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AUTHOR Heeney, William C.; Ashbaugh, Carl R.
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ABSTRACT

Vocational, academic, and special education teachers who had received inservice education in the individualization of instruction were observed to determine the effect of the education on their teaching. Data collection and conversion instruments were developed. Six trained observers performed 364 classroom observations in 10 Texas districts with inservice programs, and in 10 without; the 10 inservice program administrators were interviewed. A literature review indicated that certain methods of inservice instruction rated higher in implementation than others (laboratory, simulation, team research, and internship), suggesting seven hypotheses which were tested, using linear regression analysis. Four examined inservice education's relationship to teacher performance; three focused on the degree and level of individualization performed by each of the three groups of teachers. Inservice education in individualized instruction was found to make a difference for academic teachers, and, to some extent, for special education teachers, but not for vocational teachers. This suggests that teacher classification differences should be considered in planning inservice education programs. Academic teachers in Texas apparently are not receiving adequate training in individualization from teacher education programs, but the Texas vocational certification program is apparently producing teachers who can individualize instruction. Inservice instruction methods made no significant difference. The instruments are appended. (AJ)

OBSERVED INDIVIDUALIZATION OF INSTRUCTION BY VOCATIONAL AND NONVOCATIONAL TEACHERS

by

WILLIAM C. HEENEY AND CARL R. ASHBAUGH

Published by

The Office of School Surveys and Studies
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THE UNIVERSITY OF TEXAS
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INTRODUCTION AND THEORETICAL BACKGROUND

Statement of the Problem

Texas law has provided for Texas public school teachers to be compensated for ten nonteaching days per year to be used for in-service education and preparation for the beginning and the ending of school. This law has been in effect since 1970.

Vocational, academic, and special education teachers have been receiving in-service training in the individualization of instruction as part of the ten days of in-service training required by the State of Texas for all teachers. It would be useful for education decision makers to know if this in-service training in the individualization of instruction has had an effect upon the practices of these teachers.

Purposes of the Study

In general, the purposes of the study were to aid the planners and the practitioners of in-service education

programs with information about the nature of in-service education and some of the results produced. Harris, Bessent, and McIntyre (1969) have the following to say about in-service education:

> In summary, we have asserted that to put instructional change in its proper perspective the processes for achieving that change must be clearly in view. Change may be brought about by the use of authority, by changes in the physical environment (facilities, materials, buildings), through use of rules and regulations, through changes in functional specialization, and through in-service development of personnel. Though it cannot stand alone, in-service development is the most fundamental of the change processes, since it is concerned directly with the individual, is aimed at some change in his knowledge and behavior, and can affect his willingness to accept the change (28).

The specific purposes of this study were:

(1) to determine if vocational, academic, and special education teachers who have been through in-service programs directed at the improvement of individualization of instruction are in fact teaching in a different way than teachers who have not had such in-service programs.

(2) to investigate the relationship between the observed individualization of instruction and the type of in-service education program designed to bring more individualization of instruction into the classroom.

Assumptions

Two basic assumptions provided the basis for the proposed study. The first of these assumptions was that teaching processes can be submitted to systematic inquiry. Classroom teaching involves human beings in group situations. Conclusions can be derived through observation techniques applied to the interactions of group behavior.

The second of these assumptions was that the teaching process involves specific behaviors which can be systematically acquired and systematically observed. These behaviors include skills which can be acquired through study and practice, and can be demonstrated in and out of the classroom.

Theoretical Basis

There are several characteristics that form a conceptualization of in-service education. Coffey and Golden (1957) discuss the characteristics of the process of change taking place within organizational contexts. Parker (1957) addresses the characteristics of personnel development by describing and illustrating a list of twelve guidelines to give direction to the planning of programs of in-service education.

Harris, Bessent, and McIntyre (1969) list the following as the basis for the meaning and function of in-service education.

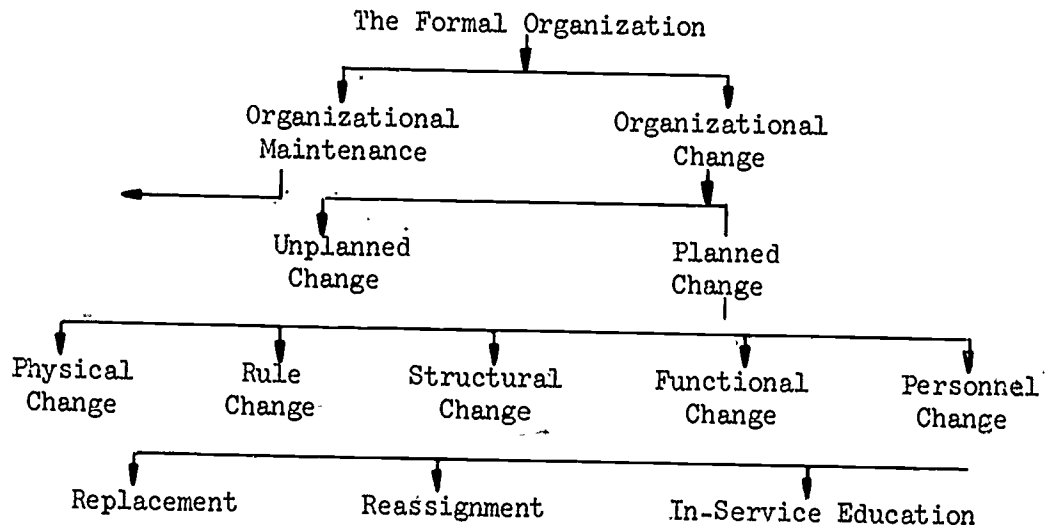
(1) In-service education is a process for change.

(2) Changes through in-service education take place in an organizational context.

(3) In-service education is a process for planned change.

(4) In-service education is one of several organizational changes and takes place through personnel development (16).

Harris, Bessent, and McIntyre (1969) offer a schematic view of the meaning and function of in-service education which appears below:



(16)

Individualization of instruction is the objective to be attained by the in-service programs of concern to this study. Individualization of instruction can be viewed as a series of strategies to bring about a desired result.

Harris and McIntyre (1971) have broken these strategies into five classes. These classes are: (1) Intraclass Grouping, (2) Variety of Materials, (3) Pupil Autonomy, (4) Differentiated Assignments, and (5) Tutoring.

The intraclass grouping strategy can be viewed as being made up of several substrategies. These substrategies are (1) flexibility of groupings, (2) frequency of changes in grouping, (3) length of time pupils remain in groups, (4) variations in group size, and (5) freedom of movement.

A variety of materials would consist of the following: (1) library books, (2) reference books, (3) teacher-made materials, (4) newspapers and magazines, and (5) audio-visual aids. These materials should have variations in levels of difficulty and interest.

Pupil autonomy can be measured by examining the following items: (1) self-direction of pupils, (2) involvement of pupils in planning, (3) involvement of pupils in the leading of activities, (4) self-grading of work,

(5) working with other students, and (6) uniqueness of learning situations.

The substrategies of differentiated assignments are: (1) interest in assignments, (2) challenge and stimulation of pupils, (3) participation of pupils in a variety of activities, (4) significant variations in assignments, (5) evidence of advanced-level or enrichment work, and (6) basing of assignments upon specific, diagnosed learning needs.

Tutoring can be done by the classroom teacher, special teachers, students, parents, or volunteers. These activities should be well planned and coordinated by the classroom teacher in cooperation with the building principal. Tutoring should be accepted by the students and should carry no stigma.

In-service education is not uniform throughout educational institutions. There are many types of in-service educational programs employed to accomplish the same desired results. McCleary and McIntyre have developed a rationale for a relationship between the level of learning and the competencies to be learned. They have identified seventeen methods of instruction that can be applied to an in-service education program. These

seventeen methods of instruction are classified into three levels of learning and three types of competencies to be learned (Table 1.1).

In-service education for the individualization of instruction has been entered into by school districts to produce the application of individualization of instruction. Table 1.1 gives a rationale for predicting the level of application of an in-service education program designed to bring about the application of individualization of instruction. By reading down the column headed "Application" one can predict the application level of the in-service education program by knowing the method of instruction used in the in-service education program. An in-service education program that uses simulation, human relations training, clinical study, team research, internship, gaming, or the laboratory approach as the method of instruction should lead to more individualization of instruction than an in-service education program that uses reading, lecture, discussion, field trip, case, scenario, individualized instructional package, computer-assisted instruction, tutorial, or student research as the method of instruction.

TABLE 1.1A

EFFECTIVENESS IN LEARNING THE SKILLS AT THE DESIRED LEVEL

Method	Levels of Learning		
	Familiarity	Understanding	Application
Reading	High	Medium	Low
Lecture	Medium	Medium	Low
Discussion	Medium	Medium	Low
Field Trip	Medium	Low	Low
Case	Low	High	Low
Scenario	Low	High	Low
Individualized Instructional Package	Low	High	Low
Computer-Assisted Instruction	Low	High	Low
Tutorial	Low	Medium	Low
Student Research	Low	Medium	Low
Laboratory Approach	Low	High	Medium
Gaming	Low	High	Medium
Simulation	Low	High	High
Human Relations Training	Low	High	High
Clinical Study	Low	High	High
Team Research	Low	High	High
Internship	Low	Medium	High

This table is the work of McCleary and McIntyre (1972). High, Medium, Low = Extent to which the method, when competently employed, tends to be practical and effective in learning the designated skills at the levels desired. [58]

TABLE 1.1B

EFFECTIVENESS IN LEARNING THE SKILLS AT THE DESIRED LEVEL

Method	Competencies to be Learned		
	Technical	Conceptual	Human
Reading	Low	Medium	Low
Lecture	Low	Medium	Low
Discussion	Low	Medium	Low
Field Trip	Low	Medium	Low
Case	Low	High	Low
Scenario	Low	High	Low
Individualized Instructional Package	Low	High	Low
Computer-Assisted Instruction	Low	High	Low
Tutorial	Low	Medium	Low
Student Research	Low	Medium	Low
Laboratory Approach	Medium	High	Medium
Gaming	Medium	High	Medium
Simulation	High	High	Medium
Human Relations Training	High	High	High
Clinical Study	High	High	Medium
Team Research	High	Medium	Low
Internship	High	Medium	Medium

This table is the work of McCleary and McIntyre (1972). High, Medium, Low = Extent to which the method, when competently employed, tends to be practical and effective in learning the designated skills at the levels desired. [58]

Definition of Variables

In-service education: A process for planned change within the context of an organization. This study was concerned with selected samples of teachers who have and who have not gone through an in-service program for the express purpose of improving the individualization of instruction. These programs were to have been at least four clock hours in duration.

Individualization of instruction: Those strategies used by teachers to promote individual initiative and self direction on the part of students. There were five classes of these strategies. These classes were: (1) intraclass grouping, (2) variety of materials, (3) pupil autonomy, (4) differentiated assignments, and (5) tutoring.

Vocational teachers: Those teachers who taught at least one-half time in courses identified as vocational-technical courses by the Texas Education Agency.

Special education teachers: Those teachers who taught at least one-half time in classes identified as special education classes by the Texas Education Agency.

Academic teachers: Those teachers who taught at least one-half time in the following list of courses: (1) English, (2) Mathematics, (3) Social Studies, and (4) Physical Sciences.

In-service education program A: A program where the basic methods of instruction are reading, lecture, discussion, field trip, case study, scenario, individualized instructional package, computer-assisted instruction, tutorial, or student research.

In-service education program B: A program where the basic methods of instruction are laboratory approach, gaming, simulation, human relations training, clinical study, team research, or internship.

Methodologies of in-service education: The methods of instruction described below are from the work of McCleary and McIntyre (1972) [60].

Method	Definition	General Appraisal
Reading	Individual study by student, using books and similar materials.	If adequate reading materials available, and if guidance provided in selection of materials, can be economical way for individual to acquire information not otherwise available.
Lecture	Discourse by instructor or designate; little or no active participation by students.	Used too much and too indiscriminately to achieve purposes that are ill-suited to the method.
Discussion	Informal student-teacher and student-student interaction on topic relevant to learners.	Can be productive, but must be well planned to yield hoped-for results; undoubtedly used much too indiscriminately.

Method	Definition	General Appraisal
Field Trip 	On-site observation of innovative practices or facilities.	Can add useful elements to a training program, especially as it leads to further discussion and research.
Case	Discussion centered on a written, taped, or filmed description of a complex situation faced by learner.	Effective if discussion is expertly led, particularly for developing analytical skills.
Scenario	Similar to case, but not as lengthy; open-ended narrative to which other documents may be related; presents context rather than actions taken.	Provides realistic context for variety of activities, including role playing and small group problem solving.
Individualized Instructional Packages	Self-contained set of appropriate learning materials designed to achieve specific objectives while taking into account individual differences in learning styles and rates.	Largely untested.
Computer-Assisted Instruction	Individual interaction with program, making responses at terminal and receiving immediate feedback.	Promising new approach, but considerable developmental work is needed to find best uses for this device.
Tutorial	Program of study involving a single student and an instructor.	As part of a total program of instruction, can make a contribution, although costs would be prohibitive if used extensively.

Method	Definition	General Appraisal
Student Research	Research conducted by student, usually culminating in a thesis or dissertation.	If production of researchers is a major objective, the method is largely ineffective; can be productive in preparing students for an important responsibility but is ineffective or even dysfunctional for many students.
Laboratory Approach	Learners' behavior in reality simulation produces data, organized and fed back to the group for analysis and interpretation.	Conducted competently, lab exercises are exciting and highly valued instructional activities as seen by students.
Gaming	Essentially a form of laboratory training with the element of competition added.	Few games are available to deal directly with the concerns of school principals, but the method is promising.
Simulation	Generic term for use of materials and methods that approach reality as closely as possible, as perceived by learners.	Usually rated highly by students; with an able instructor, can be a useful tool, especially for teaching skills of analysis.
Human Relations Training	Term embraces a wide variety of activities and purposes, aimed at helping the individual to understand and accept himself and others, and to develop operational skill in interpersonal relations.	More than any other method, this one rises or falls on the expertise of the trainer; in the hands of a competent person, human relations training can be highly effective; in the hands of a quack, it can be dangerous.

Method	Definition	General Appraisal
Clinical Study	Survey-type investigations for purpose of improving practice in local situations.	Effective for helping students to see problems in all their complexity, and to collect, organize, and report data for evaluative purposes.
Team Research	Faculty-student team investigation of problem for purpose of discovering knowledge.	Generally effective for training researchers.
Internship	Term (used here) at least one semester of full-time contact with one or more field situations.	Usually valued highly by students, professors, and administrators, but investment in time and money in internships is questionable unless conditions are favorable; internships should be aimed at broadening the student's experience--in more than one school and in many community organizations and agencies.

Hypotheses

(1) Vocational teachers who have had in-service training in individualization of instruction will be observed doing more individualization of instruction than vocational teachers who have not had in-service training in individualization of instruction.

(2) Academic teachers who have had in-service training in individualization of instruction will be observed doing more individualization of instruction than academic teachers who have not had in-service training in individualization of instruction.

(3) Special education teachers who have had in-service training in individualization of instruction will be observed doing more individualization of instruction than special education teachers who have not had in-service training in individualization of instruction.

(4) In districts where in-service education program B was used in the in-service education program, observers will report a higher score of individualization of instruction than districts that used in-service education program A.

(5) Vocational teachers will be observed doing more individualization of instruction than special education teachers.

(6) Special education teachers will be observed doing more individualization of instruction than academic teachers.

(7) Vocational teachers will be observed doing more individualization of instruction than academic teachers.

Six of the hypotheses above contain the term "more." The term "more" will be satisfied if the F-test generated to test the hypotheses is at the .05 level of confidence.

Instruments

This study used the Descriptive Observation Record of Individualization of Instruction for each classroom observation (Appendix A). The above instrument was developed by Ben M. Harris and Kenneth E. McIntyre and has been used in several schools to analyze instruction.

The instrument used for the scoring of the classroom observation recorded on Descriptive Observation Record of Individualization of Instruction was the Individualization of Instruction Inventory (Appendix A). This instrument was developed by Betty Coody and Ben M. Harris.

An interview form was developed by the writer (Appendix A). This form distinguished between the characteristics of the ten districts' in-service education programs.

Procedures for Data Collection and Analysis

Twenty school districts were selected for the study. Ten districts had had an in-service education program in the individualization of instruction and ten districts had not had an in-service program in the individualization of instruction. All districts were within one hundred miles of Austin.

Superintendents of the selected districts were contacted by letter explaining the project and asking for their districts to participate in the project. Teachers were contacted by letter, asking them to participate in the study. One observation of at least 30 minutes' duration was made in each classroom. The observations were made by a trained team of observers who were selected from qualified individuals. An interrater reliability score of .80 was obtained by the team of observers during the training sessions.

In the ten districts that had had in-service education in individualization of instruction, the superintendent was asked to name a representative for the district. This representative was interviewed. The purpose of the interview was to determine the characteristics of the in-service education program in that district. The data

collected by the interview form were treated as open-ended questions for purposes of analysis. These data were used to classify the districts into two groups--either in-service program category A or in-service program category B.

The collected data were punched onto cards to permit computer analysis. The statistical test used to test the hypothesis was the F-test. This test does not offer convincing evidence in favor of the hypotheses; it is simply an indication that the observed result is not "unreasonable" on the basis of the hypotheses.

C H A P T E R I I

RELATED LITERATURE

Introduction

There is a large body of literature on the subject of individualization of instruction. The purpose of this study will be best served if the review of the literature on individualization of instruction is limited to selected readings involving classroom observation as a method of measurement. Also, a review is made of the literature to identify those factors that may affect the use of an individualization of instruction program.

The review of the literature about in-service education is limited to those readings that clearly identify the major method of instruction used in the in-service education program. This will permit the author to make some generalizations about the methods of instruction used in an in-service program.

Methods of Observation

Classroom observation is an important tool available to the researcher. Medley and Mitzel (1963) report

that programs and procedures in teacher education can be effectively measured by observation. If an in-service program has as its goal a change in teacher behavior, one obvious way of measuring the change accomplished by the program is to visit the classrooms to see if the teachers have changed.

Classroom observations are done for specific reasons. This study is concerned with making observations to determine if teachers who have experienced in-service training programs are teaching in different ways than teachers who have not experienced such in-service training programs. Medley and Mitzel (1963) state three conditions that must be met in order that these observations be valid. These three conditions are:

(1) A representative sample of the behaviors to be measured must be observed.

(2) An accurate record of the observed behaviors must be obtained.

(3) The records must be scored so as to reflect differences in behavior accurately. (250)

The above three conditions set out the basic procedure for performing a classroom observation. The observer should have a selected list of behaviors to be

recorded. The behaviors that are recorded should take place while the observer is in the classroom, and the observer should record only those behaviors that he observes.

Scoring of the observation should not be completed while the observer is in the classroom. This is a crucial part of the process. The behaviors that have been recorded should be coded and placed into categories. This coding and placement into categories should be completed as soon after the observation visit as possible.

Murray (1971), in a study which involved fifteen elementary and fifteen junior high special learning disabilities resource teachers, used classroom observation to determine the amount of individualization that was occurring in these classes. Each of the classrooms was observed for a period of thirty minutes. A reobservation was performed in roughly half of the classrooms.

The procedure that was used required the observers to complete an observation instrument while in the classroom. As soon as possible upon leaving the classroom, the observer scored the observation. The scores were then placed into sealed envelopes until all observations were complete.

Pellant (1972) used a different method to measure individualization of instruction. The observers were

given a fourteen-question checklist. The observer was instructed to score each item either positive, negative, or neutral. The observers spent twenty minutes observing each classroom. The first five minutes were spent filling in a variable sheet. The next ten minutes were spent observing pupils and teachers in the classroom. The final five minutes were used to review the scoring and conclude the observation.

Jarolimek (1955) used a 188-item checklist and a thirteen-item structured interview in a study of individualization of instruction. Goodlad (1970) used observers to collect information on instructional activities, subject matter, materials and equipment, involvement of students, interaction, inquiry independence, curriculum balance, curriculum adaptation, ceilings and floors of expectancy, and staff utilization. Raw data from observers were analyzed and independently rated by three staff members who developed a high degree of interpretive agreement and a common vocabulary.

In-service Education

In-service education programs are designed to bring about change in teachers. There is a decision made

that teachers are not performing satisfactorily in some area. This discrepancy may have several causes. Commitment to new teaching strategies or the installation of a new course are just two developments that may cause a need for in-service education.

In-service education programs are designed to bring about specific results. How are in-service education programs evaluated? The answer to this question can be placed into three categories. These categories are: (1) no evaluation, (2) evaluation of the in-service education program at the end of the program, (3) evaluation performed over a period of time, including time after the in-service education program has been completed.

Brandau (1972) conducted an in-service education program for vocational teachers at Willingboro, New Jersey, during the summer of 1969. Forty vocational teachers from ten states participated in the program. The four major objectives of the program were:

(1) Participants were to be exposed to the basic facets of an individualization program of instruction which would include components of pacing, self-direction, self-motivation, self-evaluation, branching, enrichment, and multi-media approach.

(2) Participants were to be schooled in the writing and development of valid behavioral objectives which would include the structure of performance, conditions, and achievement level to fulfill the basic requirements of a sound objective.

(3) The actual construction of instructional learning packages was to be developed with the participants engaging in the construction of learning packages.

(4) Participants were to be offered a systematic program for implementation of individualization within their home districts. (5)

The participants took three weeks to complete the program. The objectives of the program were contained in twelve learning packets. In addition to the twelve learning packets, speakers were used and three field trips were taken.

The evaluation model of the program was a post-test given at the end of each learning packet. The participants were not allowed to move to the next level until mastery was accomplished. A follow-up questionnaire sent to the participants during the 1969-70 school year was the final step in the evaluation.

The participants completed the required learning packets, with mastery being achieved. The follow-up questionnaire was not as encouraging. Twenty-two out of the forty participants returned the questionnaire. The home districts failed to utilize the talents of the trainees to any extent after their return from the program. Only four participants included any information about the use of materials developed in the program.

Hancock (1970) reported a study of a combined in-service and preservice education program, where the primary method of instruction was simulation. The program's three purposes were:

(1) to develop a simulation exercise for use in the training of prospective foreign language teachers;

(2) to try out this simulation exercise with the prospective teachers in order to investigate its feasibility for sensitizing these prospective teachers to problems of individualized instruction for high school learners of foreign languages; and

(3) to increase the variety of approaches which foreign language educators have available for

use in the training of effective foreign language teachers.

Three conclusions that Hancock reached were:

(1) The usefulness of simulation as an instructional technique for training prospective foreign language teachers was clearly established.

(2) Staffing, time, and cost do not present major problems for an ongoing teacher training program, where the desire is to implement a simulation exercise such as the one being studied.

(3) In-service education seems to be an area replete with potential for the use of simulation techniques.

The evaluation model did not contain any measurement of classroom activities of the in-service teachers. This was unfortunate, for it would have been very interesting to have these measurements.

Sheekey (1971) developed a model for training elementary teachers of individualized learning classrooms to apply systematically some contingency management and related behavior modification techniques. He selected four behavior modification principles and incorporated skills derived from these principles into a subsystem

instructional model consisting of four separate modules for training elementary teachers.

Mitchell (1972) studied the effects of a multimedia in-service program for individualizing instruction on teachers from three junior high schools in Robbinsdale, Minnesota. The randomly selected subjects included twenty-four teachers in the experimental group and twenty-three teachers in the control group. These teachers were identified as not providing for individual differences in their classrooms as indicated by their respective principals. The treatment consisted of seven slide-tape presentations which were viewed by the experimental group during three sessions.

The evaluation of this program contained a measurement of the ongoing activities in the teachers' classroom. Eight of the twenty-three members in the experimental group implemented behavioral objectives, learning packages, and audio tutorial units in an attempt to provide for individual differences. Using a chi-square test, the number of changes was significant at the 05. level.

Zoch (1970) studied the effect of an individualized in-service program on teacher questioning and

student verbal participation. The purposes of the study were:

(1) to determine the extent to which kindergarten and first-grade teachers employed higher-level cognitive operations prior to, during, and after individual instruction;

(2) to determine the degree of teacher-pupil verbal interaction prior to, during, and after individual instruction; and

(3) to determine the extent to which selected materials and learning activities helped the kindergarten and first-grade teachers employ higher-level cognitive operations and elicit more student verbal participation.

The teachers were divided into two groups, with seventeen in the experimental group and seventeen in the control group. The teachers recorded on tape the oral discourse of their religion classes prior to, during, and after the in-service program. After lessons were analyzed, the teachers were given suggestions for improving the lessons. All teachers in both groups were engaged in the same type of in-service program. Each received written individual suggestions. The experimental teachers received two additional hours of individual oral instruction.

The auto-instructional in-service program affected teacher behavior to an extent that was significant at the .05 level. The inclusion of individual interaction bewteen instructor and teacher had no significant effect on increasing student verbal participation.

Harder (1970) made a study to determine whether differences in teaching effectiveness resulted from two types of in-service education programs. The subjects were randomly selected to form three groups and all completed the Teacher Assessment Inventory, pretreatment form. The methods of instruction were lecture for group I, individual learning packets for group II, and no instruction for group III, the control group. Following a period of five months of teaching, the subjects completed the posttreatment form of the Teacher Assessment Inventory and were observed by the Supervisor of Industrial Arts, who completed the Supervisors' Observation Instrument.

Group I participated in a four-day orientation institute held in late August 1969. Group II received two visits from the Industrial Arts Supervisor and a monthly mailing of information pertinent to their curriculum needs. No significant differences were found between any of the three groups.

Miller (1972) made a study to determine whether teachers would progress to higher adoption levels of a new concept by means of team research. Nine school administrators and eleven teachers of agriculture made up the research team. The topic to be researched was new concepts of supervised practice. In the evaluation of the study Miller stated, "All teachers progressed to the trial stage of the adoption level in acceptance of the new concept of supervised practice."

King (1972) made a study comparing a traditional lecture course with a telelecture as an in-service program for vocational-technical teachers. There were three groups in the study. Group I was taught with the traditional lecture method. Group II was taught with fifty percent traditional lecture and fifty percent telelecture. Group III was taught only with telelecture. Group I consisted of fifteen teachers, group II consisted of fifteen teachers, and group III consisted of twenty-five teachers.

The evaluation model was a pre- and posttest. All students were given an Otis Employment Test and a pretest of course content to measure general ability and initial status. Also, written and oral evaluation procedures were conducted throughout the course. The researcher

concluded that a professional in-service course may be presented with equivalent results, either by traditional lecture or telelecture methods.

Cameron (1972) studied the effectiveness of three "remote" techniques of in-service teacher education for three selected teaching skills. Three equal groups were randomly made up from a sample of 39 vocational teachers. As a pretest, all participants video-taped a five-minute lesson. The treatment consisted of viewing an instructional model and then practicing the skills in the model by teaching five-minute lessons to four students. Each of these five-minute lessons was video-taped and mailed to a teacher educator. The teacher educator gave video-phone feedback to one group. Video-mail feedback was given to a second group. The third group performed self-evaluations of the five-minute lessons.

At the end of the eight-week experiment, post-tests were given to the thirty-six participants who completed the program. Two experienced educators rated the teaching skill performance on all pre- and posttests. There were no significant differences among the three treatment groups. All groups improved their posttest teaching performance over their pretest teaching performance.

Cesta (1970) reported an in-service education program that used the internship to give teachers experience in business firms to help them improve the teaching of vocational courses. Nine vocational teachers were placed with business firms during the summer of 1970. Experiences varied according to the company with which the participant was placed. The evaluation model was not well defined. However, the director stated that participants benefited a great deal from the experience, enabling them to improve their teaching methods in business and vocational courses.

Syhlman (1972) reported a professional internship exchange program in vocational education as a method of in-service education. There were six objectives of the internship program. These objectives were:

> To provide 10 teachers with professional experience in a related business or industrial firm pertaining to their vocational instructional area so that they would maintain an understanding and appreciation of the changing world of work. Through this experience they would return to their individual situation to provide leadership in creating innovative programs to meet the needs of all youth needing and wanting vocational instruction.
>
> To ascertain 10 business or industrial exchange teachers who would provide instruction to youth with special needs. These students would be minority youth and disadvantaged youth.
>
> To obtain the services of business, industry, organizations and other agencies in order that vocational

education would be carried on in a more effective environment. Meeting the needs of vocational students through this process would improve the opportunity for gainful employment of vocational students.

To establish greater participation and cooperation between teacher-education and the State Vocational Education agency.

To provide a presession and postsession for both the participating teachers and business exchange representatives. To provide the opportunity for involvement between the participants in carrying out the project objectives so that the needs for youth with special needs would be met and the professional improvement needs of teachers accomplished.

To provide 10 business and industrial firms with the opportunity to become more cognizant of their role in meeting the needs of today's youth in today's complex society, and to promote this concept on a continuing basis. (9)

The plan that was developed to meet the objectives of this internship program contained seven major points. These major points were:

Ten teachers participated in the project along with ten business and industrial firms. Teachers would be selected from the following areas: agriculture, business and office education, distributive education, trade and industrial education, home economics and consumer education, health education, and public services. The project insures representation from all vocational services plus other interested areas of instruction pertaining to occupational-vocational education.

Ten selected business and industrial firms would participate in the exchange program and these firms would be selected on a classification basis according to the various services, including: manufacturing,

agriculture, wholesale, retail business. Governmental services would also be included for consumer education, business and office occupations, and health occupations.

The ten firms would provide one person in exchange for one teacher. These persons would team teach a class in the school of the exchange teacher oriented towards students with special needs. This class would operate for 90 hours of instruction and would be conducted on a flexible basis. These programs would be conducted in either K-12 programs, vocational-technical institutes or community colleges. Representation from each would be the goal.

The exchange teachers would participate approximately 90 hours in the participating exchange business or industrial firm. They would spend one-half work day in the firm and be provided opportunities to become involved in various operations of the firm. Close coordination by the teacher-education institution would insure this element being accomplished in the project.

The Cooperative Instructional Class would provide learning experiences which are designed to enhance gainful employment. Every effort will be made to place these students in an occupation in which they may succeed at their particular competency level. This class would be limited to not more than 20 students.

The teacher-training institution would provide one short training session of five days. There would be a two day evaluation workshop.

Participation between the teacher-training institution and the Washington State Coordinating Council, Professional Services, Division of Vocational Education would provide for greater coordination. (15)

The evaluation model contained a two day conference to conclude the evaluation of the project. As

a result of this conference, the following nine accomplishments were apparent:

Ten selected vocational teachers received in-service professional personnel development in meeting the needs of youths and adults classified as disadvantaged or with special needs.

Ten business and industrial firms cooperated both financially and personnel wise in carrying out the program objectives. A total of $3,500 was allocated by firms towards the financing of the program.

The business and industrial firms, as well as the respective communities, became more aware for the need of serving the disadvantaged.

Ninety hours of special instruction was provided to more than 100 youth and adult populations having special needs. This was accomplished by ten centers consisting of a team of vocational teacher and business-industrial representatives.

Vocational education and business-industrial firms, as well as other public agencies, became more involved in working cooperatively in serving disadvantaged persons.

Several long-range programs were developed in regular vocational programs as a result of being involved in this project.

An overall awareness for serving people with special needs resulted in the ten centers.

Vocational teachers improved their understanding and knowledge of occupations by being able to gain first-hand experience in a business or industrial firm.

Greater cooperation between the Washington State Coordinating Council for Occupational Education, U.S.O.E., E.W.S.C. and local centers was attained in meeting program goals and objectives. (54)

The above eleven research studies are summarized in Table 2.1. The column titled "Level of Adoption" is of special interest. Those in-service education programs that used laboratory team research, internship, and simulation as the principal method of instruction rated high in level of adoption; those in-service education programs that used lecture or individualized learning packets as the principal method of instruction rated low in level of adoption. Some methods of instruction seem to change teacher behavior more than other methods of instruction.

Variables that May Influence Individualization of Instruction

Neujahr (1970) studied teacher-pupil interactions when instruction is individualized. A class of sixth grade pupils was video-taped for a week in each of three subjects: mathematics, social studies, and science. The video tapes were analyzed through a modified form of Bellack's coding system. The data were compared to Bellack's data for lecture-discussion classes. Neujahr found that students made far more initiatory moves in individualized classes--students doing 50 percent of the structuring and 24 percent of them soliciting. He also

TABLE 2.1

PRIMARY METHOD OF INSTRUCTION

OF AN IN-SERVICE EDUCATION PROGRAM

AND THE LEVEL OF ADOPTION

Investigator	Method of Instruction	Level of Adoption
Harder	Control lecture Individualized	Low
Zoch	Laboratory	High
Hancock	Control simulation	High
Sheekey	Modules	
Mitchell	Simulation	High
Brandau	Individual learning Packets	Low
Miller	Team research	High
King	Telelecture and lecture	Low
Cameron	Laboratory	High
Cesta	Internship	High
Syhlman	Internship	High

found that boys and girls behaved differently in an individualized class. The average girl made 70 percent more initiatory moves than the average boy.

Lambert (1970) studied teachers' perceptions and principals' expectations for the teacher's role in individualized instruction. The method of research was to identify important activities of individualizing instruction through a review of the literature and to organize these activities into a survey instrument. The population included all secondary vocational agriculture teachers in Michigan and their principals. A mail survey was taken, with a response of 83 percent.

Lambert found that teachers and principals disagreed on the importance of the sixty-one individualized instruction activities when all were considered together and they also differed on ten activities when each was considered separately.

Hamby (1971) studied the lack of formative evaluation designs that adequately take into consideration the characteristics of an individualized instructional system. Hamby developed and tested a model designed to: (1) determine instructional problem areas, (2) provide a strategy for modifying these problem areas,

and (3) furnish a design for continuous evaluation of modifications while the individualized instructional program was in progress. He found that students who used the modified instructional materials did significantly better (on measures designed to give immediate feedback as to mastery of the skill) than did students who used the nonmodified materials.

Cross (1971) studied the relationship between individualization of instruction and teacher perception of pupil behavior. The degree of individualization was determined by classroom observation. Teachers' and pupils' perceptions were assessed by teacher and pupil self reports of pupil behavior and by teachers' perceptions of pupils "who pose significant problems to him as a teacher."

The sample was made up of 472 pupils and twenty-one teachers. The classes were in nongraded primary units located in the inner city of a large urban district.

Cross found that the perception of pupils by the teachers and pupils does not differ significantly with the degree of individualization in the classroom. Significant differences were found between perceptions of how best to handle students whom teachers viewed as

significant problems, and in success with problem students when these variables are compared to the degree of individualization in the classroom. The differences favored the groups that were more individualized.

Mendenhall (1972) studied the relationship of teacher factors to effectiveness of individualized instruction. Individualization was being initiated during the fall of 1971 in the primary units of eight elementary schools of the state of Utah providing the population for the study.

The extent of individualization was measured by an 18-item self-report, a 9-point teacher individualization scale, and an 18-item individualized environment survey for principals. The surveys contained identical statements. For purposes of hypothesis testing, the principals' ratings were used.

There was no significant relationship between teacher's age, teacher's years of experience in teaching, or teacher's range of experience and the extent to which an individualized "working climate" was established. The number of years a teacher had spent individualizing instruction showed a highly significant positive relationship to the degree the program was implemented.

Harlan (1971) studied attitudes toward individualization of instruction and beliefs concerning experimentalism. The population studied was 148 students enrolled in elementary student teaching and 136 of their cooperating teachers. Pre- and posttests of the Personal Beliefs Inventory were administered to the student teachers. The Individualization of Instruction Inventory was administered to the student teachers and the cooperating teachers.

The treatment consisted of pairing the student teacher and the cooperating teacher. This was accomplished by matching scores on the individualization of Instruction Inventory. The mean of the test was located, and a student score was matched with a teacher score from the opposite side of the mean. Results revealed that there was no significant change in attitudes or beliefs of the student teachers. There was no significant relationship between attitude toward individualization and philosophical belief concerning experimentalism.

Harlan concluded that:

(1) student teachers do not change their attitude toward individualization of instruction or their beliefs concerning experimentalism during student teaching,

(2) the cooperating teacher does not influence the attitude of the student teacher toward individualization of instruction, and

(3) the students' attitudes toward individualization are more positive than that of the teachers.

Table 2.2 contains a summary of the variables that may affect the implementation of a program of individualization of instruction. The variables listed in Table 2.2 are of such a nature that they could be the object of in-service education themselves. However, most of the variables could be controlled within the context of an in-service education program in the individualization of instruction.

Summary

Three areas pertinent to the study were reviewed in the literature. Classroom observation, as a means of measurement of the extent teachers applied the behaviors gained through an in-service education program, was viewed as the best measure of this reported in the literature.

Variables that may affect the implementation of a program of individualized instruction were reviewed in

TABLE 2.2

VARIABLES THAT MAY AFFECT

THE IMPLEMENTATION OF A PROGRAM OF

INDIVIDUALIZATION OF INSTRUCTION

Researcher	Variables
Neujahr	Teacher-pupil interactions
Lambert	Teachers' perception and principals' expectations
Hamby	Formative evaluation
Cross	Teacher perception of pupil behavior
Mendenhall	Teacher factors (demographic)
Harlan	Attitudes toward individualization of instruction and beliefs concerning experimentalism

the literature. Many of these variables are controllable with careful classroom management. However, some of the variables that may affect individualization of instruction are of such a nature as to require a well designed in-service education program years to control.

Methods of instruction used in the in-service education programs were reviewed in the literature. A prediction of the amount of application of the objectives of an in-service education program by teachers can be made by knowing the primary method of instruction used in the in-service education program. This "prediction" is based upon studies that were reviewed. These studies revealed that when particular methods of instruction were used, a higher "level of adoption" was obtained.

C H A P T E R I I I

RESEARCH PROCEDURES

Introduction

In this chapter the procedures for collecting data analysis will be discussed. The elements of the data collection were: (1) district selection, (2) teacher selection, (3) training the observers, (4) performing the observation, and (5) performing the interview.

The instruments for data collection will be presented. These instruments were: (1) the Descriptive Observation Record for Individualization of Instruction, (2) the Individualization of Instruction Inventory, and (3) the In-service Interview Form.

The procedure for data analysis will be described. Linear regression analysis, the technique used to test the hypotheses, will be briefly discussed.

Selection of the Twenty School Districts

A total of 167 school districts were identified as being within one hundred miles of Austin, Texas. Each

superintendent of these school districts was sent a letter explaining the study and asking for an indication of the district's willingness to participate in the study (Appendix B). Seventy-six districts replied in the affirmative. Twelve districts replied in the negative. Seventy-nine districts did not reply.

Forty-eight school districts of the seventy-six that replied in the affirmative reported an in-service program in the individualization of instruction. Twenty-eight school districts that replied in the affirmative reported no in-service program in the individualization of instruction.

The seventy-six school districts were then placed into groups, by size. Group 1 contained those districts with an ADA of 10,000 or more. Group 2 contained those districts with an ADA of 5,001 to 9,999. Group 3 contained those districts with an ADA of 3,001 to 5,000. Group 4 contained those districts with an ADA of 2,001 to 3,000. Group 5 contained those districts with an ADA of 1,001 to 2,000. Group 6 contained those districts with an ADA of 001 to 1,000.

A total of twenty districts were selected for the study. Ten of these districts were to have had ar

TABLE 3.1

ADA OF SELECTED DISTRICTS, 1972-1973

No In-service		In-service	
District Number	ADA	District Number	ADA
1	727	11	8,578
2	3,391	12	2,208
3	477	13	3,487
4	1,986	14	1,292
5	1,294	15	1,308
6	11,964	16	1,775
7	1,230	17	2,302
8	1,101	18	3,705
9	768	19	959
10	655	20	2,139
	23,593		27,753
Mean ADA	2,359	Mean ADA	2,753

in-service education program in the individualization of instruction. Ten districts were not to have an in-service education program in the individualization of instruction.

The ten districts that had an in-service program in the individualization of instruction were paired with the ten districts that had no in-service program in the individualization of instruction. The common criterion was to match or secure as close a match as possible between the districts by ADA.

Each of the participating districts was assigned a number for identification and will be referred to by that number throughout this study.

Each superintendent in his response named a contact person for that district. Upon completion of the selection process, each contact person was contacted by telephone to confirm the district's participation in the study.

Selection of Teachers

A stratified random sample technique was used to select the teachers. A list of teachers was obtained through the Texas Education Agency, Division of Management Information Center. The teachers' names were then

placed into three groups, by district, according to the definition of vocational teacher, special education teacher, and academic teacher contained in Chapter I.

Teachers were then selected by use of a table of random numbers. Table 3.2 contains the number of teachers in each district who were selected, in each of the three categories.

All the teachers who were selected were sent a letter explaining the study and asking them to participate in the study. Building principals were sent a copy of this letter along with a list of teachers in that building. The contact person in each district was sent a list of teachers who were selected.

Instruments

The instrument used to record the classroom observation was the Descriptive Observation Record for Individualization of Instruction developed by Harris and McIntyre (Appendix A). The observer used this instrument to record, in sentence form, observed evidence in five areas. These areas are: (1) Intraclass Grouping, (2) Variety of Materials, (3) Pupil Autonomy, (4) Differentiated Assignments, and (5) Tutoring. The observers completed the form while in the classroom.

TABLE 3.2

DISTRIBUTION OF TEACHERS BY DISTRICTS

District Number	Total Teachers	Vocational Teachers	Special Education Teachers	Academic Teachers
1	10	2	0	8
2	22	10	9	13
3	10	2	2	6
4	23	7	5	11
5	20	4	0	16
6	45	9	6	30
7	19	7	0	12
8	18	3	2	13
9	11	3	2	6
10	11	3	1	7
11	27	7	5	15
12	20	4	4	12
13	20	6	5	9
14	18	2	3	13
15	18	6	1	11
16	18	8	3	7
17	20	7	5	8
18	24	6	7	11
19	16	4	3	9
20	19	7	6	6

A second instrument was used by the observer to score the completed Descriptive Observation Record for Individualization of Instruction. This instrument was Individualization of Instruction Inventory (Appendix A), developed by Harris and Coody. The observer scored twenty-five items from one to five, based upon the information contained in the Descriptive Observation Record for Individualization of Instruction. These scores were then recorded on a summary page contained in the booklet.

An interview form was developed by the author to be used in gathering information about the ten districts' in-service education programs in individualization of instruction (Appendix A). This In-service Interview Form was administered to the district official who had the responsibility for planning and operation of the in-service education program. The interview was conducted in the district official's office and had an approximate duration of thirty minutes to one hour.

Training the Observers

There were four training sessions. Each session was approximately one and one-half hours in length.

The participants were told in advance the objectives that were to be accomplished in the meetings. The training sessions are described below.

Training Session One

Objectives

Familiarize observers with the study.

Familiarize observers with the observation instrument.

Familiarize observers with the scoring instrument.

Activities

Fifteen-minute lecture about the study.

Distribution of the observation instrument.

Reading through the observation instrument with the observers, followed by discussion.

Distribution of the scoring instrument.

Reading through the scoring instrument with the observers, followed by a group discussion.

Training Session Two

Objective

Practice completing the observation instrument.

Activities

Viewing of film, followed by a discussion.

Completion of observation instrument during the viewing of a film.

Discussion and comparison of completed observation instrument.

Training Session Three

Objective

Visit to a live classroom and completion of an observation instrument.

Activities

Visit to a third grade classroom with all six observers completing an observation instrument.

Comparison of the completed observation instruments.

Training Session Four

Objective

To practice completing a scoring instrument.

Activities

Discussion of the scoring instrument.

Completion of the scoring instrument.

Comparison of the outcomes of scoring instruments.

At the completion of the training sessions, an interrater reliability score was computed for each pair of observers. These scores are contained in Table 3:3 The average interrater reliability score was .82.

TABLE 3.3

INTERRATER RELIABILITY SCORES*

Observer	1	2	3	4	5	6
1	1.00	.88	.89	.82	.64	.64
2	.88	1.00	.95	.82	.90	.88
3	.89	.95	1.00	.80	.90	.81
4	.82	.82	.80	1.00	.71	.90
5	.64	.90	.90	.71	1.00	.86
6	.64	.88	.81	.90	.86	1.00

*Pearson product-moment was used to calculate this table.

Performing the Observations

The contact person in seventeen of the districts made the schedule for the observers to use in making their observations of the teachers. In three districts the study staff made the schedule by going to each building in the three districts and arranged the schedule with the principal's help.

There were five observers and one alternate employed to perform four hundred observations. The actual number of observations performed was 364. The distribution of these observations is contained in Table 3.4. Each observer was paid $5 per observation plus travel expenses. Each observation was to be a minimum of thirty minutes duration. The observers were not told which districts had an in-service education program.

Linear Regression Analysis

Linear regression was the method selected to test the hypotheses because of its versatility. Also, it is more precise without many assumptions of other analysis of variance procedures in the testing of hypotheses.

TABLE 3.4

NUMBER OF OBSERVATIONS

Observer	Observations Performed
1	70
2	66
3	75
4	11
5	76
6	66
Total	364

Linear regressions uses prediction as the mode of operation. A single criterion variable is predicted from a set of predictor variables. The equation used to compute a criterion variable may be expressed as:

$$y = a_1x^1 + a_2x^2 + a_3x^3 + \ldots + a_nx^n + E$$

where y is the predicted criterion score

a is a weight for a predictor

x_1 is a predictor score

n is the number of predictor variables

E is the error of prediction

The solution to the above equation is a set of weights (a), one for each predictor variable. These weights are chosen so as to minimize the error (E).

The actual testing of the hypothesis is accomplished by a comparison of the hypothesis with the null hypothesis. This is done by computing a set of weights for the hypothesis which produces a minimum prediction error (minimum sum of squares); then, since the prediction was made using the actual scores, a new prediction is made. This new prediction is made on the basis of the null hypothesis. Simply put, if there are no differences in the predictors, then they are equal and can be added

as a single predictor. This new set of weights is computed and a new minimum prediction error (minimum sum of squares) is produced. Using these two sets of minimum sum of squares, an F-test is calculated.

Null Hypothesis

Since linear regression uses the null hypothesis to compute an F-test, it is necessary to restate the hypothesis in the null form. The null hypotheses are:

(1) There will be no differences between the observation scores of vocational teachers who have had in-service training in individualization of instruction and vocational teachers who have not had in-service training in individualization of instruction.

(2) There will be no differences between the observation scores of academic teachers who have had in-service training in individualization of instruction and academic teachers who have not had in-service training in individualization of instruction.

(3) There will be no differences between the observation scores of special education teachers who

have had in-service training in individualization of instruction and special education teachers who have not had in-service training in individualization of instruction.

(4) There will be no differences between the observation scores for districts that used in-service education program B and districts that used in-service education program A.

(5) There will be no differences between observation scores of vocational teachers and academic teachers.

(6) There will be no differences between observation scores of special education teachers and academic teachers.

(7) There will be no differences between observation scores of vocational teachers and special education teachers.

Summary

Ten districts that had an in-service education program in individualization of instruction and ten districts that did not have an in-service education program

in individualization of instruction were chosen to be in the study. Four hundred teachers were randomly selected to be in the study. Six observers made a total of 364 observations.

The data collected were subjected to the technique of linear regression analysis for hypothesis testing. The collection of the data covered a period of ten weeks. Data collection began March 1, 1973, and ended May 9, 1973.

C H A P T E R I V

TESTS OF HYPOTHESES

The Ten In-service Education Programs

The In-service Interview Form (Appendix A) was administered to the contact person in each of the ten districts that had an in-service education program in the individualization of instruction. The In-service Interview Form was administered to attain two major objectives. These objectives were: (1) to determine the major method of instruction used in the in-service education program and (2) to provide information about the in-service education program in several areas. These areas are: (1) length of program; (2) who planned the program; (3) outside-the-district participants in the planning and execution of the program, and the activities of these outside-the-district people; (4) teachers who participated in the in-service education program; (5) whether the objectives were given to the participants, and whether there was an evaluation of the in-service education program; and (6) who paid for the program.

The major methods of instruction used in these ten in-service education programs are listed in Table 4.1. Five districts used the laboratory method as the major method of instruction. One district used the laboratory method and clinical study as the major method of instruction. Three districts used the lecture and discussion methods in combination with the case method as the major methods of instruction.

The above information was used to compile Table 4.2. This table was compiled in order that Hypothesis 4 could be tested. Four districts' in-service education programs qualified for Category A (largely lecture-discussion), while six districts' in-service education programs qualified for Category B (largely laboratory approach).

Information about the time factors of the ten in-service education programs is contained in Table 4.3. All the programs included from one to four days of in-service education before the students reported for school in the fall. Eight of the in-service education programs were carried into the school year. These contained either two or three days of in-service during the school year. Two districts did not carry the in-service education beyond the reporting of the students in the fall.

TABLE 4.1

PRIMARY METHOD OF INSTRUCTION USED

IN THE IN-SERVICE EDUCATION PROGRAM

District Number	Method of Instruction
11	Lecture - Discussion
12	Laboratory
13	Lecture - Discussion - Case
14	Laboratory - Clinical Study
15	Laboratory
16	Lecture - Discussion
17	Lecture - Discussion
18	Laboratory
19	Laboratory
20	Laboratory

TABLE 4.2

CLASSIFICATION OF IN-SERVICE EDUCATION

METHOD OF INSTRUCTION

District Number	In-service Program A	In-service Program B
11	x	
12		x
13	x	
14		x
15		x
16	x	
17	x	
18		x
19		x
20		x

TABLE 4.3

LENGTH OF IN-SERVICE EDUCATION PROGRAM

District Number	Number of Days Before School Opened	Number of Days During School	Total Number of Sessions	Length of Session in Hours	Total Hours of Instruction
11	4	3	14	1 1/2	21
12	2	3	8	3	24
13	4	2	12	2 1/2	30
14	3	2	6	3 1/2	21
15	4	0	8	3	24
16	1	3	8	3	24
17	1	2	3	6	18
18	2	3	8	6	48
19	2	0	6	3	18
20	3	3	12	2	24

The most sessions held by any district were fourteen, while the fewest sessions held were three. The average number of sessions was eight and one-half. The length of these sessions varied from one and one-half hours to a maximum of six hours.

The greatest number of hours of instruction of any of the ten in-service education programs was forty-eight. The fewest hours of instruction of any of the ten programs were eighteen. The average number of hours of instruction for the ten programs was twenty-five and two tenths hours. The four in-service education programs that were placed into Category A averaged twenty-three and one-fourth hours of instruction. The six programs that were placed into Category B averaged twenty-six and one-half hours of instruction.

No statistical test was run to determine a difference in amount of time devoted to the in-service education programs. However, it is evident that the amount of time devoted to the in-service education program did not affect the level of individualization of instruction. The amount of time devoted to in-service education is summarized in Table 4.3.

Two districts' in-service education programs were planned by each of the building principals (Table 4.4). One district's in-service education program was planned by the regional Education Service Center. Seven districts' programs were planned by a person in the central office of the district. The position of the person who planned the in-service education program did not affect the level of individualization of instruction that was obtained.

The information concerning the use of consultants is contained in Table 4.5. The Education Service Center was involved in seven of the districts' in-service education programs. In six of these districts the Education Service Center helped or planned the in-service program. In all seven programs the Education Service Center conducted some of the sessions. In five programs the Education Service Center performed an evaluation of the in-service education program.

University professors were involved in seven of the districts' in-service education programs. The only responsibility these professors had was that of conducting sessions.

TABLE 4.4

PLANNING OF THE IN-SERVICE EDUCATION PROGRAM

District Number	Position of Person Responsible for Planning
11	Assistant Superintendent
12	Building Principal
13	Curriculum Director
14	Building Principal
15	Curriculum Director
16	Curriculum Director
17	Assistant Superintendent
18	Assistant Superintendent
19	ESC (county-wide)
20	Curriculum Director

TABLE 4.5

USE OF CONSULTANTS

District Number	Education Service Center Personnel			University Professor			Consulting Companies		
	Planning	Conducting a Session	Evaluation	Planning	Conducting a Session	Evaluation	Planning	Conducting a Session	Evaluation
11					X				
12	X	X	X		X				
13		X			X				
14					X			X	
15	X	X	X		X				
16	X	X							
17							X	X	
18	X	X	X		X				
19	X	X	X						
20	X	X	X		X				

Two districts' in-service education programs used consulting companies in the program. In one program the company's responsibility was that of conducting sessions. In the other program the company conducted sessions and helped plan the in-service education program.

Although the effectiveness of the various categories of outside consultants was not tested by statistical procedures, the data does not indicate that any pattern of consultant use was any more effective than any other pattern.

In each of the ten districts the answer to a question concerning teachers who participated in the in-service education program was the same. All districts reported that "all" teachers participated in the in-service education program (Table 4.6).

Information concerning the objectives of the in-service education programs is contained in Table 4.7. Only three districts wrote the objectives of the program into a document. These objectives were given to the participants before the beginning of the program. However, seven districts performed an evaluation of the in-service education program. The type of evaluation that was performed was a survey of the participants at the close of

TABLE 4.6

TEACHERS WHO PARTICIPATED IN THE

IN-SERVICE EDUCATION PROGRAM

District Number	Did all teachers in the district participate in the in-service education program?
11	Yes
12	Yes
13	Yes
14	Yes
15	Yes
16	Yes
17	Yes
18	Yes
19	Yes
20	Yes

TABLE 4.7

OBJECTIVES OF THE IN-SERVICE EDUCATION PROGRAM

District Number	Were the objectives stated in a written document?	Was there an evaluation of the program?
11	Yes	No
12	No	Yes
13	No	No
14	No	Yes
15	No	Yes
16	No	Yes
17	Yes	Yes
18	Yes	No
19	No	Yes
20	No	Yes

the in-service education program to determine their attitude toward the program. Neither the objectives nor the evaluations seemed to have an effect upon the level of individualization of instruction that was achieved.

Information about the source of funding is contained in Table 4.8. One district supported the entire cost of the in-service education program. Five districts shared the cost of the program with the state and federal governments. One district shared the cost of the program with the federal government and a consulting firm. Two districts depended on the Education Service Center to pay the cost of the in-service education program. Information concerning the total amounts of money spent was not available. Several officials indicated there was very little expense involved. Therefore, the amount of money spent did not appear to affect the level of individualization of instruction that was achieved.

Tests of the Hypotheses

Each of the seven hypotheses was tested, using linear regression analysis. The results of these tests are given below.

TABLE 4.8

SOURCE OF FUNDING

District Number	Local	Education Service Center	State	Federal	Other
11	x		x	x	
12	x	x			
13	x				
14	x	x			
15	x	x			
16	x	x			
17	x			x	x
18	x	x			
19		x			
20		x			

Hypothesis 1: Vocational teachers who have had in-service training in individualization of instruction will be observed doing more individualization of instruction than vocational teachers who have not had in-service training in individualization of instruction.

Null Hypothesis 1: There will be no differences between the observation scores of vocational teachers who have had in-service training in individualization of instruction and vocational teachers who have not had in-service training in individualization of instruction.

The linear regression model calculated an F-test between Hypothesis 1 and Null Hypothesis 1. Table 4.9 contains a summary of the statistical data. Table 4.10 contains the predicted scores of vocational teachers who had in-service training and vocational teachers who had no in-service training. An examination of Table 4.10 reveals that vocational teachers who had no in-service training scored higher than vocational teachers who had in-service training. An examination of Table 4.9 leads to the rejection of Hypothesis 1 and the acceptance of Null Hypothesis 1. The test of the data suggests that in-service training in the individualization of instruction makes no significant difference for vocational teachers.

TABLE 4.9

F-TEST BETWEEN VOCATIONAL TEACHERS

WHO HAD IN-SERVICE TRAINING AND VOCATIONAL TEACHERS

WHO DID NOT HAVE IN-SERVICE TRAINING

Model	Error Sum of Squares	Mean Squares	F Score	Probability
Full	37803.0714	413.517		
			.6164	.4345
Restricted	37057.9506	254.8846		

DF1 = 1, DF2 = 89

TABLE 4.10

PREDICTED SCORES* OF VOCATIONAL TEACHERS

Predicted score of an in-service participant	62.43
Predicted score of a non in-service participant	65.79
Difference between the two predicted scores	3.36

*Predicted scores are calculated by use of the actual observed scores. The predicted score is a score that will produce the smallest error sum of squares. This is done by subtracting the actual score from the predicted score, thereby obtaining an error score, which is squared and summed to obtain the error sum of squares.

The maximum score on the inventory is 125, while the minimum score is 25. A difference between the predicted scores of two groups establishes a trend when this predicted difference is greater than 5.

Hypothesis 2: Academic teachers who have had in-service training in individualization of instruction will be observed doing more individualization of instruction than academic teachers who have not had in-service training in individualization of instruction.

Null Hypothesis 2: There will be no differences between the observation scores of academic teachers who have had in-service training in individualization of instruction and academic teachers who have not had in-service training in individualization of instruction.

Table 4.11 reveals an F-test probability score of .0512, which is very close to the .05 level of significance. Therefore, the Null Hypothesis 2 is rejected and Hypothesis 2 is accepted. The predicted scores contained in Table 4.12 indicate that academic teachers who had in-service training scored higher than teachers who had no in-service training. The analysis of the data supports the contention that in-service training in the individualization of instruction did make a difference to academic teachers.

Hypothesis 3: Special education teachers who have had in-service training in individualization of instruction will be observed doing more individualization of

TABLE 4.11

F-TEST BETWEEN ACADEMIC TEACHERS

WHO HAD IN-SERVICE TRAINING AND

ACADEMIC TEACHERS WHO DID NOT HAVE IN-SERVICE TRAINING

Model	Error Sum of Squares	Mean Squares	F Score	Probability
Full	100332.8288	451.9497		
			3.8421	.0512
Restricted	102069.2455	1736.4167		

DF1 = 1, DF2 = 222

TABLE 4.12

PREDICTED SCORES OF ACADEMIC TEACHERS

Predicted score of an in-service participant	58.43
Predicted score of a non in-service participant	52.85
Difference between the two predicted scores	5.88

instruction than special education teachers who have not had in-service training in individualization of instruction.

Null Hypothesis 3: There will be no differences between the observation scores of special education teachers who have had in-service training in individualization of instruction and special education teachers who have not had in-service training in individualization of instruction.

Table 4.13 contains the information that there is no significant difference between the performance of special education teachers who had in-service training and special education teachers who did not have in-service training. Therefore, the null hypothesis is accepted. However, Table 4.14 reveals a difference of 7.37 between the predicted scores. This figure would suggest that there might be a difference in performance, which would suggest that this is an area for further investigation.

Hypothesis 4: In districts where in-service education program B was used in the in-service education program, observers will report a higher score of individualizati n of instruction than districts that used in-service education program A.

TABLE 4.13

F-TEST BETWEEN SPECIAL EDUCATION TEACHERS WHO HAD IN-SERVICE TRAINING AND SPECIAL EDUCATION TEACHERS WHO DID NOT HAVE IN-SERVICE TRAINING

Model	Error Sum of Squares	Mean Squares	F Score	Probability
Full	18993.3758	379.8675		
			1.6825	.2005
Restricted	19632.5192	639.1434		

DF1 = 1, DF2 = 50

TABLE 4.14

PREDICTED SCORES OF SPECIAL EDUCATION TEACHERS

Predicted score of an in-service participant	64.65
Predicted score of a non in-service participant	57.28
Difference between the two predicted scores	7.37

Null Hypothesis 4: There will be no differences between the observation scores for districts that used in-service education program B and districts that used in-service education program A.

There is no significant difference between effects of in-service program A and in-service program B. Table 4.15 reveals a significance level of .3914. The Null Hypothesis 4 is accepted. Table 4.16 contains a difference of only 2.80 in the predicted scores of the two categories of in-service education. This low difference, along with the level of significance, suggests that both categories of in-service education programs achieved about the same degree of implementation of individualization of instruction.

Hypothesis 5: Vocational teachers will be observed doing more individualization of instruction than special education teachers.

Null Hypothesis 5: There will be no differences between observation scores of vocational teachers and special education teachers.

Tables 4.17 and 4.18 contain the data analysis of Hypothesis 5. There is no significant difference between vocational teachers and special education teachers.

TABLE 4.15

F-TEST BETWEEN IN-SERVICE EDUCATION PROGRAM A AND IN-SERVICE EDUCATION PROGRAM B

Model	Error Sum of Squares	Mean Squares	F Score	Probability
Full	90613.0180	489.8001		
			.7380	.3914
Restricted	90974.5027	361.4847		

DF1 = 1, DF2 = 185

TABLE 4.16

PREDICTED SCORES OF IN-SERVICE PARTICIPANTS

Predicted score of an in-service A participant	62.18
Predicted score of an in-service B participant	59.38
Differences between the two predicted scores	2.80

TABLE 4.17

F-TEST BETWEEN VOCATIONAL TEACHERS

AND SPECIAL EDUCATION TEACHERS

Model	Error Sum of Squares	Mean Squares	F Score	Probability
Full	56690.4753	402.0601		
			.2915	.5901
Restricted	56807.6643	117.1891		

DF1 = 1, DF2 = 141

TABLE 4.18

PREDICTED SCORES OF VOCATIONAL TEACHERS

AND SPECIAL EDUCATION TEACHERS

Predicted score of a vocational teacher	63.98
Predicted score of a special education teacher	62.10
The predicted difference between a vocational teacher and a special education teacher	1.88

There is a slight difference of 1.88 between the predicted scores of vocational teachers and special education teachers. Therefore, Null Hypothesis 5 is accepted. The above information suggests that vocational teachers and special education teachers are individualizing instruction to about the same degree.

Hypothesis 6: Special education teachers will be observed doing more individualization of instruction than academic teachers.

Null Hypothesis 6: There will be no differences between observation scores of special education teachers and academic teachers.

Table 4.19 shows a probability of .0412, which means there is a significant difference at the .05 level of significance between special education teachers and academic teachers. Table 4.20 shows a predicted difference of 6.66 between special education teachers and academic teachers. The Null Hypothesis 6 is rejected and Hypothesis 6 is accepted. This means that special education teachers are individualizing instruction at a significantly higher degree than academic teachers.

Hypothesis 7: Vocational teachers will be observed doing more individualization of instruction than academic teachers.

TABLE 4.19

F-TEST BETWEEN SPECIAL EDUCATION TEACHERS

AND ACADEMIC TEACHERS

Model	Error Sum of Squares	Mean Squares	F Score	Proba-bility
Full	121701.7648	444.1670		
			4.2071	.0412
Restricted	123570.4348	1868.6700		

DF1 = 1, DF2 = 274

TABLE 4.20

PREDICTED SCORES OF SPECIAL EDUCATION TEACHERS AND ACADEMIC TEACHERS

Predicted score of a special education teacher	62.10
Predicted score of an academic teacher	55.44
The predicted difference between a special education teacher and an academic teacher	6.66

Null Hypothesis 7: There will be no differences between observation scores of vocational teachers and academic teachers.

Table 4.21 yields a F-test score of 10.6078, which is significant at the .012 level. Therefore, Null Hypothesis 7 is rejected and Hypothesis 7 is accepted. Table 4.22 contains a predicted difference of 8.54 between vocational teachers and academic teachers. The analysis of the data clearly shows that vocational teachers are individualizing instruction at a significantly higher level than academic teachers.

Tables 4.23 and 4.24 contain information about the five subscores of the Individualization of Instruction Inventory in relation to the type of in-service training program. Category A or Category B means were obtained for each set of subscores, according to the type of program. The minimum subscore was five and the maximum subscore was twenty-five for any individual teacher.

A comparison of intraclass grouping subscores shows that the mean of in-service training Category A was 1.31 higher than the mean of in-service training Category B. Means for variety of materials show a difference of .32, with in-service training Category A being the higher.

TABLE 4.21

F-TEST BETWEEN VOCATIONAL TEACHERS

AND ACADEMIC TEACHERS

Model	Error Sum of Square	Mean Squares	F Score	Probability
Full	13127.2016	444.4959		
			10.6078	.0012
Restricted	143842.3302	4715.1286		

DF1 = 1, DF2 = 313

TABLE 4.22

PREDICTED SCORES OF VOCATIONAL TEACHERS AND ACADEMIC TEACHERS

Predicted score of a vocational teacher	63.98
Predicted score of an academic teacher	55.44
The predicted difference between vocational teachers and academic teachers	8.54

TABLE 4.23

MEANS OF SUBSCORES OF INDIVIDUALIZATION OF INSTRUCTION INVENTORY

IN-SERVICE CATEGORY A

District Number	Number of Teachers	Intra-class Grouping	Variety of Materials	Pupil Autonomy	Differentiated Assignments	Tutoring
11	26	368	217	309	341	198
13	20	288	216	299	270	199
16	17	251	237	254	269	162
17	19	284	220	261	273	173
Total	82	1191	890	1123	1153	732
Mean		14.52	10.85	13.70	14.06	8.93

TABLE 4.24

MEANS OF SUBSCORES OF INDIVIDUALIZATION OF INSTRUCTION INVENTORY

IN-SERVICE CATEGORY B

District Number	Number of Teachers	Intra-class Groupings	Variety of Materials	Pupil Autonomy	Differentiated Assignments	Tutoring
12	19	309	253	282	293	193
14	17	211	150	206	215	141
15	17	185	123	162	191	132
18	20	229	239	210	229	245
19	14	155	99	156	163	85
20	17	285	232	270	297	209
Total	104	1374	1096	1286	1388	1005
Mean		13.21	10.53	12.37	13.34	9.66

The means of differentiated assignments show a difference of .72, with in-service training Category A being the higher. Tutoring is the only subscore where in-service training Category B shows a higher mean. This difference is .73.

None of these differences in means is great enough to reveal a difference in the level of individualization in any of the five subscores. Thus, each of the subgroups reveals the same information as the total score F-test. That is, there is no significant difference in the level of individualization of instruction between in-service training Category A and in-service training Category B.

Summary

The interview form was analyzed and a description of the ten in-service education programs was recorded. It was determined that six districts used an in-service education program fitting into Category B and four districts used an in-service education program fitting into Category A.

Seven hypotheses were tested, using linear regression analysis. Three hypotheses were accepted and

four hypotheses were rejected. In-service education made a difference in the practices of academic teachers, but it made no difference in the performance of vocational teachers and only a slight difference in special education teachers' practice of individualization of instruction. Vocational teachers were individualizing instruction to a greater degree than academic teachers and to a slightly greater degree than special education teachers. Special education teachers were individualizing instruction to a greater degree than academic teachers. Total scores and subscores were found not to make a significant difference in the level of individualization of instruction between in-service training Category A and in-service training Category B.

C H A P T E R V

SUMMARY AND IMPLICATIONS

Introduction

In this chapter a review of the study will be made and a summary of the findings will be presented. Implications for practice and suggestions for further study will be discussed.

Review of the Study

The purposes of the study were to aid the planners and the practitioners of in-service education programs by providing information about some of the results produced by current in-service education programs. The researcher chose vocational teachers, special education teachers, and academic teachers who had received in-service education in the individualization of instruction to determine the effect of this education upon their teaching.

One of the methods for collecting data was classroom observation. Six trained observers performed 364 classroom observations in twenty districts, all located

within 100 miles of Austin. Ten of those districts had an in-service education program in the individualization of instruction. The remaining ten districts did not have an in-service education program in the individualization of instruction. The second method of data collection was an interview with the ten district officials who had the responsibility of administering the programs.

The instrument used to collect the data was the Descriptive Observation Record of Individualization of Instruction. The instrument used to convert the data into numerical form was the Individualization of Instruction Inventory. The Inservice Interview Form was developed and used to collect information about the in-service education programs.

The review of the literature revealed that some in-service education programs conducted using certain methods of instruction rated higher in implementation than in-service education programs using other methods of instruction. The methods of instruction that were more effective were: (1) laboratory, (2) simulation, (3) team research, and (4) internship.

There are several variables that may affect the implementation of a program of individualized instruction

that have been studied and were reviewed in the literature. These variables are: (1) teacher-pupil interactions, (2) teachers' perceptions and principals' expectations, (3) formative evaluation, (4) teachers' perceptions of pupil behavior, (5) teacher factors (demographic), and (6) attitudes toward individualization of instruction and beliefs concerning experimentalism.

From the review of the literature seven hypotheses were formulated. Four of these hypotheses deal with the relationship of in-service education to teacher performance. Three of these hypotheses are concerned with the degree of individualization of instruction and which of the three groups--(1) vocational teachers, (2) special education teachers, and (3) academic teachers--are performing at a higher level of individualization of instruction.

Summary of the Findings and Conclusions

Ten districts' in-service education programs were described in Chapter IV. Six districts used the laboratory method of instruction as the major method of instruction in their in-service education programs. Four districts used the lecture and discussion methods as the

major methods of instruction in their in-service education programs. This information was used to test Hypothesis 4, which was rejected. That is, the methods of instruction used in these in-service education programs did not make a significant difference.

The length of the ten in-service education programs varied from eighteen total hours of instruction to forty-eight hours of instruction. Six of the in-service education programs had a total number of hours of instruction in the low twenties. Planning of the in-service education program was the responsibility of seven districts' central office personnel. Two districts placed the responsibility for planning the in-service education program with the several building principals in the districts. One district utilized the Education Service Center to plan its in-service education program.

All ten districts used outside consultants in their in-service education programs. Seven districts involved their respective Education Service Centers. Seven districts utilized university professors in conducting sessions in their in-service education program. Two districts used consulting firms in their in-service education programs.

All teachers of each of the ten districts were reported to have taken part in the in-service education programs. Three districts reported that the objectives of their in-service education programs were contained in a written document. Seven districts evaluated the in-service education program at the completion of the fall sessions.

The ten in-service education programs contained distinct characteristics. However, no one in-service education program contained a characteristic that was not shared by at least one other in-service education program. The trend was that each of the ten in-service education programs produced about the same level of individualization of instruction. This seems to be contradictory to the studies surveyed in Chapter II. One variable that was not measured may have had an important impact upon the findings. This variable is the level of commitment of the participants to the in-service education program.

A second uncontrolled variable could have had an impact upon the findings. This variable is the quality of the in-service training programs. The literature would suggest that if the laboratory type of in-service training programs had been well done, then they should have

achieved a higher level of individualization of instruction than would be produced in traditional lecture and discussion programs. The present study did not show this to be the case. This researcher is left to wonder about the quality of the laboratory experiences that were claimed to constitute the in-service training programs in the districts in Category B. Labels can be extremely misleading.

No significant differences at the .05 level of significance were found between vocational teachers who had received in-service training in individualization of instruction and vocational teachers who had not received in-service training in individualization of instruction. Hypothesis 1 was rejected.

Conclusion 1: Vocational teachers did not benefit from the in-service training programs in the individualization of instruction that were studied.

No significant difference at the .05 level of significance was found between the performance of academic teachers who had received in-service training in individualization of instruction and that of academic teachers who had not received in-service training in individualization of instruction. However, the level of significance

that was found was .0512. This level of significance is very close to the .05 level of significance. Further evidence of the superiority of in-service training over no in-service training for academic teachers is the large predicted difference of 5.88 between the scores of the two groups. Therefore, Hypothesis 2 was accepted.

Conclusion 2: Academic teachers benefitted from the in-service training programs in the individualization of instruction that were studied.

The behavior of special education teachers who had in-service training in individualization of instruction and that of special education teachers who did not have in-service training in individualization of instruction was found not to be significantly different at the .05 level of significance. The level of significance reported was .2005 and the predicted difference between special education teacher groups was 7.37. Hypothesis 3 was rejected.

Conclusion 3: Special education teachers were slightly affected by an in-service training program in the individualization of instruction.

In-service education programs in Category A were tested against in-service education programs in

Category B. No significant difference was found. The level of significance that was reported was .3914. The predicted difference between in-service education programs in Category A and in-service education programs in Category B was a low 2.80. Hypothesis 4 was rejected.

Conclusion 4: In-service training programs that used traditional methods of instruction, such as lectures and discussions, produced the same level of individualization of instruction as in-service training programs that supposedly used such approaches as the laboratory method of instruction. Even when subscores of the Individualization of Instruction Inventory were used, no significant differences were found.

Vocational teachers were tested against special education teachers to determine if vocational teachers were individualizing instruction at a higher level than special education teachers. No significant differences were found. Vocational teachers' predicted score was 1.88 higher than special education teachers. This low difference of 1.88, and the fact that no significant difference was found, is the basis for rejecting Hypothesis 5.

Conclusion 5: Vocational teachers are individualizing instruction at a slightly but not significantly higher level than special education teachers.

Special education teachers were found to be individualizing instruction at a higher level than academic teachers, at the .05 level of significance. The difference in the predicted scores of special education teachers and academic teachers was 6.66. Hypothesis 6 was accepted.

Conclusion 6: Special education teachers are individualizing instruction at a significantly higher level than academic teachers.

Vocational teachers and academic teachers were found to differ significantly in the level of individualizing instruction. Vocational teachers individualized instruction at a higher level than academic teachers at the .012 level of confidence. The predicted difference in the predicted scores of vocational teachers and academic teachers was 8.54. Therefore, Hypothesis 7 was accepted.

Conclusion 7: Vocational teachers individualize instruction at a significantly higher level than academic teachers.

Implications for Practice

In-service education was found to make a difference, under certain circumstances. This was established

for academic teachers and was slightly true for special education teachers. However, in-service education did not affect the behavior of vocational teachers, with regard to the individualization of instruction. This suggests that the planners of in-service education programs should consider the variable of "teacher classification differences" in planning a particular in-service education program.

If a district is planning to implement a program of individualization of instruction, its in-service education program should include at least academic teachers. Districts wishing to use released time for teachers to visit other districts to observe individualization of instruction in action may wish to utilize their own vocational and special education teachers for this purpose.

The results of this study point out that academic teachers are not receiving adequate training in the individualization of instruction from teacher education programs. Teacher education programs are under a state directed plan to move into competency based teacher certification programs. Since over one-half of the districts that replied were engaged in some type of

in-service training in the individualization of instruction, school districts seem to be striving toward instruction that is individualized. Clearly, teacher education programs should include individualization of instruction among the competency areas to be obtained by the pre-service teacher.

This study indicates that the present certification program for vocational teachers is producing vocational teachers who are able to individualize instruction, at least to a greater extent than academic and special education teachers. School districts should find ways in which vocational teachers can be used to demonstrate these skills of individualizing instruction to other staff members. Vocational teachers seem to be able to retain these individualization of instruction skills through use. Since in-service education did not have an effect upon vocational teachers' practices in the individualization of instruction, perhaps there is something about vocational education itself that makes it easier for vocational teachers to individualize instruction.

Special education certification programs are producing teachers who are also relatively skilled in the individualization of instruction. Perhaps it is easier

to individualize special education instruction, with smaller classes. Special education teachers who had received in-service training in individualization of instruction scored slightly higher than special education teachers who had not received in-service training in individualization of instruction, suggesting that special education teachers' pre-service training does not eliminate the need for further training on the job.

In-service education programs in Category A (lecture-discussion) produced the same level of individualization of instruction as in-service education programs in Category B (laboratory approach). This would suggest that regardless of the mode of training, other variables contribute as much or more to the implementation of an individualization of instruction program.

Career education proponents, both in vocational education and out of vocational education, should pay particular attention to the teacher's ability to individualize instruction. Career education is one area where there is a combined effort on the part of academic, vocational, and special education teachers to make education meaningful to the pupils. This seems to be an area where by careful planning the comparative ease of

individualizing of instruction in vocational and special education classes may be used to full advantage. With the use of in-service education in the individualization of instruction, teachers working in career education may improve the skills of individualizing instruction to take greater advantage of the type of activities that may be offered in career education. Curriculum materials developed for career education instruction should be developed to encourage the use of individualization of instruction. Assignments should be designed to encourage pupil autonomy. Intraclass groupings should be arranged so that group size varies and allows for freedom of movement. A wide range of materials should be developed to allow for individual differences found within groups of students. Arrangements for peer tutoring should be made a part of career education. The career education supervisor should be capable of stimulating an individualized instructional program. This supervisor should be able to relate to the academic and vocational teachers the importance of making education relevant to each pupil.

Suggestions for Further Research

An investigation of the relationships of pre-service education to in-service education is suggested by the present study. What skills are learned in pre-service education that may need further development on the job? How are the methods of instruction that are best developed in pre-service training related to the methods of instruction that can be best developed in in-service training? The above two questions are samples of the relationships that are suggested. This type of study could be useful to planners of in-service education.

A third investigation suggested is that of the relationships of cooperative in-service education programs involving two or more districts. Some of the districts studied were involved in a cooperative in-service education program. Further investigation may reveal if this variable has any effect upon the level of individualization of instruction by the teachers who participate in a cooperative program.

Other variables that need to be investigated are: (1) length of time devoted to in-service training, (2) use of consultants, (3) who plans the in-service training program, (4) amount of funds expended on

in-service training, and (5) level of commitment by the teachers to the in-service training.

An area of investigation suggested by this study pertains to the certification programs for teachers. The purpose of this type of study would be to identify differences between teachers, by classification. This information would be useful to in-service education planners in order that in-service education programs can be designed to meet the needs of individual teachers.

A P P E N D I X A

INSTRUMENTS

DESCRIPTIVE OBSERVATION RECORD FOR INDIVIDUALIZATION OF INSTRUCTION

Instrument 1f-1
(Revised 11/71)

1971

*Adapted from the Individualization of Instruction Inventory by Betty Coody and Ben M. Harris with the assistance of James T. Carthel. ALL RIGHTS RESERVED. 1967. (Revised edition, 1971)

DESCRIPTIVE OBSERVATION RECORD

FOR INDIVIDUALIZATION OF INSTRUCTION*

Instrument 1f-1
(Revised 11/71)

Class_____Date_____Teacher_____

Topic_____Time _____to_____Observer_____

Directions:

Record objectively any observed evidence which might be relvant in trying to answer each question. Avoid all value-loaded statements. Record only observed evidence or absence of relevant evidence.

D. ROOM DIAGRAM

Draw a sketch of the floor plan, showing the location of groups and the number of students in each group.

*Adapted from the Individualization of Instruction Inventory by Betty Coody and Ben M. Harris with the assistance of James T. Carthel. (Revised edition, 1971)

I. INTRACLASS GROUPING

A. What provision is made for flexibility of groupings for each pupil?

B. What evidence indicates that changes in grouping occur frequently?

C. How long do students remain in each group?

D. What shows that intraclass groupings are task oriented?

E. What evidence indicates that there are variations in the size and number of intra class groups?

F. What incidents illustrate the amount of freedom students have in moving from one work station to another?

II. VARIETY OF MATERIALS

A. What is the evidence that students use library books in and out of class?

B. What is the evidence that reference books are available and used?

Encyclopedias
Atlases
Dictionaries
Supplementary texts
Almanacs
Others

C. What is the evidence that teacher-made materials are available and used?

D. What is the evidence that newspapers, pamphlets, and magazines are available and used?

E. What variations in levels of difficulty and interest are reflected in the materials available?

F. What evidence indicates that a variety of audio-visual aids are used by teacher and pupils?

16mm films
35mm filmstrips or slides
Phonograph records
Tape recordings
Transparencies
Objects, models, and exhibits
Others

III. PUPIL AUTONOMY

A. What shows that pupils are exercising self-direction in carrying out assignments?

B. What evidence is there that pupils participate in short- and long-range planning of their own work? The work of the group(s)?

C. What evidence shows that pupils lead group activities?

D. What evidence shows that pupils are involved in finding and correcting their own errors?

E. What evidence shows that pupils are engaged in helping one another in constructive ways?

F. What evidence shows that pupils have some freedom to learn in unique ways and are held accountable for such learning?

IV. DIFFERENTIATED ASSIGNMENTS

A. What shows that students are really interested in their assignments and the work of the class or subgroups?

B. What shows that pupils are individually stimulated and appropriately challenged by assignments?

C. What shows that pupils are actively engaged in a variety of activities that are purposeful and satisfying?

D. What indicates that there are significant variations in assignments made to individuals and small groups?

E. What shows that advanced-level or enrichment work is being undertaken by pupils?

F. What is the evidence that some assignments are based upon specific, diagnosed learning needs?

V. TUTORING

A. What indicates that regular classroom teachers work with individual pupils for instructional purposes?

B. What indicates that arrangements are made for special teachers to work with individual pupils for instructional purposes?

C. What indicates that pupils of all kinds serve as tutors for others as part of the regular instructional program?

D. What indicates that resource persons (parents, college students, community leaders, etc.) are drawn upon to provide individual assistance to pupils?

E. What shows that tutorial arrangements are well planned and carefully coordinated by the teacher?

F. What shows that tutoring is well accepted and carries no stigma?

SUMMARY

I. INTRACLASS GROUPING — Comments

A. Flexibility for individuals
B. Frequent changes in groups
C. Time in groups
D. Task orientation of groups
E. Variations in group size
F. Freedom of pupil movement

II. VARIETY OF MATERIALS — Comments

A. Library books
B. Reference books
C. Teacher-made materials
D. Periodicals and pamphlets
E. Different levels and interests
F. Audio-visual aids

III. PUPIL AUTONOMY — Comments

A. Self-direction
B. Short- and long-range planning
C. Peer leadership
D. Self-evaluation
E. Mutual assistance
F. Freedom and responsibility

IV. DIFFERENTIATED ASSIGNMENTS — Comments

A. Interesting
B. Challenging
C. Satisfying and purposeful
D. Varying
E. Enriching or advanced
F. Learning needs diagnosed

V. TUTORING — Comments

A. Teacher tutoring
B. Special tutoring
C. Pupil tutoring
D. Resource persons
E. Planned coordination
F. Social acceptance

INDIVIDUALIZATION OF INSTRUCTION INVENTORY

Instrument 1f (Revised)

Revised form -- 1971

HOW WELL IS INSTRUCTION BEING INDIVIDUALIZED??

Teacher_____Date_____Time_____to_____Observer_____

Directions:

This inventory is intended for use by teachers and others as they consider the amount and type of individualization of instruction actually occurring in a given classroom. Descriptive ratings on the twenty lettered items below permit the user to make an objective analysis of teaching as observed. A teacher may describe himself or have another observer describe him using this inventory.

Circle the number on each five-point scale below that best describes the teaching under consideration.

		5	4	3	2	1
a.	Pupils do advanced enrichment work.	Nearly half of the pupils do obviously advanced level or enrichment work.		Several pupils do advanced level or enrichment work.		No pupil does advanced level or enrichment work.
b.	The arrangement of furniture promotes flexible groupings.	Desks and chairs are arranged in varying patterns for a variety of types of work.		At least one special arrangement is provided for group work.		All desks and chairs are arranged in rank-and-file or other uniform pattern.
c.	Materials used are at different levels of difficulty.	All pupils work with materials that reflect different levels of difficulty.		Nearly half the pupils use materials reflecting several different levels of difficulty.		All pupils use the same material.
d.	Pupils lead the class or groups within the class.	Teacher arranges for one or more pupils to lead the class or a group for a substantial period of time.		One or more pupils are permitted to lead the class or a group but only for brief moments.		No pupil is permitted to lead the class or a group.
e.	A variety of assignments is made to individuals and small groups.	Identical assignments are given only to small groups.		Identical assignments are given to all of the class only occasionally.		All pupils are given identical assignments most of the time.

		5	4	3	2	1
f.	Pupils work independently in intra-class groups.	Pupils work in small groups with little direction for prolonged periods of time.		Most pupils work independently in small groups for short periods of time.		Pupils work in small or large groups under the direction of the teacher at all times.
g.	A variety of reference material is in use by both the teacher and the pupil.	Encyclopedias, dictionaries, atlases, supplementary texts, and other materials that are available are being used extensively.		Encyclopedias, dictionaries, etc., are used but in limited ways.		Little or no reference material is being used.
h	Pupils help each other with their work.	Pupils frequently help each other in constructive ways.		Pupils help each other on occasion.		Pupils attend strictly to their own individual tasks at all times.
i.	Routine duties are being shared by pupils in a planned fashion.	Systematic procedures are employed to assure each student an opportunity to assume his share of responsibility.		Students have opportunities to share in assuming routine responsibilities, but this is not systematic but assured.		There is little or no pupil sharing of routine duties.
j.	There is freedom of movement within the class.	Pupils are permitted to change work stations as needs arise.		Teacher suggests or approves all changes that are made in work stations.		Pupils remain at work stations for nearly all activities.
k.	A wide variety of teacher-made materials such as work sheets, games, transparencies, charts, and other aids is in use.	These materials are used frequently and in great variety.		These materials are used periodically but only in limited variety.		These materials are used sparingly or not at all.
l.	Pupils are permitted to help in planning learning activities.	All pupils are actively involved in short- and long-range planning.		Pupils are permitted to offer suggestions for teacher planning.		Pupils are permitted little or no opportunity to help with planning.

		5	4	3	2	1
m.	Pupil participation is differentiated so as to be active, challenging, and purposeful to each individual.	All pupils participate actively with purposes that challenge their different abilities.		Pupils participate actively with purposes that challenge most.		Pupils participate passively with purposes that challenge only a few.
		5	4	3	2	1
n	Intra-class groups vary in size and number to reflect pupil needs.	Groups range from one person to as much as half the class.		Groups vary in size, but only two or three groups are employed.		No intra-class grouping is employed.
		5	4	3	2	1
o.	A variety of newspapers, pamphlets, and magazines is in use.	Pupils use a variety of magazines and newspapers as a regular part of their work.		Pupils use few newspapers and magazines occasionally.		Pupils make little use of any newspapers or magazines.
		5	4	3	2	1
p	Pupils find and correct their own errors.	Pupils are encouraged to find and correct their own mistakes and to look for reasons.		The teacher points out errors and asks pupils to correct them.		The teacher finds and corrects mistakes for pupils.
		5	4	3	2	1
q.	Pupils reflect an interest in the class work.	Nearly every pupil reflects interest in the assigned work.		Most pupils reflect interest in the assigned work.		Most pupils appear to have little or no interest in assigned work.
		5	4	3	2	1
r.	Intra-class groupings are flexible and task-oriented.	Small groups are formed and changed frequently to serve a variety of instructional purposes.		Small groups are formed and changed occasionally for some special purpose.		Small groups, if formed, are fairly permanent arrangements retained for months.
		5	4	3	2	1
s.	A variety of library books is in use.	Pupils use a wide variety of library books both within and outside the classroom.		Pupils use a variety of library books as recreational reading but sparingly for class assignments.		Pupils make limited use of library books.

		5	4	3	2	1
t	Pupils are held responsible for their own actions.	The teacher leaves pupils free to carry out assignments independently.		The teacher gives advice to pupils while assignments are being carried out.		The teacher closely directs, checks, and advises pupils while assignments are being carried out.
		5	4	3	2	1
u	Regular teachers work with individual pupils.	Teacher works with individuals during each activity for extended periods of time.		Teacher works with individuals during some activities but mostly for brief periods of time.		Teacher does not work on individual basis except for fleeting moments or emergencies.
		5	4	3	2	1
v	Special teachers work with individual pupils.	Special teachers devote most of their time to working on a one-to-one basis.		Special teachers work predominately with small groups but give some time to individuals.		Special teachers work most of the time on a small or large group basis.
		5	4	3	2	1
w.	All pupils serve as tutors of others.	Nearly all pupils serve as tutors on a daily basis.		Most pupils serve as tutors, some on a daily basis, others less frequently.		Few pupils serve as tutors except on an occasional basis.
		5	4	3	2	1
x.	Resource persons are used to assist individual pupils.	A variety of resource people serve as tutors on a daily basis.		A few resource people serve as tutors on a fairly regular basis.		A few resource people serve as tutors on an occasional basis.
		5	4	3	2	1
y.	Tutorial arrangements are planned and coordinated.	Tutorial assignments of teachers, pupils, and resource people are planned and coordinated, so confusion or inappropriate activities are rare.		Most tutorial assignments are preplanned and coordinated, but some last-minute arrangements are observed.		Tutorial assignments are coordinated primarily by tutors themselves; preplanning is not clearly evident.

PROFILE FOR INDIVIDUALIZATION

Directions:

Analyze the ratings previously made. Transfer the numberical rating for each item to the corresponding blank below. Sum the ratings for each cluster of items, and enter these totals in the boxes at the right designated A, B, C, and D. Sum all ratings for total in the last box

Class_____ Number of Pupils_____Date_____Teacher_____

Ratings by_____Time of Observation_____to_____

Topic and Subject_____

I. Intra-Class Grouping

Items:	b.	Furniture arrangement	_____
	f.	Independent work	_____
	j.	Free movement	_____
	n.	Group size	_____
	r.	Group flexibility	_____

I.

II. Variety of Materials

Items:	c.	Different levels	_____
	g.	Reference materials	_____
	k.	Teacher-made materials	_____
	o.	Periodicals	_____
	s.	Library books	_____

II.

III. Pupil Autonomy

Items:	d.	Pupil leadership	_____
	h.	Mutual assistance	_____
	l.	Pupil planning	_____
	p.	Self evaluation	_____
	t.	Pupil responsibility	_____

III.

IV. Differentiated Assignments

Items:	a.	Advanced or enriched	_____
	e.	Variety	_____
	i.	Routine duties	_____
	m.	Active, challenging, and purposeful	_____
	q.	Interesting	_____

IV.

V. Tutoring

Items:	u.	Regular teacher	_____
	v.	Special teachers	_____
	w.	Pupil tutors	_____
	x.	Resource tutors	_____
	y.	Planned and coordinated	_____

V.

TOTAL INDIVIDULIZATION . . . . . _____

IN-SERVICE INTERVIEW FORM

1. What were the dates of the individualization of instruction in-service education program?

_____ _____

_____ _____

2. How many sessions made up the in-service education program?

_____

3. How long were these sessions in hours and minutes?

_____ _____

4. Who was the district official who planned this in-service education program?

_____

5. Were personnel from the region's education service center involved?

_____

6. If yes to five, who?

_____

7. Were university professors involved?

_____

8. If yes to seven, who and from which university?

_____ _____

_____ _____

9. List activities that made up the sessions listed in question two.

Session 1

(1) _____

(2) _____

(3) _____

Session 2

(1) _____

(2) _____

(3) _____

Session 3

(1) _____

(2) _____

(3) _____

Session 4

(1) _____

(2) _____

(3) _____

Session 5

(1) _____

(2) _____

(3) _____

Session 6

(1) _____

(2) _____

(3) _____

10. List activities of Education Service Centers' personnel in this in-service education program.

_____

_____

_____

11. List activities of university professors in this in-service education program.

_____

_____

_____

12. Were there any handouts in this in-service education program?

_____

13. If yes to twelve, what were these handouts and may I have a copy?

_____

_____

_____

14. Were the objectives of the in-service program clearly stated in a written document and may I have a copy?

_____

15. Was there an evaluation of the in-service education program?

_____

16. If yes to fifteen, may I have a copy of the evaluation report?

_____

17. What is the estimated cost of this in-service education program?

_____

A P P E N D I X B

LETTERS

THE UNIVERSITY OF TEXAS AT AUSTIN
College of Education

AUSTIN, TEXAS 78712

February 14, 1973

Office of School Surveys
Education Annex

Area Code 512 471-7551

TO THE SUPERINTENDENT ADDRESSED:

The Office of School Surveys at The University of Texas is under contract to the Texas Education Agency to perform a study of in-service education. The purpose of this study is to determine if in-service education has had an effect upon the practices of vocational, special education, and academic teachers' performance in the classroom. The focus of the study will be on the individualization of instruction.

Collection of data will be by an observation visit to a sample of classrooms and a self-report by the same sample of teachers. Teachers will be asked to voluntarily participate in the study by letter.

We are asking for your help. Ten districts who have had in-service education in individualization of instruction and ten districts who have not had in-service education in individualization of instruction will be selected to participate in the study. Please complete the enclosed form and return it at your earliest convenience.

If you have any questions or if we can be of any assistance to you, please let us know.

Sincerely,

William C. Heeney
Project Director

Carl R. Ashbaugh, Ph.D.
Director
Office of School Surveys and Studies

WCH:CRA:ers

Enclosure

IN-SERVICE EDUCATION QUESTIONNAIRE

1. Has your school district conducted an in-service education program of at least four clock hours in the individualization of instruction since July 1970?

   _____ Yes

   _____ No

2. Would you be willing for your school district to participate in this study of in-service education?

   _____ Yes

   _____ No

3. If yes, who can serve as your district's contact person for this study?

   Name _____

   Title _____

   District _____

   Signature _____

Please return to: Mr. William C. Heeney
Office of School Surveys
Education Annex
The University of Texas at Austin
Austin, Texas 78712

THE UNIVERSITY OF TEXAS AT AUSTIN
College of Education

AUSTIN, TEXAS 78712
February 26, 1973

Office of School Surveys
Education Annex

Area Code 512 471-7551

TO THE PRINCIPAL ADDRESSED:

The Office of School Surveys and Studies at The University of Texas is under contract to the Texas Education Agency to perform a study of in-service education. The purpose of this study is to determine if in-service education has had an effect upon the practices of vocational, special education, and academic teachers' performance in the classroom.

Your superintendent has agreed for your district to participate in this study of in-service education.

Collection of data will be by an observation visit to a sample of classrooms and a self-report by the same sample of teachers. Attached for your information is a copy of the letter which is being sent to this sample of teachers on your campus.

If you have any questions or if we can be of any assistance to you, please let us know.

Sincerely,

William C. Heeney
Project Director

Carl R. Ashbaugh, Ph.D.
Director
Office of School Surveys and Studies

WCH:CRA:cl

Enclosure

THE UNIVERSITY OF TEXAS AT AUSTIN
College of Education

AUSTIN, TEXAS 78712

Office of School Surveys
Education Annex

Area Code 512 471-7551

February 26, 1973

TO THE TEACHER ADDRESSED:

The Office of School Surveys and Studies at The University of Texas is under contract to the Texas Education Agency to perform a study of in-service education. The purpose of this study is to determine if in-service education has had an effect upon the practices of vocational, special education, and academic teachers' performance in the classroom.

The superintendent of schools in your district has given us permission to include your district in this study of in-service education.

We need your help. We would like to make an observation visit to your classroom at a mutually agreed upon time. This visit will be for at least thirty minutes and not longer than one hour. In addition to the one classroom observation we will need you to complete a self-report form the first week in May.

Please complete and return the enclosed form at your earliest convenience.

If you have any questions or if we can be of any assistance to you, please let us know.

Sincerely,

William C. Heeney
Project Director.

Carl R. Ashbaugh, Ph.D.
Director
Office of School Surveys and Studies

WCH:CRA:cl

Enclosure

OBSERVATION QUESTIONNAIRE

1. Are you willing to participate in this study of in-service education?

   ____ Yes

   ____ No

2. If yes, as a preliminary part of working out a schedule of observations please list four days and hours in March and April convenient to you for this observation to take place.

March		April	
day	hour	day	hour
1. _____		1. _____	
2. _____		2. _____	
3. _____		3. _____	
4. _____		4. _____	

You will receive notice before this observation is made in your classroom.

School _____

District _____

Name _____

Please return to: Mr. William C. Heeney
Office of School Surveys
Education Annex
The University of Texas at Austin
Austin, Texas 78712

B I B L I O G R A P H Y

B I B L I O G R A P H Y

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