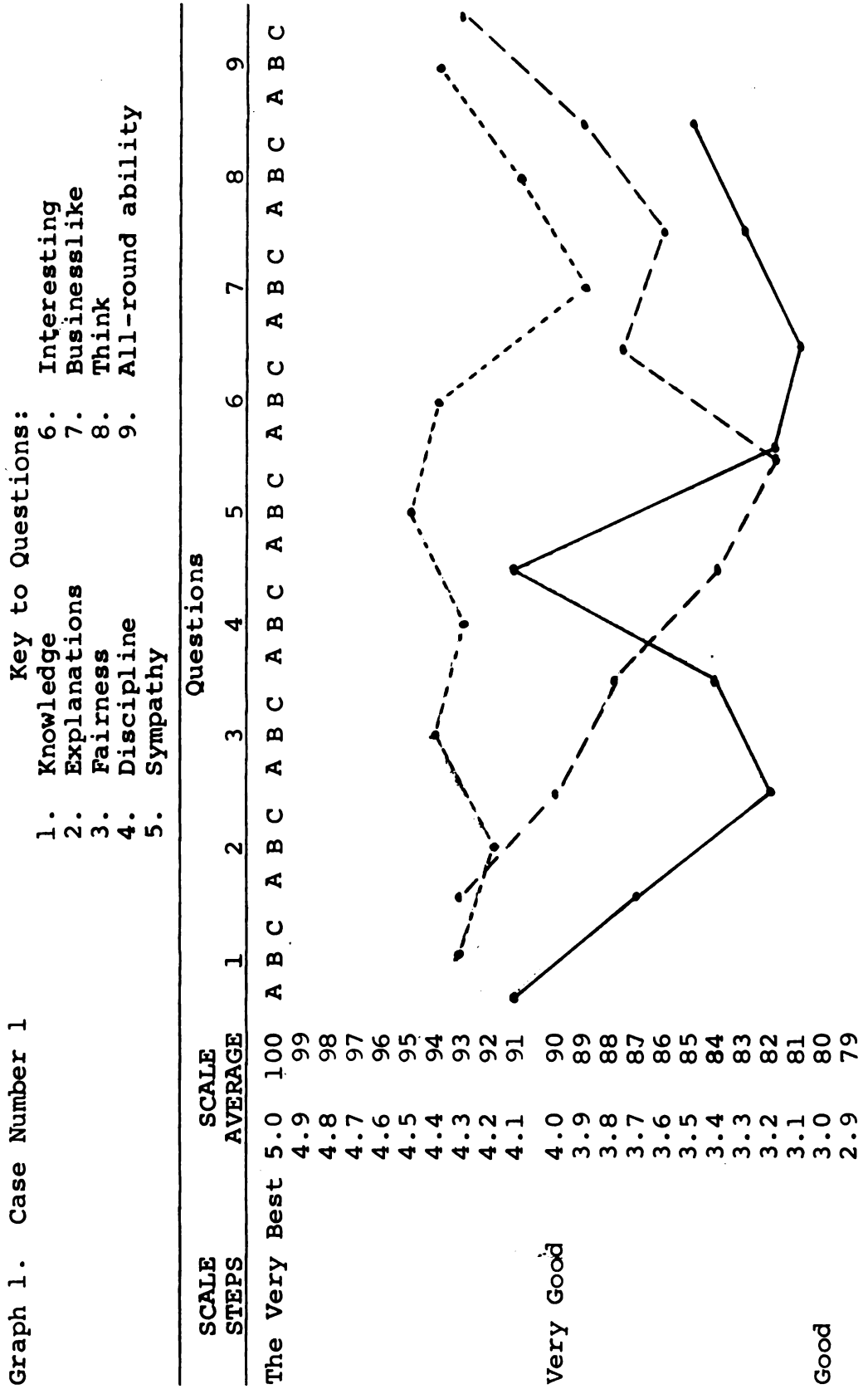
Question Number 11

Test A

11. Things Students Especially Like About This Teacher

She is willing to listen to your side of the story. . .
 She is kind. . . Willing to listen to you as an
 individual. . . Her understanding of her students. . .
 She is friendly and pleasant. . . Her helpfulness
 and interest in her students . . . She knows her
 subject well. . . She is understanding. . . She is a
 nice person. . . Her personality is good. . . She

Graph 1. Case Number 1



is understanding of the problems of her students. . . She is sympathetic. . . I like the way she always tries to understand the student. . . She is friendly and patient. . . She is always calm. . . Her patience with the class. . . Her friendliness. . . Her understanding ways. . . She is very nice to talk to. . . She is very experienced and understanding. . . She is very nice.

Test B

11. Things Students Especially Like About This Teacher

She is very friendly. . . She seems to like teenagers and gets along very well with them . . . She always handles things without having the student ending up hating her. . . She understands everyone and their problems and she is very willing to listen to everyone. . . Easy to get along with, nice and friendly. . . She has made our class seem like one big family. . . She is friendly and has a good sense of humor. . . She is friendly and helpful. . . Relating true to life happenings to our classroom work. . . We have a lot of freedom to express ourselves. . . Patient and understanding . . . Good teacher.

Test C

11. Things Students Especially Like About This Teacher

Her enthusiasm. . . She communicates with the students at our level . . . She's enthusiastic. . . Good personality. . . She is kind and understanding . . . She's so nice and understanding and will take time out for your personal problems. . . Understanding. . . Students can express themselves with her for help freely. . . She's understanding and helpful with problems. . . She's interested in the students. . . She is interested in the students and their feelings about different things. . . Nice. . . Enthusiastic. . . Likes to explain things. . . Enthusiastic. . . She is friendly and knows what she is doing. . . She is very understanding and she appreciates people and likes to help others.

Question Number 12

Test A

12. Suggestions for the Improvement of This Teacher

She might try to make things more interesting. . .
 She shouldn't favor certain students. . . She
 should bring more humor into the class to make it
 more interesting. . . She should get down to
 business. . . She shouldn't favor certain students
 She gets off discussions easily. . . . She
 should not stay so long on boring and uninteresting
 subjects. . . . She should find some way to make
 the class more interesting. . . . Sometimes she
 gets carried away on a subject.

Test B

12. Suggestions for the Improvement of This Teacher

I don't think she needs any improvement. . . As
 far as I am concerned she can't be improved upon
 None None None
 No improvements needed.

Test C

12. Suggestions for the Improvement of This Teacher

I can't think of any . . . not to drag things out.

Question Number 13

Test A

13. Things Students Especially Like About this Course

I like talking about food and nutrition. . . It is
 a useful course for anyone. . . The cooking. . .
 Homemaking. . . The openness in which we discuss
 things. . . I like to cook and to sew. . . It pre-
 pares you for the future. . . Cooking and sewing
 . . . You learn how to do things that you will use
 in the future. . . Chance to give your own
 opinions. . . Doing things without being inter-
 rupted. . . It helps you to grow up better. . .
 Child care and foods. . . It is interesting,

informative, frank and very useful in later years. . . Learning how to sew better and learning about the family. . . I like the discussions we get into.

Test B

13. Things Students Especially Like About This Course

Cooking, sewing, prenatal care and marriage. . .
Going into detail on things. . . I like the
freedom we have to express ourselves. . . The
teacher. . . Our study course. . . I love
homemaking. . . Fun . . . Everyone can talk over
their problems freely . . . We learn things about
prenatal care. . . It's the teacher that makes
it worth coming.

Test C

13. Things Students Especially Like About This Course

Child care and prenatal care. . . Fun . . . I
plan on using it when I get out of school. . . It's
given me an insight to the future and given me
confidence and skills I wouldn't have otherwise
learned. Development of more confidence. . .
Good preparation for marriage. . . Informative. . .
Subject matter -- cooking and sewing. . . Projects
and topics. . . What we learn . . . Food . . . It
teaches us things that will be helpful throughout
our lives.

Question Number 14

Test A

14. Suggestions for the Improvement of This Course

Something could be done to make this course more
interesting . . .

Test B

14. Suggestions for the Improvement of This Course

None . . . None . . .

Test C

14. Suggestions for the Improvement of This Course

More field trips would make the course more interesting . . . None.

Case Number One, Summary

On the daily reaction sheets (see Appendix E) she reported that she was very satisfied with the meetings, the groups' participation and the leader (trainer). There were a few times that she did not speak when she wished to and "a feeling of trust" was the reason given as the thing that had helped her the most. Initially, she mentioned possibilities of trying these kind of laboratory techniques with her students. A report from the administration of the school relates that she later did try some of these things and received some criticism for it from some parents. On the Summary of the Workshop Experiences (See Appendix F) form she checked the very satisfied column on her feelings about the workshop in general and stated, "A very real experience--overwhelming in terms of expectations. She also rated the item number two, "How do you feel about the T-Group as a means of increasing your sensitivity to the needs of others?" very effective and stated "possibilities seem rather fantastic to me. I know of no other means at this point that could come close to achieving the same goal." She felt that the possibilities of transferring workshop experiences towards

better communication with her students was very high and concludes by saying that she is now, "able to think with people in terms of their feelings more acutely."

When the four training groups were rated (see Appendix G) on the number of participants that had positive gains, her group was second from the best. In summary, this study started with a teacher that was rated very good by her students initially, 3.527 on item number 9 (all-around) and 3.500 on the composite score (items 1-8). She represents the successful, married, experienced teacher who probably likes young people, but may have "gotten in a rut," in her teaching. The students mentioned "interest of the class" as a source of improvement and she scored a 3.2 on the interest scale (one of her lowest scores).

She had not participated in laboratory training before, but reacted favorably to it on the first day. Her trainer described her as being sensitive, rather sympathetic and mothering, but definitely accepted by the group. She seemed to elicit warmth from other people. Her training session was successful and it appears to be reflected in the post-test mean scores (see the table below).

Table 6. Test scores -- Case Number One.

Item # 9				Items # (1-8)			
Test A	Test B	Dif.	Gain	Test A	Test B	Diff.	Gain
3.527	4.363	.836	+	3.500	4.249	.749	+
Test A	Test C	Dif.	Gain	Test A	Test C	Diff.	Gain
3.527	4.250	.723	+	3.500	3.890	.390	+

Specific items that increased on both post-tests were knowledge of subject matter, explanations, fairness, discipline, interesting, businesslike, and ability to make students think.

Particularly interesting is the drop in overall scores and on many individual items from the first post-test (three weeks) to the second (three months). However, the second post-test still shows appreciable gain from the pre-test. Thus it would seem that case study number one was "ready" for the experience, and had a very successful experience with the lab; showed remarkable gain immediately following and had some, but not all of the improvement "wear off" by the end of the semester. It was mentioned earlier that she had received some criticism about her changed approach to the class, and this could account for her decline after a time span if she had adjusted her behavior to the adult criticism. However, in general, the lab was a total positive and worthwhile experience for her.

Case Number Two

This person was selected because of her interesting initial pre-test scores and the resulting post-test scores. Although her 3.166 on item 9 and her 3.369 on the combined items (1-8) are in the Very Good category of the instrument, she is below the Poway average of 3.669 and 3.549 initially. After the experimental "treatment," she rose to the Poway average and above. See table below. Notice that the gain shows steady increase from A to B and from B to C.

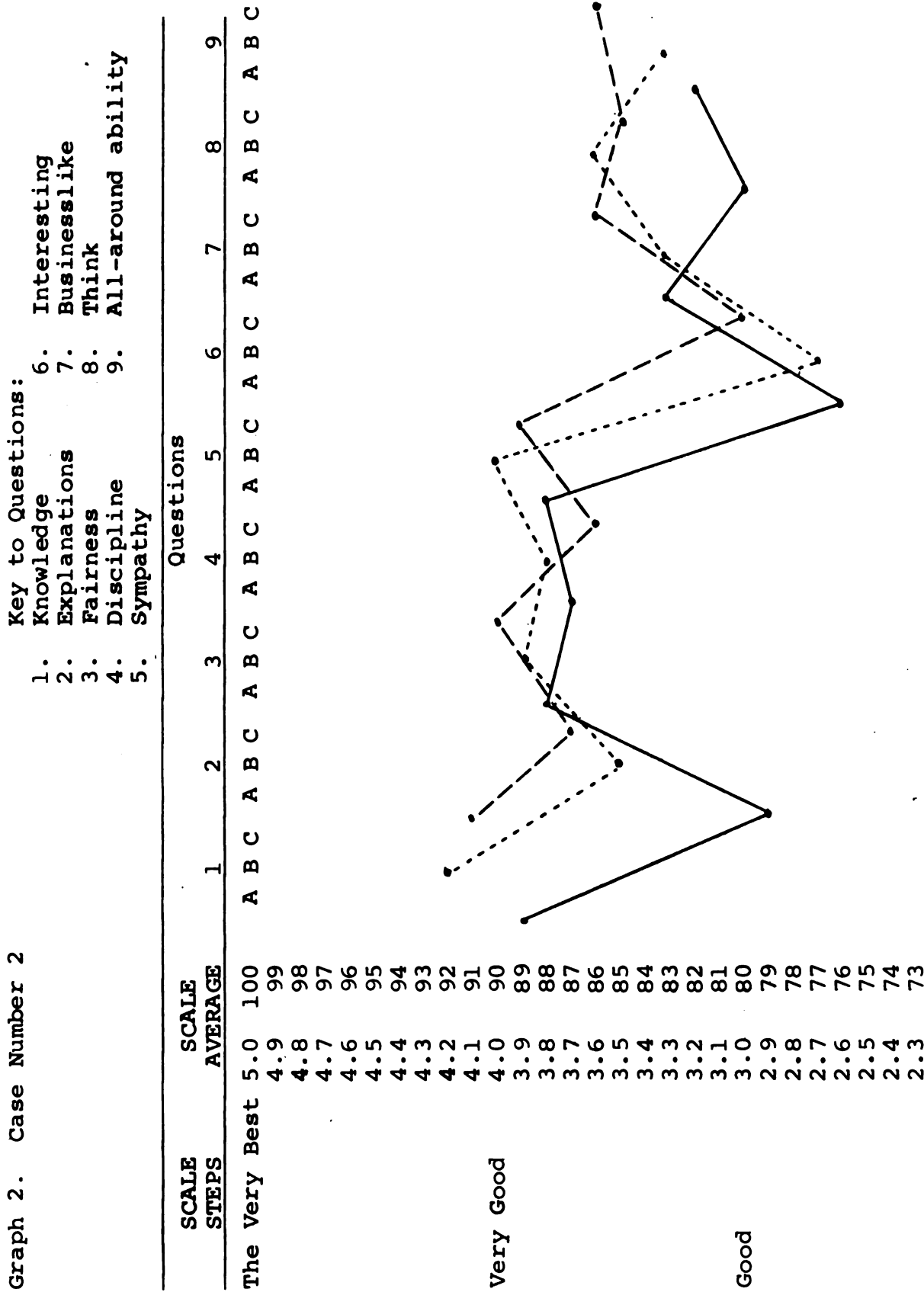
Table 7. Test scores -- Case Number Two.

Item # 9				Items (1-8)			
<u>Test A</u>	<u>Test B</u>	<u>Diff.</u>	<u>Gain-Loss</u>	<u>Test A</u>	<u>Test B</u>	<u>Diff.</u>	<u>Gain-Loss</u>
3.166	3.285	.119	+	3.369	3.612	.242	+
<u>Test A</u>	<u>Test B</u>	<u>Diff.</u>	<u>Gain-Loss</u>	<u>Test A</u>	<u>Test B</u>	<u>Diff.</u>	<u>Gain-Loss</u>
3.166	3.640	.474	+	3.369	3.665	.296	+

Case Number two is female, and has taught foreign languages for the three years of her four years at Poway. She has a total number of sixteen years of teaching experience and is married, but has no children of her own. She had not participated in laboratory training before. The foreign language is not her major field. She evidently did not have the immediate highly positive reactions that case number one had, and she checked somewhat satisfied on both of the Daily Meeting Reaction Sheets. Her comments on these daily sheets are more cautious than number one's are as she states, "chances for immediate innerchange," on the question concerning what things helped you to take part in the meeting. She mentions her own natural quietness as a hindering factor to her taking part in the sessions. On the question regarding possibilities of backhome use she is rather vague on one and does not respond on the second day's sheet.

Below is a composite profile showing changes in scores between the three testings.

Graph 2. Case Number 2



Below and on the following pages are the successive comments that students made about this teacher. They are listed by the individual questions on each page going from Test A to Test B to Test C.

Question Number 11

Test A

11. Things Students Especially like About This Teacher.

She makes herself available during free mods so that we can have a conference with her. . . Works well with individuals . . . Understands her Spanish well . . . Easy to get along with and she knows what she's taling about . . . Knows what she's talking about . . . She understands the subject well . . . She knows what she is talking about. . . She is willing to help you on any problem you may have . . . Nice attitude . . . She has a good knowledge of the language . . . She understands the language very well . . . She is very friendly. . . Takes time to talk out problems and help in every way possible . . . She is very interesting . . . Good knowledge.

Test B

11. Things Students Especially Like About This Teacher

Her knowledge of the subject . . . She is pleasant. She is understanding . . . She is willing to help you with any problems . . . She is always willing to be of as much help as possible . . . She has a thorough knowledge of her subject and she is very sympathetic towards students . . . She is very friendly . . . She knows what she is talking about . . . She provides plenty of time to help the students . . . She knows what she is talking about . . . She is understanding . . . Her knowledge of the subject . . .

Test C

11. Things Students Especially Like About This Teacher

Her fairness with students . . . The help she gives you . . . Her fairness . . . She is fair and willing to use her free time to help when something isn't clear to you . . . Her fairness concerning all students . . . She is fair and understanding . . . Her fairness on tests . . . She helps us and she has an all around good attitude . . . Her knowledge . . . She is very nice . . . She has a good understanding of the students . . . She knows what she is talking about . . . She knows the subject very well. She works with the kids a lot . . . She knows what she is talking about . . . She is willing to help you . . . She knows what she is talking about . . . Friendly, goes all the way to help us . . . She knows her subject well . . . Nice and understanding . . . She makes herself available during free mods and you always know where to find her . . . She has a thorough knowledge of the subject taught. She is willing to help students. She is sympathetic.

Question Number 12

Test A

12. Suggestions for the Improvement of This Teacher

Explain a little better . . . She needs to spend more time explaining . . . She could make the lessons more interesting . . . Explain the subject a little better . . . I think she should explain a little better . . . To be sure we understand things she presents . . . Sometimes her lectures are a little boring . . . The class should be a little more interesting . . . She should explain much more . . . Explanation.

Test B

12. Suggestions for the Improvement of This Teacher

Make her lectures more interesting . . . It might make the class more interesting if she would explain a more . . . She might vary her teaching procedures . . . Explain more fully . . . She could vary her lecture procedures because they are very dull . . .

She may use more variety in her lessons. . . . Make class just a little more interesting at times She should explain a little bit more than she does She might have different things for us to do in class instead of the same thing day after day Explain more about information in the book She should liven up the class by having better lectures.

Test C

12. Suggestions for the Improvement of This Teacher

Make lectures and classes more interesting She could make the classes more interesting I wish she would do more speaking in class so I could get used to hearing Spanish To pronounce words better Make classes interesting I think she should explain the assignments a little better She does not explain clearly Explain the assignments more clearly. Make the class a little more interesting Make class more interesting To make the class more interesting.

Question Number 13

Test A

13. Things Students Especially Like About This Course;

To compete with others College requirement I am learning The translations Films are shown in Spanish in which the student can learn about Spanish customs and life The new things you learn about another country I am learning It takes things in order It is giving me an understanding of the language We can use it in communicating with our Spanish speaking neighbors The dialogues.

Test B

13. Things Students Especially Like About This Course.

Every day I learn new words It helps you learn more about the words of the language It is challenging I can get help from the teacher when I need it The thrill of studying about another country's culture

Test C

13. Things Students Especially Like About This Course

Helps me prepare for college and my travels to Mexico and other Spanish speaking countries . . .
 The language itself . . . Talking orally in class . . .
 . . . The basic learning of the material . . . Learn a lot . . .
 All of the work is meaningful and never seems to be busy work . . .
 Grades are important but learning is stressed more . . . We learn a lot.

Question Number 14

Test A

14. Suggestions for the Improvement of This Course

Make the lectures more interesting . . . Explain things more thoroughly . . .
 The lectures should be made more interesting . . .
 Better lectures . . . Make it a little more interesting.

Test B

14. Suggestions for the Improvement of This Course

More films be shown of some of the different aspects of Spanish . . .
 Could be more interesting and not just facts. . . Have a person who speaks Spanish come in and speak to us. . .
 We could perhaps go slower over parts that are a little more difficult . . .
 More conversation in Spanish less talking in English . . .
 When new ideas are brought before the class take time to explain them . . .
 Make it more interesting . . . Have dialogue conversations . . .
 Maybe try different ways of teaching this class.

Test C

14. Suggestions for the Improvement of This Course

Give more time and go into more useful sentences . . .
 Give us more class time . . . Don't have so much memorization of dialogues. Teach us some of the basic names of things in Spanish . . .
 More lab time . . . More speaking and free writing . . . Make it

a little more interesting . . . More Spanish speaking
in class during lectures . . . Get a new book.

Case Number Two, Summary

On the Summary of Workshop Experiences she again checks somewhat satisfied but did not comment. She checked very effective on the T-Group as a means of increasing your sensitivity to others question, and she comments saying, "A large group of even thirty disperses attention too much--T-Group permits fairly large amounts of time in contrast to usual environment." This comment about the advantage of smaller groups seems rather objective in nature and not as emotional as the usual comment. She is still cautious. She sees the possibilities of transfer somewhat likely with her students and comments, "we need to become more aware of students' feelings." Under comments in general she simply states, "I am more aware of my relative maturity."

Compared to the other groups, her training group was average in terms of group positive or negative changes (see Appendix G).

A look at the comments made by her students does not show any real significant shift in the attitudes expressed. She starts with a problem in interest and still receives comment on the last testing. Sympathetic, understanding, and helping students type comments occur more often after the lab experience than before. She made the greatest changes in items explanations, knowledge of subject matter,

interesting, ability to make students think and all-round ability.

In review, this study started with a married teacher that was rated below her teaching peers, but seems to be a fairly happy, successful teacher. She had not participated in sensitivity training previously and seemed to approach it with caution. Part of her reactions were more cognitive than affective. She raised her item scores in those kinds of characteristics. She made gains in items 9 and (1-8) but they are not remarkable. Her lab experiences were successful, but not exhilarating and evidently the positive, gradual change in scores shows this slower more stable response to the training. Like case number one, her experience was worthwhile, but perhaps it was exhibited in a different, more cognitive, structured way.

Case Number Three

This person was selected for four reasons. (1) He registered the lowest score of all the teachers (twenty-five) on the pre-test, although this still ranks him as a high Good on the instrument; (2) he shows an unusual amount of range or spread in the scores of the individual items (approximately two full points); (3) he made steady gains although they might be considered negligible; (4) his scores display an unusual amount of stability and the comments from the students are very consistent (see the table below).

Table 8. Test scores -- Case Number Three.

Item # 9				Items # (1-8)			
<u>Test A</u>	<u>Test B</u>	<u>Diff.</u>	<u>Gain-Loss</u>	<u>Test A</u>	<u>Test B</u>	<u>Diff.</u>	<u>Gain-Loss</u>
2.972	2.939	.033	-	2.861	3.071	.110	+
<u>Test A</u>	<u>Test C</u>	<u>Diff.</u>	<u>Gain-Loss</u>	<u>Test A</u>	<u>Test C</u>	<u>Diff.</u>	<u>Gain-Loss</u>
2.972	3.342	.370	+	2.961	3.095	.134	+

Case Number Three is male, married and has children. He has taught mathematics and science for eleven years, three of which have been at Poway. He is teaching in his major fields, but has a master's in administration. He has not had previous sensitivity training.

He reports that he is somewhat satisfied with the first day's experiences, but his responses are cognitive and somewhat defensive and inadequate as he states, "Things that helped me were, being put on the spot to take a stand." He feels that things that hindered him from taking part were primarily not feeling my contributions would help." In the transfer question he specifically mentions improving communications which interestingly enough was, and remains, a problem as far as his students are concerned. On the second day he is pleased with the progress, asks why the trainers don't enter in more and feels "freer to talk." The final summary sheet is conspicuous with the absence of remarks and comments, although every column is checked in the extreme positive side of the continuum. He compares the experiences with some of the "more fulfilling

religious experiences" that he has had. His trainer describes him as unemotional, conservative, cognitive, but eager to subscribe to the group norms. He was in the group with the highest number of positive changers.

Below and on the following pages are his composite profile and the successive comments that students made about this teacher. They are listed by the individual questions on each page going from Test A to Test B to Test C.

On item number 10, homework, the results were stable showing 3.1 in A, 2.9 in B, and 3.2 in C, which denotes that the assignments are reasonable.

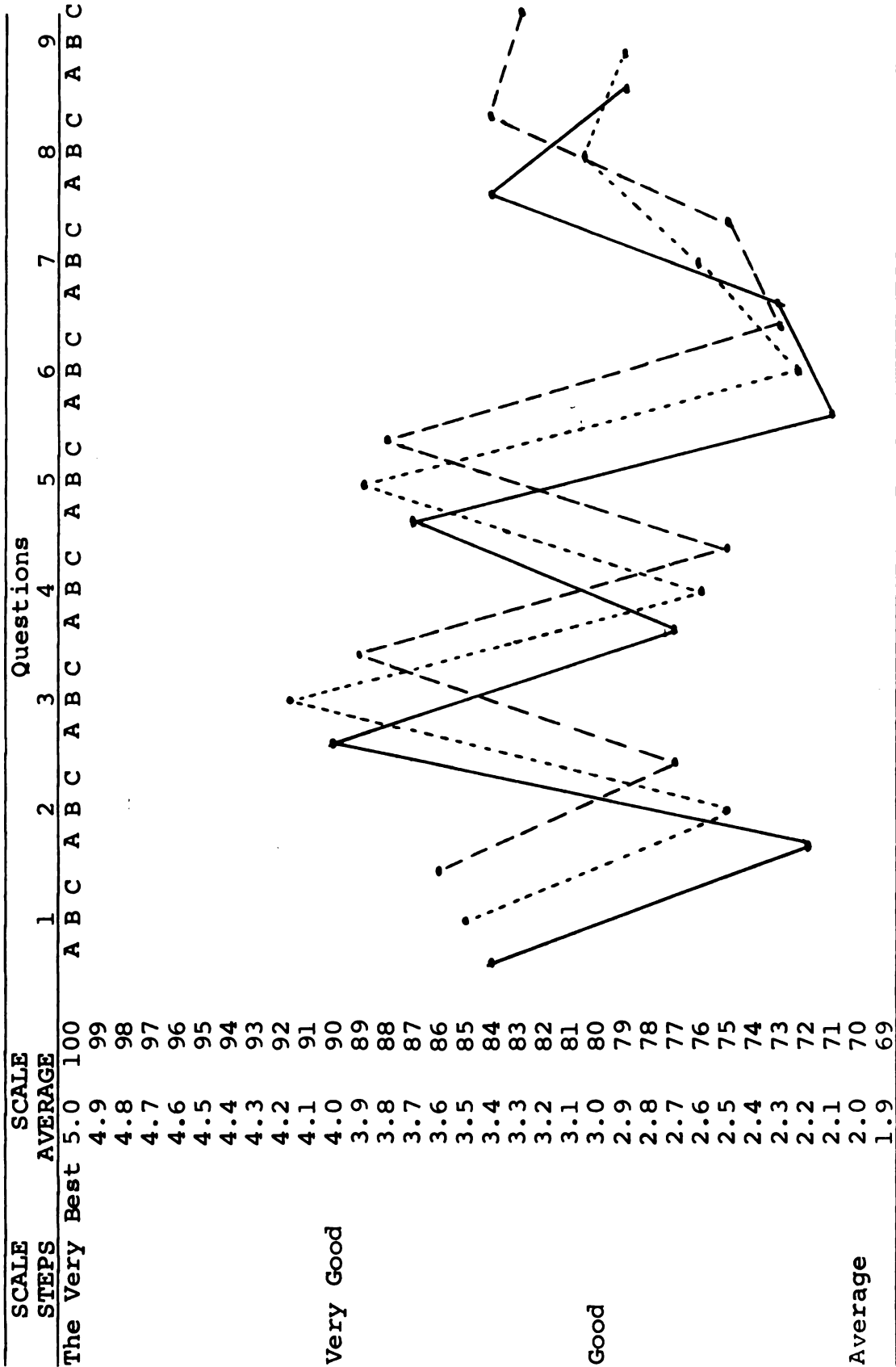
Question Number 11

Test A

11. Things Students Especially Like About This Teacher

His easy going personality . . . He will help you on any problem . . . He is fair . . . He has a great knowledge of the subject matter . . . He is always ready to give individual help . . . He is fair in his dealings with the students . . . He is fair and informal in his dealings with the class . . . He has a tremendous knowledge of math . . . His personality . . . He is a nice guy . . . His knowledge of the subject . . . He is nice and treats his students fairly . . . Fine personality . . . He's nice . . . His efforts to try and help the students so they understand . . . His knowleged of the subject . . . He is nice . . . He is helpful . . . His fairness and nice personality . . . His thorough knowledge of the subject matter . . . He is very congenial . . . He helps us with special problems . . . He is friendly . . .

Graph	3.	Case Number	3	Key to Questions:	1.	2.	3.	4.	5.	6.	7.	8.	9.
					Knowledge	Explanations	Fairness	Discipline	Sympathy	Interesting	Businesslike	Think	All-round ability



Solid line = A, pre-test; Dotted line = B, post-test; Dash line = C, post-test.

Test B

11. Things Students Especially Like About This Teacher

He is friendly person . . . He is fair . . . He is friendly . . . He knows his field well . . . He has an ability to cope with our problems . . . He is helpful and is equally fair to everyone . . . He is helpful to all . . . He tries to help the students . . . He is fair and nice . . . too he tries to help us . . . He tries hard to help us . . . He is fair. He is considerate and willing to help students . . . He is fair in the dealing of students . . . He is always willing to help students . . . He is fair . . . He has a good understanding to the material . . . He is fair . . . He has a good knowledge of the subject . . . He is helpful . . . He is fair . . . He is willing to help . . . He is fair to all students . . . He is concerned about all his students . . .

Test C

11. Things Students Especially Like About This Teacher

Trustworthy, loyal, and helpful . . . Nice guy . . . He is nice and is very fair . . . His fairness and understanding . . . He is fair and does not expect you to do things beyond your capability . . . His fairness . . . Helps you individually . . . He is very smart and an all around good guy . . . Fairness with students and knowledge of course . . . Winning personality and fairness in dealing with students . . . Winning personality . . . He treats us as if we were important . . . Knows the subject . . . He deals fairly when it comes to grades . . . He is nice . . . Time spent with you individually.

Question Number 12

Test A

12. Suggestions for the Improvement of This Teacher

He should clamp down a little on his class . . . More enthusiasm and humor and more discipline . . . He could improve on his speaking ability . . . Deliver his lectures a little livelier . . . He could make the subject less boring . . . Improve his

lectures . . . Stricter disciplinary methods and more interesting lecture material . . . He could explain better . . . He should be stricter in class . . . His voice in his lectures in only monotone . . . He could explain more thoroughly . . . He could vary the class procedures . . . Sometimes he doesn't make himself clear . . . He should prepare what he has to say before class not during it . . . To vary his tone of presentation . . . Make things more interesting . . . Be more enthusiastic . . . Better lesson planning . . . To go a little slower . . . Make subject more interesting . . .

Test B

12. Suggestions for the Improvement of This Teacher

I think he should try to make his lectures more interesting. He should be more interesting . . . He should speak more clearly . . . He could try to improve his lectures . . . He should present the material clearer . . . He should prepare his lectures so they would be more interesting . . . He should liven up the class some so it would be more interesting . . . He should liven up the class and add something new to the daily routine . . . He should make the class more interesting . . . He should vary the class procedures . . . He should make the lectures more interesting . . . He should make class more interesting . . . He could try to improve his lecturing voice, try to make it less monotone . . . He should enforce more discipline.

Test C

12. Suggestions for the Improvement of This Teacher

Give better lectures . . . Prepare lectures . . . Explain things more clearly . . . More interesting be more methodological when reviewing assignments . . . Make classes more interesting. Stricter disciplining to classes . . . Get the class attention . . . Plan lectures better . . . More interesting presentation . . . Get class attention . . . He should improve his method and tone of presentation . . . He should come to class on time . . . He should make classes more interesting and get more done during class time . . . Work something different into discussions . . . Clearer explanations and more time for questions . . . His lessons should be more

prepared and he should be a little stricter . . .
 Better preparation of course . . . prepare lectures
 . . . Make more interesting while explaining . . .

Question Number 13

Test A

13. Things Students Especially Like About This Course

Not too formal . . . The way it makes you think . . .
 It makes me use my initiative . . . Makes the person
 think logically . . . You explore new fields . . .
 The material available . . . The ability to work with
 computer type functions and watch them operate . . .
 Learning by experience . . . Using the electronical
 equipment . . . The labs . . . Using the logic boards
 . . . The fields of the subject . . . working with
 the logic circuit boards

Test B

13. Things Students Especially Like About the Course

I like learning something new and different . . . I
 like it because it is different and new . . . It
 adds to my basic knowledge . . . I like learning
 about computers . . . I like this class because it
 gives me an opportunity to express ideas . . . I
 like math . . . I like the challenge of math . . .
 It will be useful in the future . . . It's a good
 college prep course . . . I like working with
 numbers . . . It provides a good background for
 college . . . It is an excellent background . . .

Test C

13. Things Students Especially Like About This Course

It is challenging . . . Experiment application . . .
 Good brain exercise . . . Prepares me for college
 . . . The teaching coincides with reading material
 . . . The numerous which help . . . Has movies . . .
 Labs and movies . . . It is different from most
 classes. . .

Question Number 14

Test A

14. Suggestions for the Improvement of This Course

More explanation of the material covered in the book . . . There should be more time spent in explaining things . . . Rearrange the material and make it a little clearer . . . More interesting lectures . . . More organization . . . Make it more interesting . . .

Test B

14. Suggestions for the Improvement of This Course

I think he could explain some things in clearer terms . . . I think there could be more thorough coverage of the materials . . . I think he could make some type of linkage to the subjects presented . . . He should explain things better . . . He should explain concepts more clearly . . . He should explain more clearly. . .

Test C

14. Suggestions for the Improvement of This Course

Not going so fast especially when no one understands the material . . . More problem discussion . . . Explanations more clear . . . Make the lectures more interesting . . . More demonstrations . . . More businesslike manner . . . Make principles more concise without over descriptions . . . Make more interesting and better labs . . . Get a new book . . . We are not using small groups efficiently . . . Less proofs . . .

Case Number Three, Summary

In review, this study started with a male whose scores would indicate that he had a great amount of room for improvement, tried to conform to the process, and remained primarily "cognitive" in his behavior. He was impressed with the workshop experiences, although he

declined to verbalize these reactions. Case Number Three did show some very small progress on his scores, but this is no doubt due to the probability factor rather than real change. He remains approximately the same teacher as far as students record their reactions.

Case Number Four

This person was selected because one reason suggested for the decline in her scores was that she typified the statistical problems involved in this study. That problem was, trying to get positive improvement from teachers who are already considered by their students as the Very Best. The normal regression toward the mean is demonstrated in this kind of pattern. Fifteen of the teachers' scores were 4.00 (The Very Best) or better on the pre-test using items 9 and (1-8). This represents eight different teachers. All fifteen scores went down on at least one of the post-tests. Yet every one of these teachers (approximately one-third of the total twenty-five) record favorable comments on the Summary of Workshop Experiences sheet.

Case Number Four started with the highest scores of all teachers on the two main items on the pre-tests and finished with somewhat lower scores on the post-tests, but still ranked either second or first compared to the other teachers' scores on post-tests. She is female, single, teaching in her major field, and is in her second year at the experimental school with a total of ten years' experience.

Her individual item scores show great internal consistency as the range is very small.

The Daily Meeting Reaction sheets show favorable comments about herself, the group and the process. Interestingly, she has not written any comments whatsoever in the last column asking for the possibilities of transfer to back-home situations on both Daily Sheets and on the Summary of Workshop Experiences Sheet. Her group was scored the lowest on total number of positive changes (see Appendix G). Evidently the students could not visualize any transference either, in terms of the instrument. A chart showing the changes of the major items, the profile of the three tests and the summaries of the students' comments follow:

Table 9. Test scores -- Case Number Four.

Item # 9				Items # (1-8)			
<u>Test A</u>	<u>Test B</u>	<u>Diff.</u>	<u>Gain-Loss</u>	<u>Test A</u>	<u>Test B</u>	<u>Diff.</u>	<u>Gain-Loss</u>
4.606	4.352	.254	-	4.367	4.036	.331	-
<u>Test A</u>	<u>Test B</u>	<u>Diff.</u>	<u>Gain-Loss</u>	<u>Test A</u>	<u>Test B</u>	<u>Diff.</u>	<u>Gain-Loss</u>
4.606	4.478	.128	-	4.367	4.287	.080	-

Homework shows stable results, meaning assignments are reasonable (2.9, 2.9, 2.6).

Question Number 11

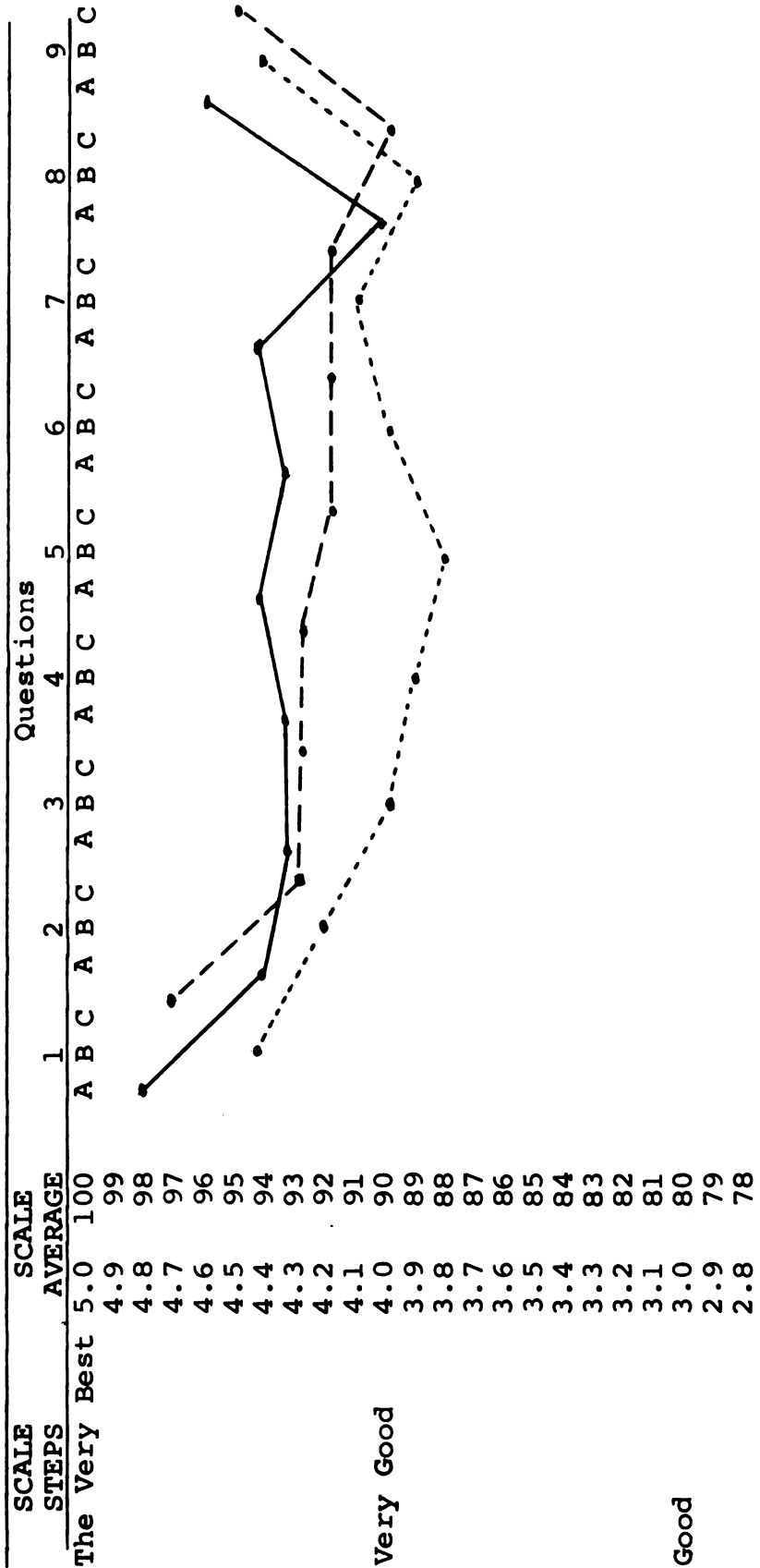
Test A

11. Things Students Especially Like About This Teacher

Graph 4. Case Number 4

Key to Questions:

1. Knowledge	6. Interesting
2. Explanations	7. Businesslike
3. Fairness	8. Think
4. Discipline	9. All-round ability
5. Sympathy	



She is friendly towards the students and is interested in them . . . Patient and very nice . . . She is very friendly . . . and treats each student fairly . . . Her knowledge of the subject . . . She explains what she wants done . . . She teaches well and has a good personality . . . She is fair . . . Her understanding and helpfulness . . . She doesn't waste class time . . . Friendly and patient . . . She is understanding and nice . . . She explains things well . . . She is very interesting . . . She is extremely interesting . . . Her enthusiasm . . . She explains the work clearly . . . Her way of teaching . . . She is good at making her students understand what she is talking about . . . You can ask her questions and she will answer without acting bothered . . . She is fair, honest and sincere . . . She knows her field well . . . She is fair . . . She is considerate . . . She knows what she is doing . . . She communicates well with her students . . . She has a pleasant personality. . .

Test B

11. Things Students Especially Like About This Teacher

She makes the class interesting . . . She knows physical education very well . . . She makes class fun . . . She explains everything by demonstrating it . . . She is fair . . . She is very enthusiastic about what she teaches . . . She has a great sense of humor . . . She is fair and she explains things clearly . . . Her fairness . . . She is fair to all students and shows no favoritism to anyone . . . Knows what she is doing and does it well . . . She has a great sense of humor . . . She is fair and has an excellent knowledge of the subject . . . She is fair . . . She knows what she is talking about . . .

Test C

11. Things Students Especially Like About This Teacher

Nice and patient . . . Sense of humor and interested in all students . . . Explains clearly and uses examples . . . Personality and fairness . . . The fairness . . . Fairness with students . . . Fair and nice to be around . . . She is fair . . . She explains very well . . . Her personality . . . Fair and honest . . . Very understanding and fun to work with . . . She's nice . . . Fairness and knowledge of the subject . . . Fairness . . .

She's pleasant to be around . . . She makes the
class interesting . . . She is a good person
to work with . . . She is quite fair to all
students . . . 'Great' and 'cool.'

Question Number 12

Test A

12. Suggestions for the Improvement of This Teacher

She need no improvement . . . None . . . No
improvement . . . She needs no improvement.
Everyone is pleased with her . . . I don't think
she needs any improvement . . . She needs no
improvement, everyone likes her . . . No improve-
ment needed, she is the best . . . Nothing I can
think of . . . I don't think she needs any improve-
ment . . . No improvement necessary . . . No
improvement needed . . . I can't think of any.

Test B

12. Suggestions for the Improvement of This Teacher

None . . . I can't think of any . . . She needs no
improvement . . . There are none that I can think
of . . . None . . . I can't think of anything she
needs to improve on . . . Can't think of any.

Test C

12. Suggestions for the Improvement of This Teacher

No improvement needed . . . I can't think of anything
. . . None that I can think of . . . None . . .
None . . . None . . .

Question Number 13

Test A

13. Things Students Especially Like About This Course

Playing hard ball and volley ball . . . I like the
sports we play . . . You have team action . . .

Exercise . . . It is fun . . . Interesting and fun . . . We can play each sport . . . There is a variety of things to do . . . You get good exercise . . . Offers interesting things to do . . . The teacher . . . The freedom . . . The variety of sports and the teacher . . . I like active sports . . . Interesting and fun . . . The out of doors . . . Variety of sports played . . . It is active . . . It is fun . . . Interesting and fun . . . The teacher . . .

Test B

13. Things Students Especially Like About This Course

The playing of games with other girls and team support . . . It is interesting and fun . . . Exercises . . . Basketball and volleyball . . . It is fun . . . You have a variety of things to do . . . The freedom . . . Getting physically fit . . . It is well rounded . . . Working along with others . . . The teacher . . . I just like PE . . . It is exciting . . . I like the games . . .

Test C

13. Things Students Especially Like About This Course

We can play volleyball . . . Fun and the sports chosen to play are good . . . Exercise . . . I just like sports . . . We don't stay in one thing -- we switch around . . . The games played and the freeness . . . The teacher . . . Playing . . . I just like team sports . . . The sports . . . I like sports . . . Interesting, variety . . . The teacher and the games . . . Fun and interesting . . . The things we do . . . It is interesting, refreshing and it is a relaxation from mind work . . . It's fun and you get good good exercise. . . Competition.

Question Number 14

Test A

14. Suggestions for the Improvement of This Course

No improvement needed . . . It's good the way it is . . . No improvement needed . . . None . . . I

like it the way it is . . . It seems all right the way it is now . . . No improvements are needed, everything is good the way it is . . .

Test B

14. Suggestions for the Improvement of This Course

None . . . No improvements . . . I like it the way it is . . . No improvements needed . . . None . . .

Test C

14. Suggestions for the Improvement of This Course

I can't think of any . . . None . . . None . . .
None . . . None . . .

Case Number Four, Summary

This person was studied not so much as an individual but as a model of many of the teachers of the experimental school. It was mentioned that there were eight teachers who scored above the 4.00 level on the pre-test. It was very difficult for these teachers to improve their image with students. All of the data collected from Case Number Four concerning the workshop was just as positive as most of the other reports. The normal pattern of regression toward the mean seems to be demonstrated very well.

The comments from the students compared between testings show vertically no differences. Further research might reveal similar patterns in high scoring teachers. They are not the primary target for in-service programs anyway.

Summary

This chapter was devoted to the analysis of both the objective data from the instrument and the subjective comments from the instrument and the workshop. The four hypotheses were tested by the analysis of covariance and were rejected. An investigation of significant differences of the individual items showed that all items except Ability of the Teacher to Explain Clearly, were not significantly different.

Summaries of comments and evaluations made by the teachers about the lab itself were presented and revealed that the teacher participants reacted favorably to the experience. Four case studies were discussed in hopes of initiating future studies that will attempt to investigate the "types" of teachers that expect the greatest change. One study also was typical of the problem in this research of the regression toward the mean principle.

The last chapter will summarize the findings of this research, and will draw conclusions and suggest recommendations for future studies.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

In this final chapter a summary of the study is presented. The conclusions that have been determined are discussed, and two types of recommendations for further research are suggested. One deals with possible replication studies with improvements, and the other suggests related research possibilities generated by this research.

Summary

The major purpose of this research was to determine the effect of sensitivity training upon a high school faculty in terms of the changed reactions the students of these teachers might perceive. The underlying rationale for this kind of research was the value judgment that there is a need to help teachers become more aware of themselves and others as they face the ever-increasing changes that are being thrust upon them in modern society.

An in-service workshop consisting of laboratory, sensitivity training was held in a rustic setting over a three-day and night period. Student-Opinion Questionnaires, a product of the Student Reaction Center at Western Michigan

University were administered in a pre-test, post-test, post-test design. The same tests were administered to the control school using the same time intervals. Evaluations of the workshop by the teachers and four case studies were also included in the investigation.

Four hypotheses were tested and all were rejected. They were:

HI: There will be a difference in change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test B (three weeks) using item 9 (The General Teaching Ability of This Teacher) of the Student-Opinion Questionnaire.

HII: There will be a difference in change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the second post-test (three months) using item 9 (The General Teaching Ability of This Teacher) of the Student-Opinion Questionnaire.

IIII: There will be a difference in change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test B (three weeks) using the combined mean scores for the first eight items of the Student-Opinion Questionnaire.

HIV: There will be a difference in the change among group mean scores between the experimental school and the control school when a comparison is made of the pre-test A and the post-test C (three months) using the combined mean scores for the first eight items of the Student-Opinion Questionnaire.

Other items on the instrument were investigated to determine if any would show significant differences when the experimental school was compared to the control school.

The results are as follows:

All items, except Ability of the Teacher to Explain Clearly, were found to be not significant at the .05 level. This item was not significant at Test C, the second post-test.

Both the participating teachers of this direct study and the other participants of this laboratory workshop were asked to react to the experience at the completion of the lab, before they returned home. The results were recorded in Chapter IV and basically they rated the total experience very highly.

Case studies were made on some of the significant participants. One of these dealt with the teacher who exhibited the greatest change. Another study dealt with a teacher whose initial scores were extremely high, and lower post-tests scores were explained by the "regression to the mean" theory. One teacher was studied because of her gradual, cautious acceptance of the program and her gradual, steady

improvement back-home. The fourth teacher was selected because he was the lowest ranked teacher of the staff to begin with, and he seemed to be unable to make a great change in the image of his students on the post-tests.

Conclusions

The following conclusions may be drawn from the results of this study.

1. Sensitivity training as it has been defined here and in the conditions of the lab setting for this study, did not cause students to rate their teachers higher on the question, The General Teaching Ability of This Teacher.
2. Sensitivity training as it has been defined here and in the conditions of the lab setting for this study, did not cause students to rate their teachers higher on the combined items of the Questionnaire.
3. Concerning the above two items, the timing of the administration of the post-test instrument made no difference in recording significant changes in teachers.
4. Teacher's scores on the item, Ability of the Teacher to Explain Clearly were significantly higher on the first post-test (three weeks), than the teachers of the control school.
5. When teachers themselves were asked to evaluate their experiences during the lab, the majority expressed having very positive experiences.

Discussion and Assumptions Drawn From the Conclusions

This report evaluated a laboratory workshop. Other research has recorded change as a result of laboratory training. The physical setting for the lab was almost "perfect." The leadership was well qualified and enthusiastic about the "results." The evaluation of the experience by the participants themselves was rated very high. With these "givens," what are the possible explanations for the lack of evidence that change existed and was recorded by the students as they observed their teachers?

One or more of the following assumptions can be offered:

1. There was no change as a result of the sensitivity training.
2. The lab was not long enough to create lasting change in a sufficient number of teachers.
3. The students were unable to perceive change if it occurred.
4. The instrument is not capable of recording the change if it was perceived.

Discussion

In Chapter I of this document there were listed some initiating questions that instigated this research. Hypotheses were drafted in an attempt to answer some of these questions. A discussion of each question follows:

1. Can laboratory training change teachers to a degree that can be related to a change in their teacher characteristics? According to the conditions and limitations of this study it is impossible to answer the question in the positive. Significant differences were not found in the hypotheses that directly functioned to answer this question. This does not mean, however, that at this point it can be clearly answered negatively, as only further research can conclude that assumption.

2. Can this change be identified by students and tested through research methods using data from students' opinions of teachers? Since significant change was not recorded (neither positive nor negative) it is difficult to conjecture an answer. However, it seems plausible that the design, techniques and instruments are workable at least to the degree to which additional studies can be motivated.

3. Is this change one that results in an improved teacher from the point of view of secondary students? No change was recorded -- the question can only be answered with further research.

4. What are some of the more salient individual experiences exhibited by selected teachers for case study purposes? These are discussed in Chapter IV and it is hoped that they will be useful as guidelines for further investigations of this type.

5. What particular items on the evaluation instrument were changed most drastically? The only meaningful item

that had significant differences was 2B, Ability of the Teacher to Explain Clearly. Since the other items fall below the .05 level their differences are not meaningful statistically and should not be compared at least without further study.

6. Is an in-service program or workshop consisting of laboratory training of sufficient impact to create change after a three-day exposure? Further research which could hold constant other variables and experiment for the length of the lab, might better answer this question. With the evidence given here, it was not sufficient time, providing the other variables were functioning as hypothesized. The decision to operate an in-service workshop, however, is usually based on an administrative recommendation. The literature and the evaluative comments made by the teachers following the workshop along with the conversations with the laboratory trainers, would lead this investigator to believe that a positive answer might be given to the above question. This assumes the acceptance of the teachers' feelings as criteria for "change."

7. Is the employment of a team of outside "change agents" a warranted venture for this type of in-service program? Almost the same answer from above applies. Some teachers did change. Some did not. The risk, then, is the schools because the worth of such a program will depend upon values, needs, etc. This research did not "prove" that such a venture does warrant the employment of the outside "change agent."

Recommendations

Following is a list of the recommendations that are made in an attempt to aid further research in this specific area for possible replication studies or follow-up research.

1. By pre-testing several schools, one could determine an "average" or slightly "below average" school which would be more likely to show improvement. By starting with Poway, it was not unlike trying to improve the batting average of a .400 hitter in baseball.

2. Matched, random selected samples would improve the statistical treatment. However, since the thrust of this thesis is to delineate a possible in-service program for a school, it is going to be difficult to create a situation that does not involve the entire staff of one building. This forces the researcher into another non-equivalent control group (another school) as was necessary in this study. One improvement here would be to sample schools with pre-testing, so that the control school teachers had similar scores to the experimental school's teachers.

3. The administration of the tests should be given more nearly simultaneously than they were in this study.

4. Different times for the post-test should be a source of experimentation. A suggestion of two months, six months, and a year seems appropriate, since this would give a full range of testing intervals coupled with the times of this study (three weeks and three months). A year's wait presents a problem as far as duplication of the same students

for the reactions. However, the instrument seems reliable enough to record reactions "by students" in general and perhaps duplicate students are not necessary.

5. If the instrument were scaled in a seven-point pattern as opposed to the present five-point scale, it would give students a little more freedom and flexibility when they categorize teachers. This complicates the computing and reporting of the results, but it might present a more sensitive instrument for this kind of research. The seven categories might be: Definitely below average, Below average, Average, Above average, Definitely above average, The very best, and The perfect teacher.

6. The same research pattern could be established but with a little different intent: that is, to attempt to discover if there are certain "kinds of people (teachers)" that can be predicted to profit more than others from sensitivity training. Perhaps through classification of personality types, teachers and their subsequent changes could be tested in pre- and post- designs. Other characteristics such as years of experience, subject matter taught, age, sex, could be set as variables and tested. Case studies similar to the ones in this study might aid in this development. It is possible that in a "treatment" atmosphere some will "get worse" and some will "get better." If this is true, a more careful selection of either the style of the lab or the type of participants could be made. This would make the results more promising to school administrators in

terms of how the expected outcomes relate to the expense and time involved in a workshop of this kind.

7. It is the estimate of this investigator that for the purposes of creating changed student reactions to teachers, the lab should be of longer length. Most National Training Laboratories last two weeks; and if the experiment could be duplicated, except for an extension of the length of the lab, images of teachers might improve.

8. Further reserach should devise a method of categorizing student comments so that a more scientific method of comparison can be used on pre- and post-testings.

Related research possibilities that might be generated as a result of this study:

1. Many studies have used the participant as a self-evaluator and received promising results as shown in this present study. However, back-home evaluation by others, as judged by this study and review of the literature, is very difficult. For example one authority states:¹

Creating learning that is transferable is extremely difficult because of the variety of backhome situations from which the members come.

This suggests that there is a need for a refinement in instrumentation administered to whomever serves as the backhome judge to determine if there is positive changes in behavior.

¹Chris Argyris, Explorations and Issues in Laboratory Education, NTL-NEA, 1966, Washington, D.C., p. 15.

2. Profitable research might include studies using leaderless groups or quasi-leader groups that could be conducted during the school year on a regular basis. Perhaps school districts could hire a leader on a permanent basis to conduct such meetings. At any rate, further study efforts should be given to the possibility of increasing the exposure and frequency to sensitivity training. Brief sessions without follow-up, as helpful as they might be, could not carry the impact of continual training.

3. Research that is based on the "style" of training which in turn has been based on specific objectives is needed. Sensitivity training is becoming more refined and there are several kinds of operations, techniques, drills, etc. that need to be more carefully delineated.

To explain more fully, one of the variables in this study was the "treatment" of laboratory learning. However, the term or connotations of the term, regardless of the words used such as T-Group, laboratory training, group dynamics, human relations training, or sensitivity training, has many meanings to the varied educators (trainers) and their administrators. The process can vary from the more content and sociologically oriented to the more psychologically based groups. It is difficult to describe the "type" of learning that took place in this study. And it is submitted that this is true in most labs. When dealing with research and its results, more care must be taken to explicate the "type of expectations" and the type of "styles of

learning." Argyris² speaks to this point ardently when he says:

I believe that the field of laboratory education is entering an era where such research is necessary so that intelligent choices can be made (type of learning).

He further states,³

My main purpose for making these points is to ask for research on these issues (of training procedures). We need to know much more about the different styles on interventions, theories of learning, impact upon members, and backhome consequences. . . . What we need is a validated theory of learning that helps us to integrate the feelings and intellectual components so that we use each most effectively to help individuals increase their competence.

A Final Word

If one accepts other research that has demonstrated positive changes as a result of sensitivity training and the positive reactions by the teachers following this laboratory, it may be suggested that the explanation for the lack of significant differences may be related to the instrument. While the Student-Opinion Questionnaire serves a very useful function as an instructional and introspective device for teachers, it does not seem to be sensitive to the specific, subtle, and peculiar behavioral changes associated with laboratory sensitivity training. Regarding the stability of the instrument, Bryan⁴ states:

²Argyris, op. cit., p. 2.

³Ibid., p. 39.

⁴Roy C. Bryan, A Service Designed to Improve the High School Teacher's Image with Students, Student Reaction Center, Western Michigan University, Kalamazoo, Michigan, 1964, p. 10.

The students' image of a teacher has stability and is not likely to be changed without well-directed effort.

A search must be made for an instrument that will allow students to record these kinds of changes.

Another explanation for lack of significant differences may be found in the design which utilized an experimental school with abnormally high initial scores on the instrument. This makes improvement very difficult.

It is the author's supposition that sensitivity training may be an important resource for in-service programs that are designed to help teachers meet the ever-increasing demands of our changing society.

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APPENDICES

APPENDIX A

HISTORICAL NOTE ON LABORATORY TRAINING*

*This source is from the prefatory remarks found in an unpublished, mimeographed document which is available from Dr. John H. Suehr, Department of Administration and Higher Education, College of Education, Michigan State University, East Lansing, Michigan, no date known.

HISTORICAL NOTE ON THE NATIONAL TRAINING LABORATORY (NTL)

In 1947, NTL pioneered in human relations training, conducting in Bethel, Maine, the first national training laboratory. Sixty-seven leaders from many occupations participated in this new approach to teaching and training in human relations and social change. Sponsors were the Research Center for Group Dynamics (then at M.I.T., now at the University of Michigan) and the National Education Association. The project was based on an experiment in community leadership training conducted in 1946 in Connecticut, the staff including Kenneth Benne, Leland Bradford, the late Kurt Lewin, and Ronald Lippitt.

Early support from the Carnegie Corporation made it possible for the National Training Laboratories to experiment and to grow. In 1950 NTL was established as a part of the Adult Education Division of the NEA. In 1962 NTL was made an independent division of the National Educational Association.

Since 1955, interest in a number of occupational fields has led NTL to develop special training programs -- for industrial management, for government personnel in Puerto Rico, for professional church workers (sponsored by the National Council of Churches), for community leaders, for college student-faculty teams, for school administrators, for individual national organizations and major industries.

Since 1947, the initial summer laboratory has expanded into a year-round program of training, consultation, research, and publication; and human relations training has spread to many parts of the world. Programs utilizing similar methods have been established in a number of other countries, and each summer participants come to NTL laboratories from every continent.

Regional training and research centers have also been established at a number of universities in this country. Stimulating communication and collaboration among these centers has been one of the important results of the spread of interest in training and in turn has become a factor in further spread.

Since 1962, summer laboratories have been conducted collaboratively by NTL and two of the outstanding regional laboratories: the Western Training Laboratory (WTL) established in California in 1952 and the Intermountain Laboratory in Group Development established in 1955 in Utah. In

California, laboratories are jointly sponsored at Lake Arrowhead by NTL, WTL, and the University of California at Los Angeles (University Extension, the School of Education, the Institute of Industrial Relations, and the Graduate School of Business Administration). In Utah, laboratories are sponsored at Cedar City by NTL, the University of Utah, and cooperating colleges and universities of the region.

The staffs for the growing number of laboratories are drawn from the network of qualified trainers located at universities across the country and comprising the Associates and Fellows of NTL. This network is augmented each year through NTL's social science intern program supported by the National Institute of Mental Health and by corporate gifts.

Human relations training has been called a "predictable response to the need for increasing sophistication about social phenomena." A major goal from the beginning has been to build bridges between the world of human sciences and that of practical affairs.

PURPOSES

HUMAN RELATIONS LABORATORY TRAINING

Human relations laboratory training is designed to help each individual realize his own potential for growth more fully and to increase his ability to work effectively with others in a variety of situations. By learning how to develop effective teamwork, individuals can join forces to bring about organizational and community change and improvement. Skills for effective change efforts are outlined elsewhere in these readings. The following five factors are seen as important broad objectives of training:

Self-insight

Better understanding of other persons and awareness of one's impact on them

Better understanding of group processes and increased skill in achieving group effectiveness

Increased recognition of the characteristics of larger social systems

Greater awareness of the dynamics of change.

A training laboratory tries to create a climate encouraging learnings, understandings, insights, skills in the areas of self, group, and organization:

SELF	INTERPERSONAL AND GROUP RELATIONS	ORGANIZATION
Own feelings and motivations	Establishing meaningful interpersonal relationships	Understanding organizational complexities
Correctly perceiving effects of behavior on others	Finding a satisfying place in the group	Developing and inventing appropriate new patterns and procedures
Correctly understanding effect of others' behavior on self	Understanding dynamic complexities in group behavior	Helping to diagnose and solve problems between units of the organization
Hearing others and accepting helpful criticism	Developing diagnostic skills to understand group problems and processes	Working as a member and as a leader
Appropriately interacting with others	Acquiring skills of helping the group on task and maintenance problems	

APPENDIX B

STUDENT-OPINION QUESTIONNAIRE

STUDENT-OPINION QUESTIONNAIRE

(Form Seven Revised)

Please answer the following questions honestly and frankly. Do not give your name. To encourage you to be frank, your regular teacher should be absent from the classroom while these questions are being answered. Neither your teacher nor anyone else at your school will ever see your answers.

The person who is temporarily in charge of your class will, during this period, collect all reports and seal them in an envelope addressed to Western Michigan University. Your teacher will receive from the University a summary of the answers by the students in your class. The University will mail this summary to no one except your teacher unless requested to do so by your teacher.

After completing this report, sit quietly or study until all students have completed their reports. There should be no talking.

Encircle your answers to questions 1-10. Write your answers to questions 11-14.

WHAT IS YOUR OPINION CONCERNING:

1. **THE KNOWLEDGE THIS TEACHER HAS OF THE SUBJECT TAUGHT?**
(Has he a thorough knowledge and understanding of his teaching field?)

Below Average	Average	Good	Very Good	The Very Best
---------------	---------	------	-----------	---------------
2. **THE ABILITY OF THIS TEACHER TO EXPLAIN CLEARLY?**
(Are assignments and explanations clear and definite?)

Below Average	Average	Good	Very Good	The Very Best
---------------	---------	------	-----------	---------------
3. **THIS TEACHER'S FAIRNESS IN DEALING WITH STUDENTS?**
(Is he fair and impartial in treatment of all students?)

Below Average	Average	Good	Very Good	The Very Best
---------------	---------	------	-----------	---------------
4. **THE ABILITY OF THIS TEACHER TO KEEP GOOD DISCIPLINE?**
(Does he keep good control of the class without being harsh? Is he firm but fair?)

Below Average	Average	Good	Very Good	The Very Best
---------------	---------	------	-----------	---------------
5. **THE SYMPATHETIC UNDERSTANDING SHOWN BY THIS TEACHER?**
(Is he patient, friendly, considerate, and helpful?)

Below Average	Average	Good	Very Good	The Very Best
---------------	---------	------	-----------	---------------
6. **THE ABILITY THIS TEACHER HAS TO MAKE CLASSES INTERESTING?**
(Does he show enthusiasm and a sense of humor? Does he vary teaching procedures?)

Below Average	Average	Good	Very Good	The Very Best
---------------	---------	------	-----------	---------------
7. **THE ABILITY OF THIS TEACHER TO GET THINGS DONE IN AN EFFICIENT AND BUSINESSLIKE MANNER?**
(Are plans well made? Is little time wasted?)

Below Average	Average	Good	Very Good	The Very Best
---------------	---------	------	-----------	---------------
8. **THE SKILL THIS TEACHER HAS TO GET STUDENTS TO THINK FOR THEMSELVES?**
(Are students' ideas and opinions worth something in this class? Do students help decide how to solve problems and how to get their work done? Do they get at the real reasons why certain things happen?)

Below Average	Average	Good	Very Good	The Very Best
---------------	---------	------	-----------	---------------
9. **THE GENERAL (ALL-ROUND) TEACHING ABILITY OF THIS TEACHER?**
(All things considered, how close does this teacher come to your ideal?)

Below Average	Average	Good	Very Good	The Very Best
---------------	---------	------	-----------	---------------

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For study
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10. WHAT IS YOUR OPINION CONCERNING THE AMOUNT OF WORK REQUIRED OR EXPECTED BY THIS TEACHER? Underline your answer.
- a. The assignments require practically no time to prepare
 - b. Require less time than might reasonably be expected
 - c. Are reasonable assignments
 - d. Require a little more time than I think is fair to ask of students
 - e. Require much more time than is fair to ask of students.
11. PLEASE NAME ONE OR TWO THINGS THAT YOU ESPECIALLY LIKE ABOUT THIS TEACHER.
12. PLEASE GIVE ONE OR TWO SUGGESTIONS FOR THE IMPROVEMENT OF THIS TEACHER.
13. PLEASE NAME ONE OR TWO THINGS THAT YOU ESPECIALLY LIKE ABOUT THIS COURSE.
14. PLEASE GIVE ONE OR TWO SUGGESTIONS FOR THE IMPROVEMENT OF THIS COURSE.

APPENDIX C

**STUDENT REACTION CENTER INSTRUCTIONS FOR TEST
ADMINISTRATION**

Student Reaction Center
Western Michigan University

To _____ Date _____

1. Enclosed are _____ student-opinion questionnaires for _____ of your classes, as per service order. Also enclosed are _____ large self-addressed envelopes in which the answered questionnaires should be returned (one envelope for each class). Please fill in the data called for on the face of each envelope.
2. Someone other than yourself should be in charge of the class during the 15 to 20 minutes needed by students to answer the questions. This procedure has been adopted because, in the case of approximately one teacher out of ten, some students will not be frank in the presence of their teacher. Concerning the scheduled exchange of teachers, students need be told only that the "exchange" teacher will be in charge of your class during the time needed by students to answer a questionnaire. It is not necessary to say anything about the nature of the questionnaire.
3. The person who is in charge of your class while the questionnaire is being answered should be told:
 - a. The instructions needed by students are contained in the introduction to the printed questionnaire.
 - b. It is desirable that the teacher remain seated at the desk rather than circulate among students while they are answering the questionnaire.
 - c. Students should be asked to make a serious effort to answer questions 12 through 15. If students are hurried, they are inclined to omit answers to these questions.
 - d. Answered questionnaires should be collected and sealed in the large self-addressed envelope provided for that purpose.
4. The Kalamazoo Postmaster has assured us in writing that these sealed envelopes will come through the mail as "educational materials." The cost is ten cents for one pound or less (10 cents up to the first pound, and five cents for each additional pound).

5. Your report will be sent to you within three weeks after receipt here of answered questionnaires. The report will be mailed to your school address unless you want it sent to your home address or summer address (in case school is about to close in June). If you prefer that the report be mailed to other than your school address, please send us the appropriate address.
6. After you have received your report, we shall appreciate hearing from you if you have any criticisms of the service rendered by the Student Reaction Center.

APPENDIX D

INFORMATION SHEET

APPENDIX D

INFORMATION SHEET

OCCUPATIONAL INFORMATION

NAME _____ SEX _____

PRESENT POSITION OR TEACHING ASSIGNMENT _____

NUMBER OF YEARS IN THIS ASSIGNMENT (TEACHING THIS SUBJECT)

TOTAL NUMBER YEARS OF TEACHING EXPERIENCE _____

TOTAL NUMBER OF YEARS OF ADMINISTRATIVE EXPERIENCE
(INCLUDE DEPARTMENT HEAD) _____

TOTAL NUMBER OF YEARS AT POWAY _____

MOST COMMON AGE LEVEL TAUGHT _____

EDUCATIONAL INFORMATION

NAME AND LOCATION OF HIGH SCHOOL ATTENDED _____

UNDERGRADUATE COLLEGE OR UNIVERSITY _____

UNDERGRADUATE MAJOR _____ YEAR OF GRADUATION _____

MASTER'S DEGREE COLLEGE OR UNIVERSITY _____

MASTER'S DEGREE MAJOR _____ YEAR OF GRADUATION _____

OTHER _____

PERSONAL INFORMATION

MARITAL STATUS _____

NAMES AND AGES OF CHILDREN _____

HOME ADDRESS _____

HOME PHONE NUMBER _____ AGE _____

HAVE YOU PARTICIPATED IN SENSITIVITY (T-GROUP) TRAINING
PRIOR TO THIS WORKSHOP? _____

IF YES, EXPLAIN _____

APPENDIX E

DAILY-MEETING REACTION SHEET

APPENDIX E

Name _____
Date _____
Place _____
Time _____

DAILY-MEETING REACTION SHEET

1. How did you feel about today's meetings? (check)

Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied
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2. Please comment on why you felt this way.

3. Were there times when you wished to speak but did not?

Never	A few times	Fairly Often	Very Often	Almost all the time
-------	-------------	--------------	------------	------------------------

4. What things helped you to take part in the meetings?

5. What things hindered you from taking part in the meetings?

6. How could our next meetings be improved?

7. What are the possibilities of transferring these workshop experiences towards establishing improved communications with your students in the classroom?

APPENDIX F

SUMMARY OF WORKSHOP EXPERIENCES

APPENDIX F

SUMMARY OF WORKSHOP EXPERIENCES

NAME _____

How do you feel about the workshop in general? (please check)

Very Dissatisfied	Somewhat dissatisfied	neutral	Somewhat satisfied	Very satisfied
----------------------	--------------------------	---------	-----------------------	-------------------

COMMENTS

How do you feel about the T-Group as a means of increasing your sensitivity to the needs of others?

Very Ineffective	Somewhat ineffective	Neutral	Somewhat effective	Very effective
---------------------	-------------------------	---------	-----------------------	-------------------

COMMENTS

What are the possibilities of transferring these workshop experiences towards establishing improved communications with your students?

Very Unlikely	Somewhat Unlikely	Neutral	Somewhat likely	Very Likely
------------------	----------------------	---------	--------------------	----------------

COMMENTS

OTHER GENERAL COMMENTS

APPENDIX G

COMPARATIVE GROUP EVALUATIONS

APPENDIX G

The four groups of the lab (T-Groups) have been evaluated in terms of the number of people who made positive or negative changes on the instrument. Teachers were classified as high positive changers if they had improved scores on both items number 9 and the combined items 1-8 on at least 3 post-tests. They were classified as low negative changers if they had scores that were less after the workshop on both item 9 and the combined items 1-8 on at least 3 post-tests. Those that went up on one item and down on the other were classified as neutrals. Notice: there are no allowances for magnitude of change in this diagnosis.

The following is a summary of their diagnosis:

(Groups are numbered by rank order)

Group 1	4 high positive changers 3 neutral 0 low negative changers
Group 2	3 high positive changers 0 neutral 3 low negative changers
Group 3	1 high positive changer 4 neutral 1 low negative changer
Group 4	0 high positive changers 2 neutral 4 negative changers

The primary use of this summary was for the placement of the teachers used in the case studies in an attempt to partially evaluate the kind of experiences they were having.

APPENDIX H

ANALYSIS OF COVARIANCE TABLES (1-22)

ITEM NO. 1, TEST B

What is your opinion concerning: The knowledge this teacher
has of the subject taught?

Analysis of Covariance Table 1.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.0818	1	.0818	1.280	not sign.
Error	3.1316	49	.0639		
Total	3.2134	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.9041	3.1670	.0873
2	2.3103	2.9928	.0819

ITEM NO. 1, TEST C

What is your opinion concerning: The knowledge this teacher
has of the subject taught?

Analysis of Covariance Table 2.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.1246	1	.1246	.464	not sign.
Error	13.1485	49	.2683		
Total	13.2731	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.9233	3.7918	.1789
2	3.4551	3.5768	.1678

ITEM NO. 2, TEST B

What is your opinion concerning: The ability of this teacher to explain clearly?

Analysis of Covariance Table 3.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.4320	1	.4320	4.911	*sign.
Error	4.3106	49	.0880		
Total	4.7426	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.4594	3.2213	.0643
2	2.7899	3.0104	.0615

* = 4.04 significant level.

ITEM NO. 2, TEST C

What is your opinion concerning: The ability of this teacher to explain clearly?

Analysis of Covariance Table 4.

Source	Sum-Squares	Degrees of Freedom	Mean-Square	F Ratio	Significance .05
Treatments	.2623	1	.2623	1.216	not sign.
Error	10.5686	49	.2157		
Total	10.8309	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.4847	3.4383	.1007
2	3.2310	3.2740	.0963

ITEM NO. 3, TEST B

What is your opinion concerning: This teacher's fairness
in dealing with students?

Analysis of Covariance Table 5.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.0164	1	.0164	.178	not sign.
Error	4.5134	49	.0921		
Total	4.5297	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.6138	3.2221	.0718
2	2.8121	3.1748	.0684

ITEM NO. 4, TEST C

What is your opinion concerning: This teacher's fairness
in dealing with students?

Analysis of Covariance Table 6.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.7349	1	.7349	2.531	not sign.
Error	14.2301	49	.2904		
Total	14.9650	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.5759	3.5114	.1275
2	3.1350	3.1948	.1214

ITEM NO. 4, TEST B

What is your opinion concerning: The ability of this teacher
to keep good discipline?

Analysis of Covariance Table 7.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatment	.0957	1	.0957	1.164	not sign.
Error	4.0304	49	.0823		
Total	4.1261	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.6037	3.1897	.0669
2	2.6947	3.0780	.0637

ITEM NO. 4, TEST C

What is your opinion concerning: The ability of this teacher
to keep good discipline?

Analysis of Covariance Table 8.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	1.1277	1	1.277	3.531	not sign.
Error	15.6482	49	.3194		
Total	16.7759	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.4711	3.5345	.1318
2	3.2098	3.1511	.1255

ITEM NO. 5, TEST B

What is your opinion concerning: The sympathetic understanding shown by this teacher?

Analysis of Covariance Table 9.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F-Ratio	Significance .05
Treatments	.0320	1	.0320	.376	not sign.
Error	4.1586	49	.0849		
Total	4.1906	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.5278	3.1172	.0662
2	2.7988	3.1791	.0631

ITEM NO. 5, TEST C

What is your opinion concerning: The sympathetic understanding shown by this teacher?

Analysis of Covariance Table 10.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.0435	1	.0435	.143	not sign.
Error	14.9346	49	.3048		
Total	14.9781	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.4078	3.2571	.1254
2	3.0453	3.1848	.1197

ITEM NO. 6, TEST B

What is your opinion concerning: The ability this teacher
has to make classes interesting?

Analysis of Covariance Table 11.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.0302	1	.0302	.369	not sign.
Error	4.0145	49	.0819		
Total	4.0447	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.3204	3.1191	.0589
2	2.9836	3.1700	.0566

ITEM NO. 6, TEST C

What is your opinion concerning: The ability this teacher
has to make classes interesting?

Analysis of Covariance Table 12.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.5421	1	.5421	1.680	not sign.
Error	15.8085	49	.3226		
Total	16.3506	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.2607	3.2159	.1169
2	2.9589	3.0003	.1122

ITEM NO. 7, TEST B

What is your opinion concerning: The ability of this teacher to get things done in an efficient and businesslike manner?

Analysis of Covariance Table 13.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.0010	1	.0010	.012	not sign.
Error	3.8853	49	.0793		
Total	3.8863	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.4229	3.0717	.0638
2	2.7570	3.0822	.0609

ITEM NO. 7, TEST C

What is your opinion concerning: The ability of this teacher to get things done in an efficient and businesslike manner?

Analysis of Covariance Table 14.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatment	.0663	1	.0663	.273	not sign.
Error	11.9049	49	.2430		
Total	11.9712	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.3836	3.2444	.1116
2	3.2043	3.3332	.1065

ITEM NO. 8, TEST B

What is your opinion concerning: The skill this teacher
has to get students to think for themselves?

Analysis of Covariance Table 15.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.2246	1	.2246	3.040	not sign.
Error	3.6195	49	.0739		
Total	3.8441	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.6385	3.2673	.0675
2	2.7355	3.0792	.0641

ITEM NO. 8, TEST C

What is your opinion concerning: The skill this teacher
has to get students to think for themselves?

Analysis of Covariance Table 16.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.2670	1	.2670	1.745	not sign.
Error.	7.4992	49	.1530		
Total	7.7662	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.5904	3.4961	.0972
2	3.2037	3.2910	.0923

ITEM NO. 9, TEST B

What is your opinion concerning: The general teaching
ability of this teacher?

Analysis of Covariance Table 17.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.0527	1	.0527	.748	not sign.
Error	3.4518	49	.0704		
Total	3.5045	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.6139	3.1549	.0657
2	2.6393	3.0642	.0624

ITEM NO. 9, TEST C

What is your opinion concerning: The general teaching
ability of this teacher?

Analysis of Covariance Table 18.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.2294	1	.2294	.855	not sign.
Error	13.1516	49	.2684		
Total	13.3810	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.6472	3.5706	.1283
2	3.3105	3.3814	.1218

ITEM NO. 10, TEST B

What is your opinion concerning: The amount of work required
or expected by this teacher?

Analysis of Covariance Table 19.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.1026	1	.1026	2.236	not sign.
Error	2.2483	49	.0459		
Total	2.3509	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.1650	3.0456	.0450
2	2.8378	2.9484	.0431

ITEM NO. 10, TEST C

What is your opinion concerning: The amount of work required
or expected by this teacher?

Analysis of Covariance Table 20.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.0942	1	.0942	.841	not sign.
Error	5.4878	49	.1120		
Total	5.5820	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.2292	3.2249	.0703
2	3.1277	3.1318	.0674

ITEM NO. (1-8), TEST B

Composite scores from Items 1 through 8

Analysis of Covariance Table 21.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance
Treatments	.000 (approx.)	1	.000 (approx.)	.001	not sign.
Error	2.2415	49	.0457		
Total	2.2415	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE Adjusted mean
1	3.5605	3.1329	.0535
2	2.7348	3.1307	.0508

ITEM NO (1-8), TEST C

Composite scores from items 1 through 8

Analysis of Covariance Table 22.

Source	Sum-Squares	Degrees of Freedom	Mean- Square	F Ratio	Significance .05
Treatments	.1065	1	.1065	.557	not sign.
Error	9.3579	49	.1910		
Total	9.4644	50			

Table of original means, adjusted means, and standard errors

Treatment number	Treatment mean	Adjusted mean	SE adjusted mean
1	3.5117	3.4241	.1093
2	3.2121	3.2933	.1037

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