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A Study of the Effects of Individualized Instruction on the Attitudes and Behavior of Teachers and Pupils in the Middle Elementary Grades

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A STUDY OF THE EFFECTS OF INDIVIDUALIZED

INSTRUCTION ON THE ATTITUDES AND BEHAVIOR

OF TEACHERS AND PUPILS IN THE MIDDLE

ELEMENTARY GRADES

by

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VITA

The author, Nina Flemister Jones, is the daughter of Sumner Lewis Flemister and Hallie (Hall) Flemister. She was born in Madison, Georgia on July 30, 1918. She is the wife of William M. Jones, and the mother of William M Jones, Junior and Steven L. Jones.

Her elementary education was obtained in the public and private schools of Atlanta, Georgia. She attended Washington High School, Atlanta, Georgia; Phillips High School, Chicago, Illinois; and graduated from Englewood High School, Chicago, Illinois in June, 1933.

She graduated from Wilson Junior College in June, 1936 and received an A.B. degree from Central Y.M.C.A. College in June, 1938, with a major in English. A M.Ed. degree was received in February, 1942 from Chicago Teachers College. The thesis title was, Guidance in Vocational Choice in an Eighth Grade.

From 1942 until 1958 she was an elementary classroom teacher in the Chicago Public Schools. From 1958 until 1965 she was an adjustment teacher and assistant principal of Beale Upper Grade Center. She served as principal of Avalon Park and Howland Elementary Schools. She was appointed District Superintendent of District Two, Chicago Public Schools in 1969.

She is a member of Alpha Kappa Alpha Sorority, Alpha Gamma Pi Sorority, American Association of University Women, Administrative Women in Education, and American Association of School Administrators. She is listed in Who's Who of American Women and has had some articles published.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

American public school education is at a crucial stage in large
urban areas. The rising expectations of many parents and students are
not being fulfilled and no longer are public education practices going
unchallenged. Rapid societal changes, bringing increasing complexity,
have contributed to a climate for questioning long established procedures.
Accountability, curricular modification, community incolvement, and
community control are among the current thrusts of parents and community
residents. The trend is towards continuing efforts to bring the basic
components of public education under review and evaluation. Effective-
ness in the classroom, the heart of the learning experience, has come
under closer scrutiny and methods of instruction are being discussed and
challenged as a result of current thinking. Steig, et. al. (1969, p. 102)
support this idea as they state, "Improving the quality of teaching in
the public schools has become an added concern in most American
communities."

If public education is going to meet the new expectations of its
patrons, it will be necessary for many teachers to undergo some retrain-
ing. It will also be essential for some modification to take place in
instructional procedures. Teachers' attitudes and behavior are an
integral part of successful learning experiences and need scrutiny. The
traditional modes of instruction have not always taken into consideration
the individual differences of children. Innovative instructional

1

procedures have been developed but have not reached a multitude of classrooms. There is a necessity for these concepts to be brought into sharper focus and somehow to become enmeshed.

Weiss (1974, p. 7) says, "Inservice education programs are vital because they provide teachers with the means for updating their knowledge, acquaint them with innovations, and enable them to learn new techniques. There exists, then, a need for the identification of effective approaches to inservice education."

The challenge is to design an in-service training program for teachers which will involve them in their own improvement as they seek to bring innovative practices into their classeooms. Inseparable elements in the teacher's classroom performance are attitudes and behavior. To change and improve instructional procedures, and to change teacher attitudes and behavior are not easy tasks.

STATEMENT OF THE PROBLEM

> The first task of designing an inservice program
> is to get clearly in mind what the program is to
> achieve. (Harris, et al., 1969, p. 30)

The improvement of teaching performance and the modification of teacher attitudes and behavior present a problem to all administrators and supervisors in the schools. The improvment of instruction is the usual quest of educational leaders. Teacher attitude and behavior are related to the quality of instruction.

Many questions arise as this goal is pursued. What instructional procedures should be changed or implemented? What are desirable teacher attitudes and behavior? Can teachers become involved in their own

retraining to the extent that self-improvement becomes a personal goal? Recognizing the difficulty of bringing about changes in the ways of teaching, will the resultant effect upon students be worth the effort? Can the time and resources be found? Will changing the methods of instruction change students' attitudes and behavior? Will the possible change in teacher attitude and behavior have an impact on the achievement of students? How does individualized instruction affect the attitudes of teachers and pupils? Some answers to these questions are the concerns of this study.

There are many types of in-service approaches; workshops, visitation, consultant services, college classes, conferences, faculty meetings, institutes, professional meetings, exchange teaching, exhibits, self-evaluation, discussions, presenting new materials, observation, and others. Which of these should be utilized to achieve a particular set of goals?

The determination of which instructional approaches and methods should be the goal of implementation is a weighty decision. No one instructional procedure, it was decided, is the total answer. The direction of emphasis for this study was resolved by the belief that all students are unique and therefore different in many ways. Teachers have been observed accepting the principle of individual differences in practice. Individualized instruction is thought to be one approach which may be utilized to bring theory and practice closer together. Ronald Stodghill (1972, p. 296) summarizes these ideas:

As John Childs stated, "All deliberate education is a moral undertaking." That morality, it seems to me, is acted out when we deal with individualized instruction not only as a sound educational strategy,but also as a process by which this nation begins to feel the joy and strength implicit in its moral commitment to respect and honor the uniqueness of the individual.

The problem was to guide teachers to implement individualized instruction for their students through an in-service program utilizing individualized instructional techniques with the teachers. As teachers are unique, it was decided that if these methods were desirable in instructing students, they should also be desirable for instructing teachers.

PURPOSE OF THE STUDY

The purpose of the study was to determine if individualizing instruction would produce changes in the attitudes and behavior of teachers and pupils in eleven middle-grade classrooms in two schools. An individualized in-service program was developed for the teachers which was designed to assist them in implementing individualized instruction. The instrument, "Individualized Instruction: A Learning Activity Packet for Elementary Teachers" was developed along with a wide variety of other in-service activities utilized to support the individualized independent contract approach. Each teachers also kept a personal journal which included ideas, problems, frustrations, failures, and successes as individualized instruction proceeded.

According to Bruner (1966, pp. 123-124), the teacher imparts attitudes toward a subject, and indeed attitudes toward learning itself. He suggests that the teacher must be, to be an effective, competent model, a day-to-day working model with whom to interact.

In support of Bruner's theory, it seemed important to seek to discover if during the process of implementing individualized instruction for students, a change took place in teacher attitudes and behavior. As the in-service approach was individualized, it was hoped the teachers would be working models as these techniques were transferred to classroom procedures with students.

It was also the purpose of this study to learn through principal observation and the teacher's personal journals the extent to which teachers were able to implement individualized instruction in four months. In line with the research of Flanders, Dell and Kallenbach, and others, it seemed significant to determine if there was any change in student attitude and behavior as a result of exposure to individualized instruction. It was decided to try to determine if students became more independent after having opportunities to make some decisions about their learning. An effort was made to determine if the treatment given the teachers had any significant effect upon the reading and arithmetic achievement scores of the pupils.

The questions this study endeavored to answer were:

1. Can teachers implement individualized instruction in four months?

2. If instruction is individualized, will a change occur in teacher attitudes and behavior?

3. If instruction is individualized, will a change occur in pupil attitudes and behavior?

SIGNIFICANCE OF THE STUDY

Search of the literature and examination of related research disclosed numerous studies on individualized instruction, on in-service designs and experiments for teachers, and on teacher and student attitudes and behavior. However, no study was uncovered which attempted to implement individualized instruction utilizing independent individualized techniques with teachers. This approach appears innovative and is a model that can be replicated.

With the current thrust towards the individualization of instruction, it was thought that teachers should be encouraged to engage in self-improvement through self-direction, self-evaluation, and self-study. If a guide is provided which is self-pacing, adaptable, and instructive, individuals or groups of teachers should be able to proceed by utilizing their own resources in the desired direction of providing for the individual differences of their students.

It is hoped this study will make a contribution to educational theory and practice by:

1. Developing a model of in-service training to implement individualized instruction by utilizing individualized techniques with teachers.

2. Further field-testing the instrument, "Individualized Instruction - A Learning Activity Packet for Elementary Teachers" which can be used as an independent study tool to assist any elementary level teacher in implementing individualized instruction.

3. Utilizing the results of this study to further implement individualized instruction in all the elementary schools under the supervision of the writer.

4. Additional distribution and dissemination of the "Individualized Instruction - A Learning Activity Packet for Elementary Teachers" to interested educators. Numerous copies have already been requested and distributed.

ASSUMPTIONS

Assumptions were formulated after a review of the literature and research. It was assumed that:

1. Individualized instruction is a desirable educational goal.

2. A new approach was needed for teacher in-service training.

3. Teachers can be guided to implement individualized instruction through individualized instructional techniques.

4. The attitudes and behavior of teachers can be changed.

5. The attitudes and behavior of students can be changed.

6. Changes in teacher and student attitudes and behavior can be observed and measured.

HYPOTHESES

Two years of reading and study in the area of individualized instruction led to a conclusion that this was the direction toward which instruction should be moved. It was felt that some teachers and class-rooms being supervised had become stagnant and needed revitalizing. It was also thought that in-service training needed some new and stimula-ting direction. It was observed that the needs of some pupils were not

being met in group-centered classrooms. Many concerns arose as classrooms were visited and instruction was observed. Discussions were held with principals, teachers, parents, and students over this two year period. This period produced the pilot study.

A number of questions were formulated along with a desire to seek answers through research. How can an administrator assist teachers in improving instruction? Can an in-service program be developed along individualized lines? Will such an in-service program lead to a change in instructional approaches? Will different instructional techniques have any effect upon the teachers and pupils? Further questions related to this research will be found in Chapter III. This study evolved from the long-time concern relative to the attitudes and behavior of teachers as they affect or influence the attitudes and behavior of pupils.

This study attempted to determine if individualizing instruction would produce change in the attitudes and behavior of teachers and pupils. The research was designed in support of the assumption that change in students and teachers can be observed and measured. The research hypotheses formulated to be tested were:

I. If an individualized in-service program for teachers which concentrates on the individualization of instruction is given, more teachers involved in the in-service program will be able to individualize their instruction than teachers who participate in the regular in-service program.

II. If an individualized in-service program for teachers which concentrates on the individualization of instruction is given, a greater positive change in teacher attitudes towards pupils will be affected in teachers involved in the experimental in-service

training than in teachers who participate in the regular in-service program.

III. If instruction is individualized, pupil work-study behavior in these classrooms will be at a higher level of independence than the independence of those pupils who are not in classes where instruction is individualized.

IV. If instruction is individualized, pupil attitudes towards school and instruction will be more positive than for those pupils who have a non-individualized type of instruction.

V. If instruction is individualized, pupil achievement in reading and arithmetic will not be significantly less for those pupils than for pupils whose instruction has not been individualized.

LIMITATIONS OF THE STUDY

The study was limited to implementing individualized instruction in eleven middle grade (4, 5, 6) elementary classrooms during a four month period. The treatment (experimental) teachers were the eleven teachers assigned to those classes which comprised all the 4th, 5th, and 6th grade pupils in two schools. The control group consisted of the 4th, 5th, and 6th grade pupils in two companion schools.

The study did not attempt to:

1. Evaluate the overall performance of the teachers nor was there an effort made to analyze differences in the performance of teachers related to evaluation levels.

2. Decide the method or amount of supervision given the teachers by their principals.

3. Involve the parents in the study except as volunteers.

4. Utilize any prior school records of the students or any other current school records or assessment.

5. Utilize school learning ability or I.Q. as a student variable.

6. Differentiate between the pupils in the two experimental schools in terms of social factors.

7. Include personality factors for teachers as teacher variables.

8. Identify differences among principals based on sex, experience, personality factors, or administrative style.

9. Differentiate among the teachers on the basis of their prior experiences.

10. Include the consideration of the effects of other variables, relations, or interactions as influences on pupil attitudes and behavior.

DEFINITION OF TERMS

1. In-Service Education

In-service education encompasses the whole area of teacher growth and re-education. "It is that basic orientation of attitudes, aims, and aspirations that is essential for a reconstruction of concepts and practices." (Zerbes, 1958, p. 205).

2. Individualized Instruction

Instruction that recognizes individual differences and provides a creative approach to the teacher-learning process. Individualization takes place when the learner (1) assumes some responsibility for his own

learning in order to become an independent learner, (2) learns at a pace comfortable for him, (3) learns through materials related to his own perceptual strength, (4) learns in accord with his own learning style, (5) is evaluated in terms of his own achievement, (6) feels a sense of achievement, and (7) selects options from among alternatives (Dunn and Dunn, 1972, pp. 47-50).

3. Learning Activity Packet

A learning packet may be called by various names such as learning units, learning guides, or learning contracts (Dell, 1972, pp. 61-62). The learning packet which is a learning tool includes basic parts; (1) rationale, (2) objectives, (3) pre-test, (4) materials and activities to help achieve the objectives, (5) self-checks, and (6) post-tests. A suitable format must be chosen, the number and kind of options in learning activities must be considered, the organization and sequence of the activities must be determined, and the materials to be utilized must be decided upon.

4. Attitude

Attitude refers to a learned predisposition or tendency on the part of an individual to respond positively or negatively to some object, situation, concept, or person.

5. Behavior

Behavior refers to a manner of acting or conducting oneself - to conduct oneself in a specified way. This includes the actions or activities of an individual towards others.

SUMMARY

This chapter introduces the chief areas of concern in the study being reported. Individualized instruction, teacher in-service training, teacher attitudes and behavior, and pupil attitudes and behavior have been examined. Problems related to these areas have been outlined. The purpose, significance, and limitations of the study have been evolved. Certain assumptions have been made and terms defined. The five hypotheses tested in the study have been stated.

CHAPTER II

REVIEW OF RELATED RESEARCH AND LITERATURE

The review of the literature is divided into the following four

principal areas:

In-service Education

Individualized Instruction

Attitudes and Behavior of Teachers

Attitudes and Behavior of Students

Books, journals, reports, and papers related to these topics were

utilized along with resources such as E.R.I.C., Dissertation Abstracts,

Research in Education, Dissertation Abstracts International,

Encyclopedia of Educational Research and Education Index.

IN-SERVICE EDUCATION

Nowhere in the educational enterprise is there a
greater need for innovation than in the provision for
teacher in-service education (Allen, 1971, p. 129).

A review of the research and literature on in-service education for

teachers uncovers common strains. There exists a challenge to improve in

this area as there has not been too much general success according to the

researchers and writers. It has also been found that teachers have not

been sufficiently involved in planning these in-service programs. There

is a necessity to design in-service programs which will retrain experi-

enced teachers in the skills they have already used in group-centered

classrooms. There is a need to find the means to measure the effective-

ness of in-service programs.

13

    The literature relating to in-service education
has led to the conclusion that although it is ubiquitous
and diversified, it is not effective. Replicable research
is rarely reported due to variability of human factors
involved (Weiss, 1974, p. 63).

What is in-service training? Spears (1951, p. 116) defined in-service training as a blanket title given to all activities set up by a school system to enable teachers to develop while on the job. Finch (1969, p. 9) agrees that in-service education includes all activities that teachers engage in during their service, designed to contribute to their improvement and effectiveness in their assignment. Views of various other writers and researchers on the in-service training of teachers place emphasis on particular aspects of such training. A brief summary of some of these views follows.

Tyler (1971, p. 13) expresses the view that many teachers see in-service education as a means of increasing communication and reducing the sense of loneliness and isolation prevalent in an occupation with limited adult contact. Moffitt (1963, p. 90) supports this view as he it is highly possible that the teacher's greatest need in in-service education is in experiencing communication with other teachers. Meaningful conversation with one's peers is a rich source of stimulation and ego support (Thelen, 1971, p. 103). Allen (1971, p. 130) agrees that the collaborative sharing of teaching ideas represents one of our most promising avenues of continuing education. Most in-service activities should be carried on within a setting in which the people who work together have an opportunity to learn together (Lippitt and Fox, 1971, p. 140). They state further (p. 160) that the opportunities to share with colleagues through face to face discussion of some innovative

practices of particular teachers has proved to be stimulating and help-
ful.

Bushkin (1970, p. 23) suggests the elements of a meaningful in-
service program should include the following:

1. The program must be flexible enough so teachers can begin at
   their own level of ability and progress at their own rate.

2. Retraining must take place during teacher's paid time.

3. Effectiveness must be judged by comparing teaching abilities
   at the beginning and at the end of the training period.

4. Outstanding teachers should conduct in-service for other
   teachers.

5. Retraining programs must be compulsory.

Rubin (1971, p. 17) supports the idea that teachers must be given
time and other resources with which to assess their progessional needs
and to carry on improvement activities. Jackson (1971, p. 29) agrees
that teachers should be given more time to think about what they are
doing. Bush (1971, p. 46) thinks in-service education needs to be more
varied, carefully thought through, and realistic than it is now. No
program is going to succeed unless teachers have an active part in plann-
ing, according to Spears (1951, p. 3).

Steig and Kemp (1969, pp. 108-109) maintain that one of the best
ways for a teacher to analyze his own teaching methods is to observe
another teacher at work. The experienced teacher brings his wealth of
experience to the study of the other teacher's work and gains from it
whatever value the experience may have.

A workshop is an attempt to turn theory into improved practice.

Its purpose is action oriented. If the results of the workshop cannot be measured in terms of resulting changes in teaching, administering or counseling, then it has fallen short of its goal (Steig and Kemp 1969, p. 7). The workshop continues to be the most popular form of in-service education (Moffitt, 1963, p. 26).

Moburg (1972) reports on a number of studies which attempted to measure the effects of in-service education programs by looking for significant improvement among the students of in-service participants. The studies reviewed consistently reported teacher improvement but no corresponding reading improvement among the students. Trione (1967) reported significant reading improvement following an in-service program for teachers.

Leary and Wolf (1972, pp. 23-25) describe a study which attempted to determine the extent to which selected training programs which were sources of information about innovative programs contributed to the adoption of innovation. The conclusions were that the programs were more effective in influencing participant awareness of innovation than influencing their decisions to adopt innovation. The study supports the continuation of such future effort.

Fritsche (1972) studied the effects of a personalized and individualized in-service training program for beginning teachers on children's achievement. There was no significant difference in pupil achievement in the classrooms of beginning and experienced teachers. The treatment served as a levelling factor in assimilating beginning teachers rapidly into the profession.

The implications of a study by Carson (1973) were that individual needs of participants must be considered when developing in-service

opportunities. Participants should be involved in the planning, the program must be well defined and well developed, adequate resources must be available, and compensations in some form must be provided if in-service training is to be successful, he concluded.

In the end, the individual teacher must accept responsibility for his own growth (Finch, 1969, p. 24). Thelen (1971, p. 103) urges that the desire for self-initiated change must be rekindled as it is believed teachers are the best judges of what should go into programs of continuing education. Lippitt and Fox (1971, p. 167) emphasize teacher involvement in their own learning and that growth activities should assist teachers to develop their capacity for self-direction. Meade (1971, p. 217) thinks it would appear sensible to involve teachers in the planning and execution of their own improvement programs and would go a long way towards reassuring professionals they are capable of participating in the control of their own growth. Fischer (1971, p. 241) further supports this view as he states that increasingly the responsibility for professional growth should be shifted to the individual practitioners as they must be involved in assessing their own strengths and short-comings as well as charting the directions of growth. Rubin (1971, p. 266) arrives at the conclusion that self-directed growth may be less expedient and less certain, but in the long run is likely to prove the better investment.

In-service training for teachers should be implemented in the same way they are expected to teach children. A successful experiment reported by Marshall (1968) supports this statement. If teachers are expected to teach creatively, in-service training should be creatively geared.

Bushkin (1970, p. 24) thinks that teachers should be given the freedom to develop their own approaches and that individualized instruction is just as important for teachers as it is for students. Jackson (1971, p. 35) wants teachers to learn as their students should learn - through self-directed encounter with meaningful problems. It must first be decided in what manner we expect the teacher to function and then determine how best to train him. Bush (1971, p. 57) says a teacher should have "a fundamental voice in determining his in-service program." Educators have not really come to grips with the problem of helping teachers change their methods of instruction (Flanders, 1965, p. 127).

Can teachers grow through in-service programs? Flanders (1967, pp. 256-261) states that most in-service programs are attempts to improve the quality of classroom instruction. His question is, "Will teachers be acting differently while teaching as a direct result of the in-service training and if changes do occur, has the quality of instruction improved or is it just different?" He thinks few in-service programs are evaluated with enough care. Usually teachers play a passive role in which their own ideas and questions are not adequately considered. A report on a study made by Bowers and Soar (1961) and Flanders (1963) resulted in the following assumptions.

> Many assumptions about in-service training can be inferred from the two projects just described. Three assumptions are discussed here because they are most often ignored in current in-service training activities.
> First, ideas about teaching and learning must be organized into concepts which have meaning in terms of overt behavior. Ideas about teaching which cannot be related to overt actions are less likely to maintain a consistent meaning when the talking stops and the teaching starts.
> Second, concepts about teaching and learning become useful to the extent that they can be applied personally. Concepts about teaching must ultimately be coordinated with one's own

behavior. Concepts about pupil behavior must ultimately be applied to one's own class. Concepts about how to use instructional materials must ultimately be explored in one's own classroom.

Third, insight into principles of effective teaching comes about through personal inquiry. Teaching must be seen as a series of acts which occur with the passage of time. Instantaneous decisions must be made which have immediate consequences. Teachers can learn to recognize decision points, to become aware of more alternatives, to predict consequences accurately a higher proportion of the time, and to develop plans for controlling their own authority.

Rubin (1971, p. 250) is of the opinion that at the present time there is little effort to differentiate individual need in professional involvement programs. All of these views would tend to support the desirability of in-service training planned to meet the needs of individual teachers.

Harris, Bessent, and McIntyre (1969, pp. 16-41) outline 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.

The goal of an in-service program should be to effect change in teacher attitudes and/or behavior so that subsequent instruction and student learning is enhanced. An in-service program will not be successful if it does not compare the self-perceived instructional needs of teachers with a needs assessment and then base the in-service program directly upon those needs (Moburg, 1972, p. 36). The whole purpose of in-service education is to increase the effectiveness of the teachers

in the classroom (Fishler, 1971, p. 185). This must be the ultimate aim.

Tyler (1971, pp. 14-15) predicts that in-service programs of tomorrow will place great emphasis upon helping teachers acquire what is perceived by school leaders to be essential to the implementation of the plans of the school system. The learning experiences will furnish role models to guide teachers as they are involved in studying problems, setting goals, developing plans and appraising progress.

A review of the literature on in-service training for teachers led to the following conclusions on which most writers are in agreement:

1. In-service training has not been too successful.

2. Careful planning is needed.

3. Teachers must be involved in the planning and implementation.

4. If teachers work together they will learn together.

5. The purpose of in-service training is to improve teacher effectiveness and instruction in the classroom.

6. In-service activities should be tailored to a particular situation or school.

A review of the research and literature influenced the in-service plans reported in this study. The Teacher Learning Activity Packet, an individualized in-service instrument, was designed to permit teachers to begin where they were in terms of skill, experience, and need. Progress was expected at an individual rate as there was a wide selection of activities and reading materials. Teachers were involved in the planning and implementation. Weekly opportunities (daily encouraged, if needed) were provided on a scheduled basis for interaction and learning together with other middle-grade colleagues. Visitation to observe other teachers

at work was also a part of the program. Self-study and self-assessment
were encouraged. Positive administrative attitudes supported the
efforts of the teachers.

Heathers (1971, p. 14) says "the most crucial factor in making an
innovation function at the instructional level is staff reeducation."
The dissertation study supports this conclusion.

INDIVIDUALIZED INSTRUCTION

Many modern educational writers and researchers believe that
elementary school children should enjoy school and should be able to make
some choices about learning. Furthermore, all pupils should experience
some success in school and should be able to move toward independence.
It is believed that the teacher needs to assist children to learn for
themselves rather than from fear of rejection or desire for praise. How
can these goals be achieved more effectively. Individualized instruc-
tion offers some of the possible means of attaining these results.

What is individualized instruction? How does it differ from
traditional modes of instruction?

Traditional teaching looks upon the class or group as an entity.
Each child is presumed to have relatively equal learning needs, abilities,
and responses. It is teacher-paced and scheduled to meet the convenience
of the school and the teacher. Students taught by the traditional methods
are generally given the same assignments, regardless of individual
capabilities or progress. In those cases where individual assignment
are made, they must usually be completed within a specified time period
(National School Public Relations Association, 1971, p. 2).

Throughout the writings on the subject of individualized instruction run common threads of ideas and emphasis. Many different definitions of individualized instruction are offered which describe what should happen in the education of children as well as criticism of current practices in education. It is apparent that much thinking and research has been taking place with the goal of improving the education of children. The current interest in individualization has taken an array of forms.

Individualized instruction in this study means the right of every child to acquire an education within the school system in his own way at his own rate of learning. The ultimate goal of individualized instruction should be to prepare a student to assume responsibility for and control of his own education so that schooling is inseparable from living.

Individualized instruction means various things to educators and writers. Few of the definitions or descriptions have serious conflicts. It means adapting the instruction to the individual rather than the individual having to adjust to the instruction. It means utilizing all the techniques of modern education, communication and technology to assist the individual towards self-development and self-fulfillment (National School Public Relations Association, 1971, p. 1).

Dunn and Dunn (1972, pp. 47-50) call individualized instruction a creative learning approach to the teaching-learning process. Individualization takes place when the child (1) assumes some responsibility for his own learning in order to become an independent learner, (2) learns at a pace comfortable for him, (3) learns through materials related to

his perceptual strength, (4) learns in accord with his own learning style, (5) is graded in terms of his own achievement, (6) feels a sense of achievement, and (7) selects options from among alternatives. This definition most nearly matches the concept of individualization as utilized in this study.

Howes (1970, p. 67) calls individualized instruction self-selection, self-direction with responsibility, and self-actualizing autonomous individuals. He also says it is teaching strategy beginning in the re-direction of education (1970, pp. 1-5).

Individualized instruction is a concept which takes into account the learner's needs, habits of study, and time (Burns, p. 56.).

According to Glaser (1972, pp. 5-12) children vary greatly as personalities and the deadening effect of uniformity has been recognized. The traditional modes of education have failed to provide enough freedom for the exercise of individual talent. There seems to be no reason why an educational environment cannot be designed to accommodate varieties in background, cognitive processes, interests, styles, and other require-ments of learners. Effective conditions must be designed under which pupils are provided with the opportunity and rewards to perform at their best and in their own way.

Friedenberg (1970, p. 126) sees personality development as a process of individuation. Tyler (1969, pp. 66-67) is of the opinion that experiences should be appropriate to the students' present attainments, his predispositions, and must begin where the student is.

Instructional theory has influenced the movement towards individualized instruction. Skinner's work emphasizes the concept of

individual learning and immediate reinforcement. Piaget's work deals
with the development of intellectual behavior in stages. Combs' work
recognizes the importance of developing independently strong people in
a society that is rapidly becoming more relativistic and ambiguous.
Combs says that individualizing is not an end in itself, but a part of a
process (Howes, pp. 82-87).

All of these definitions indicate a way of thinking about children,
a way to think about managing the classroom, a philosophy towards learn-
ing. Methods with individualized instruction require a change from
traditional procedures and thinking. Teachers and pupils are key
elements in this change process.

It is believed that instruction in the middle elementary grades
should be individualized to a great extent. The literature and
experience supports this view. Teachers have been encouraged through an
in-service program to utilize individualized teaching techniques. This
study is seeking to determine the extent to which individualization of
instruction took place with in-service training and the effects of any
changes on the attitudes and behavior of teachers and students.

Other researchers and writers have studied facets of this same
problem. Moffitt (1963, p. 16) says it is not an easy accomplishment
to bring about changes in ways of teaching. Olivero (1970, p. 55) thinks
the more individualized the in-service program for teachers, the more
likely the goals will be realized, which supports this current study.
Nelson (1972) utilized action research to determine the degree of
acceptance of individualized instruction in which test data showed sig-
nificant gains in 3rd, 4th, and 6th grade. Kontagianes (1973) found

significant changes in attitudes towards mathematics, utilizing individualized instructional techniques with prospective elementary school teachers. West (1973) utilized individualized learning packets and immediate positive reinforcement but found no significant difference in students. Marble (1973) investigated the possibility that individualized instruction in reading could improve the self-image of children with reading problems, but observed no significant change in their self-image. Reinehr (1973) found no change in teacher behavior after motivation training in an individualized instructional program. These studies reflect the current interest in individualized instruction and the related in-service training of teachers.

Scanlon and Moshy (1971, pp. 162-168) report on teacher education for individualized instruction. Research for Better Schools has individualization and humanization of education as a major focus. One of its specific projects was the development of Individually Prescribed Instruction, an instructional system engineered by the Learning Research and Development Center of the University of Pittsburgh. A summer institute of six week sessions was designed. Morning sessions were conducted at local elementary schools using the IPI procedures with children in the summer program. Teachers had an opportunity to observe IPI teachers in action, act as teacher aides, and eventually serve as classroom teachers. The afternoon sessions provided an opportunity for presentation of the principles on which IPI is based. These experiences in retraining teachers indicated that retraining program for teachers is needed that is individualized about individualization. This program of teacher training is directly related to the IPI system for students.

There are similarities in this IPI report to the staff development study reported in this dissertation. The IPI program was geared towards teacher retraining. Children were used in the process which was related to individualized instruction at the teacher and pupil level. Individualized techniques were utilized in the staff-development program as specific learning packages were utilized as self-instructional material. The IPI experiment was concerned with the improvement of classroom instruction. Pre and post-tests were utilized and some data treatment was similar.

The IPI program differs from this study in that summer workshops were held for teacher retraining. A larger number of schools (99 by 1968-69) was involved. The in-service training program was geared towards a particular system and its implementation. No clear statement of a thrust towards attitude and behavior modification was given. Thus the emphasis in the two efforts do not appear to be closely related.

The research project which is most closely related to the dissertation study is the one by Dell and Kallenbach (1972, pp. 1-25). This project's problems and objectives are related to the need to prepare classroom teachers for a changing role in an individualized classroom. They report an increasing emphasis in pre-service education in preparing teachers for individualized instruction, but identify a necessity to design in-service programs which will retrain experienced teachers in the skills they already have used in group-centered classrooms in order to make the skills more effective for use in individualized classrooms.

The participants in the Dell-Kallenbach project attended a four-day workshop in January, 1972 which provided training for teachers in twelve

components. The question to be investigated was to determine if work-
shops plus an extension of training in the form of a feedback system is
an effective system of in-service training of teachers in individualized
instruction.

The hypotheses of this project were:

A. Teachers who participated in the January Individualized
   Instruction Workshop will achieve teacher objectives
   one through five during the months following the workshop.

Objectives

   1. Teachers participating in the workshop will be able to

      (a) Write objectives in behavioral terms
      (b) Write appropriate learning contracts
      (c) Write evaluation items to evaluate achievement
          of the objectives specified for learning.

   2. Teachers participating in the workshop will be able to
      exhibit these behaviors in the classroom.

      (a) Organize effective learning centers by arranging
          classroom facilities and organizing materials for
          efficient retrieval and return
      (b) Prescribe curriculum for students on an individualized
          basis through diagnostic procedures
      (c) Diagnose the cause of learning problems
      (d) Assess the extent of individualization in the class-
          room.

   3. Teachers participating in the workshop will increase the
      number of positive statements made to students.

   4. Teachers participating in the workshop will demonstrate
      an increased knowledge about individualized instruction.

   5. Teachers participating in the workshop will increase in
      positive attitude toward individualized instruction.

B. Students whose teachers participated in the January workshop
   will achieve student objectives during the following semester.

Objectives

   1. Students in the classrooms of the workshop participants

will increase in the number of positive responses about school and learning.

2. Students in the classrooms of workshop participants will exhibit more independent behaviors.

C. Teachers who participated in the January workshop, plus the feedback system, will achieve objectives 2-b, 2-c, and 2-d during the following semester.

The teacher participants attended a four-day workshop on individualized instruction which was individualized. This group participated in a feedback system during the spring of 1972. They received informational material monthly for three months. Teachers were asked to send specified materials to the consultants.

The evaluative procedures were:

Hypothesis A: Tested by the use of a trained observer using the California Teacher Development Project Teacher Observation Scale two times.

Hypothesis B: Students' use of positive responses about school as measured by the Student Attitude Inventory administered twice. Students' independent behavior was measured by a Student Independent Work Habits Questionnaire.

Hypothesis C: Statistical analyses were used to test this hypothesis.

The Mann-Whitney U test and the X^2 test were used to test the various hypotheses.

Pre and post-test data were collected on the teachers and students:

Teacher:

1. Teacher attitude toward individualized instruction

2. Extent of individualized instruction in the teacher's classroom.

Student:

1. Attitude toward individualized instruction.

2. Independent work habits.

The teacher observation instrument was the Teacher Observation

Scale (TOS). The teacher attitude inventory and the student attitude inventory were developed by EPIC Diversified Systems, Inc., for the California Teacher Development Project. The Independent Work Habits Inventory was developed by Dell and Kallenbach.

The hypotheses for student attitude and independent work habits did not exceed chance expectancy when the Mann-Whitney U test was applied to median scores in rank order. The hypothesis to be fulfilled in the direction predicted was that of increase in teacher's use of individualized instruction. A serious limitation of the study is that a group of non-treatment workshop teachers was not also observed during the same time period.

Failure to achieve any significant changes in student attitude toward individualized instruction or in the independent work habits was a disappointment to Dell and Kallenbach. Similar results were obtained in IPI, PLAN, and California Teacher Development Project Studies, as a significant changes were obtained in teacher attitudes but not student attitudes, knowledge, and behavior (California Teacher Development Project, 1971).

The Dell-Kallenbach study is similar to this dissertation study in that it is concerned with increasing individualized instruction. Teacher and student attitudes and behavior are also common elements. A difference is that the Dell-Kallenbach project began with a four-day workshop. The in-service period in the dissertation study has been adapted to available school time which is limited. The dissertation in-service program has gained its momentum through independent study and other individualized learning activities on the part of the experimental group

teachers. There is a control group which the Dell-Kallenbach project lacked. The time allocated to both studies was short; three months for the Dell-Kallenbach and four months for the dissertation study.

A review of the research and literature on individualized instruction and in-service related to implementing these concepts place emphasis on the methods utilized. It is the consensus of a number of researchers that teachers should be trained in individualized instruction in individualized ways. The dissertation study utilized individualized techniques in teacher in-service training to aid them in implementing these methods with the students in their classrooms.

ATTITUDES AND BEHAVIOR OF TEACHERS

The attitudes and behavior of teachers are critical elements of effective instruction. What is meant by attitude? Attitude refers to a learned predisposition or tendency on the part of an individual to respond positively or negatively to some object, situation, concept, or person. What is meant by behavior? Behavior refers to a manner of acting or conducting oneself - to conduct oneself in a specified way. This includes the actions or activities of an individual towards others.

The literature and research were reviewed which tied teacher attitudes and behavior to teacher in-service and individualized instruction. Opinions and conclusions were found to be both positive and negative.

Finch (1969, p. 10) says that in-service education must be concerned with attitudes of mind and with ways of approaching and influencing the lives of the people who make up the educational effort; teachers and pupils.

Rubin (1971, p. 271) concludes that what a teacher feels cannot be separated from what he does. He further states (pp. 259-261) that in our programs of professional growth, we must give far more attention to the attitudes, values, and beliefs that influence the individual teacher's behavior. We still know far too little about attitudinal change, he concluded.

Flanders (1965, p. 27) thinks that learning new ideas about teaching evokes emotional reactions and shifts in attitudes. Meade (1971, p. 224) suggests that the key to the kind of teaching we seek lies as much in teachers' attitudes and commitments as in their technical finesse.

Bushkin (1970, p. 22) reports that administrators have long known that teachers can undergo intensive in-service training, designed to change attitudes in the classroom and to increase understanding of poor children and be totally unaffected.

Coleman's study (1969) found that the attitudes were more positive among teachers who were personally involved in activities in faculty meetings. He concluded there was a definite relationship between teacher participation in faculty meetings and teacher attitudes toward faculty meetings.

Perry (1973) designed an in-service program to promote favorable attitudes in beginning teachers. He utilized the Minnesota Teacher Attitude Inventory, pre and post with experimental and control groups. This study's results indicated that the model in-service program did not have a statistically significant effect on the attitude of beginning teachers but did find that unfavorable attitudes could be somewhat retarded.

The teacher is sometimes seen as law-giver, statement-maker, as the one in authority; belittling, shaming, minimizing, humiliating a child in the opinion of Moustakas (1966, pp. 3-34). If the teacher loses sight of the child as a human being, there is no relationship, no mutuality. The making of choices as a free being, which can be confirmed or denied in experience, is a preliminary step in the creation of values. In the classroom, freedom of being and freedom in choosing make the difference between spontaneous, alert, genuine connections with the flow of life and controlled, mechanical projections. Confirming the child means trusting in the process of his own creative development, valuing his presence as an enriching factor in life and accepting his own pacing and timing. Teachers can come to believe that children grow through spontaneous experiences which have personal meaning.

Simon (1966, pp. 19-20) thinks that a teacher's attitude towards life, his way of thinking, his friendships, his prejudices, his capacity for enjoyment, are a part of his teaching. Whatever stimulation and growth are gotten outside of school makes a person a better teacher. Teaching is seen as a delicate job with enthusiasm as a most important element in makign the class interesting.

The teacher cannot build positive self-concepts in students without building his own, believes Purkey (1970, pp. 44-65). There are factors important in creating a classroom atmosphere conductive to developing favorable self-images in students. These include: challenge, freedom, respect, warmth, and success.

Taba and Elkins (1969, p. 248) list the attitudes a teacher has who cares about children: interested in them personally, cares about
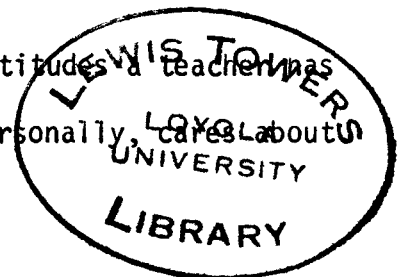
what happens to them, finds ways to make students feel good about themselves, shapes programs to awaken students, priases work well done, helps through crises, builds self-respect, demonstrates overt respect for every child, accepts feelings as facts, and trust is developed from feelings.

New teaching skills and attitudes are necessary as a teacher moves from the role of imparter of information and occupant of the center of the stage to that of observer, stimulator, guide, manager of time, space, materials, and producer of climate. The teacher needs an increased understanding of the processes of learning as children learn at different rates, have different self-concepts, and learning styles. Autocratic teachers fail to understand the significance of attitude in terms of how it affects behavior. Flexibility must prevail and time schedules cannot be rigid (Rapport, 1970, pp. 19-21). These ideas support the philosophy upon which individualized instruction is based.

It is in the classroom that patterns of thinking should be set, attitudes should be shaped, and participation can influence the growth of independence and self-direction. Teaching behavior is the most potent, single, controllable factor that can alter learning opportunities in the classroom. Helping a teacher change his behavior is not a simple task as self-development involves a continuing exploration. Helping a person change his behavior in ways that improve classroom instruction is not easy, and much remains to be learned about the process (Flanders, 1970, pp. 13-31). Flanders states the challenge that individualizing instruction presents for teachers and students.

What kind of teaching behavior is most effective in meeting the needs of individual pupils in the classroom? What types of teacher

behavior might be a barrier or supportive of individualized instruction? It is not intended to imply that teaching behavior is so clear cut that all teachers could be separated into one group or the other. It is believed that attitudes are exhibited through behavior and certain types of behavior would tend to hinder individualizing instruction and other types would support this philosophy.

> Wherever students are learning what they need and ought to know, sensing at the same time the meaning of the substance, the excitement of the process, and an irrestible urge to keep on going, at the center of the situation stands a good teacher (Simon, 1966, p. 6).

Silberman (1970, p. 10) makes the claim that "visible everywhere (in classrooms) is a mutilation of spontaneity, of joy of learning, of pleasures in creating, of sense of self."

Biehler (1971, p. 528) contrasts the authoritarian and the democratic classrooms. The authoritarian teacher is dominant. Everything is determined by the teacher. Activities are assigned, pupils remain aloof. This leads to conflict between pupils and teacher. When the teacher must be authoritarian, she should be pleasant about it and consider the point of view of the students as much as possible. In the democratic classroom there are group and individual decisions. Pupils receive active encouragement and assistance. There are discussions, alternatives, praise, constructive criticism, and freedom. This is more productive in the long run as it leads to cooperative behavior between teachers and pupils.

Stephens (1967, pp. 93-98) claims that in the vast amount of research on teacher effectiveness, few are consistent. Teachers must motivate, stimulate or set ideas in motion -- they must also reinforce.

Qualities needed for applying reinforcement duplicate those needed for effective stimulation. A genuine liking for children and an equally genuine concern for their welfare are important.

Holt (1967, pp. 167-180) indicts the schools and teachers strongly. He asserts that adults destroy most of the intellectual and creative capacity of children by the things we do to them or makes them do. We make them afraid to gamble, afraid to experiment, afraid to try the difficult and unknown. We destroy the love of learning in children, kill their curiosity, encourage them to act stupidly, and bore them. We cannot have real learning in school if we think it is our duty and our right to tell children what they must learn. The alternative .... is to have schools and classrooms in which each child in his own way can satisfy his curiosity, develop his abilities and talents, pursue his interests, and from the adults and older children around him get a glimpse of the great variety and richness of life.

Flanders (1970, p. 374) states again that very little is known compared to what needs to be known about helping others change their teaching behavior. It is known that teaching behavior can be changed and it is known that teaching behavior can be influenced during its growth and development. It is also known that when teaching behavior is actually practiced and analyzed, the probabilities that a change will occur are increased.

Flanders (1970, pp. 4-10) concludes that one of the least understood problems of in-service education is how to create an environment for the teacher which not only encourages change but makes it reasonably probable.

Hardy (1966, p. 1) says that the picture so far presented by research is that most efforts at improving teacher performance with the information he possesses or the attitudes he expresses are of little or no consequence in promoting growth in the classroom. The teacher can study his overt behavior through self-assessment. Self-assessment can be the process of having several teachers work in a group to help each other plan what information to collect about what they do in the classroom. The teachers interchange ideas about goals and means, give support to each other, and encourage ideas for change.

Educators agree that a teacher's verbal behavior is an important factor in determining the level and amount of student participation, as well as the socio-emotional climate of the classroom. The teacher's ability to regulate his verbal behaviors in accord with learning goals depends greatly upon his awareness of his behavior and the clarity of his goals. The awareness of verbal behaviors can be expanded to include the nonverbal dimension of the teaching situation.

Lail (1968, p. 176) proposes that nonverbal behavior often reflects the teachers' real feelings and attitudes and most teachers are not aware of what they communicate nonverbally. Nonverbal behavior can be encouraging or restricting.

Interaction Analysis systems have been developed and utilized in research and teacher training. Simon and Boyer (1967, pp. 1-17) define Interaction Analysis systems as "shorthand" methods for collecting observable objective data about the way people talk and act. They are concerned with how teaching and learning takes place. If the system is primarily concerned with measuring the emotional climate of the class-

room, it is considered affective, and if it is primarily concerned with thought process, it is considered cognitive. The way teachers behave in the classroom does affect the way pupils behave. A positive emotional environment is a very powerful asset to learning and positive emotional environments are made by teachers whose reactions are supportive of their students' ideas, feelings, work efforts, and behaviors. If teaching is to be changed, then teachers must have an opportunity to study their own teaching and experiment with and practice new teaching behaviors.

Flanders (1965, pp. 1-2) is of the opinion that there is a discrepancy between teacher intentions and actions. Most take a verbal stand regarding such issues as "democratic versus autocratic," "creative versus non-creative," and "content-oriented versus student-oriented." The acts of teachers are highly variable and are constantly being modified and adapted to meet the demands of complex, ever-changing situations.

Flanders (1965, p. 127) concludes, based on his research, that:

1. Learning new ideas about teaching evokes emotional reactions and shifts in attitude.
2. The methods of training used in an in-service program should be consistent with the principles of teaching being learned.
3. Teachers in an in-service program develop patterns of dependence or independence in much the same fashion as do students in the classroom.
4. In-service training programs can provide the conceptual and procedural tools necessary for teachers to experiment with their own teaching methods.
5. Teachers who are already above average in applying skillful and flexible patterns of teacher influence are likely to be most dissatisfied with inflexible patterns of in-service training.

These conclusions have implications for the philosophy supportive

of individualizing instruction.

Harold H. Anderson (1967, pp. 4-6) analyzed dominative and integrative teacher behavior. He concluded that domination is characterized by a rigidity or inflexibility of purpose, by an unwillingness to admit the contribution of another's experience, desires, purposes, or judgment in determining goals wnich concern others. Domination is behavior that is based on a failure to admit the psychological inevitability of individual differences and is thus antagonistic to a concept of growth. Integrative behavior is consistent with concepts of growth and learning. It makes allowances for and makes the most of differences in others. Integrative behavior is flexible, adaptive, objective, and scientific. It is an expression of the operation of democratic processes. This type of teacher behavior would be in harmony with the individualization of instruction.

Furst and Amidon (1967, pp. 171-173) report a study which indicated that on the surface teachers appear to be more indirect in the early grades, and become more direct in fifth and sixth grades. The amount of lecture in fifth and sixth grades was found to be approximately the same for all subject areas with lecture gradually increasing throughout the elementary school grades. They concluded that intermediate grade teachers apparently conceive of lecture as most conducive to learning. This conclusion is not consistent with the theories related to individualized instruction.

Olivero (1970, p. 17) makes the assertion that "little if any significant improvement in student performance is possible if teachers do not change their behavior."

Washburne and Heil (1960, p. 424) came to the opposite conclusion after a study in the middle grades in Brooklyn. They found the teacher's observed behavior bore no general and significant relation to the children's progress.

The Flander's projects in Michigan and Minnesota (1965, pp. 10-12) provided in-service training for junior high school teachers in which the emphasis was on making changes in classroom teaching behavior. Two training groups were formed who met for nine weeks. One group had in-service training by direct methods, the other by more indirect methods. The Minnesota Teacher Attitude Inventory and The Minnesota Student Attitude Inventory were utilized along with the Cattell Sixteen Factor Personality Inventory and the Runner Questionnaire. The results of these studies were:

1. The indirect training program was found to be superior to the direct training program (p. 111).

2. Training in the analysis of teacher behavior produces changes in spontaneous classroom behavior (p. 112).

3. Changes in the reactions of pupils to their teachers were shown (p. 80).

4. In classrooms in which the teacher was more flexible, more indirect, both attitudes and content achievement were superior (p. 123).

These studies of Flanders share some similarity with the dissertation study in that a change in teacher attitudes and behavior was the goal. Flanders used indirect training methods with one of his in-service groups. The treatment group in the dissertation study was exposed to indirect methods of training.

Jansen (1972, p. 535) says, "The teaching material that is avail-able in a given situation will also tend to influence teaching be-havior."

Soar (1972, pp. 508-526) reviews a number of studies on teaching behavior and pupil growth with the conclusion that the relationship between teaching behavior and pupil growth is characterized by inter-actions with other unknown variables, nonlinear relations, and complex interactions.

Lippitt and Fox (1971, pp. 168-169) state that better teaching requires fundamental change in the teacher's behavior but that it is essential to evoke a strong desire to improve among teachers. If the inquiry method is used, staff members can effectively learn to identify and analyze their own problems and to participate in achieving solutions.

Fishler (1971, p. 186) wants teachers to learn in much the same manner as the child learns. Real growth is the consequence of the deliberate effort to analyze and modify behavior. Bush (1971, p. 66) assumes it would be desirable if pupils became more active and teachers less overtly active in the general teaching-learning process. He thinks it would be desirable to develop in-service training programs that would attempt to bring about such constructive alteration of teacher behavior.

It is known that all teaching is not effective. It is also known that some teaching behavior needs to be modified and some teaching attitudes need changing. The challenge is in finding the means of aid-ing teachers to perceive the need for change and to create the appropriate environment in which change can take place. It is required to have self-direction and self-assessment on the part of teachers as ingredients of the situation.

The teacher is a key factor in establishing the learning environment. The classroom climate, physical arrangement, materials, instructional procedures, and teacher-pupil relationships are determined to a great extent by the teacher. Different instructional approaches and methods must be utilized with individualized instruction. This necessitates some changes in attitudes and behavior on the part of the teacher.

> It is essential in the final analysis to link
> teacher behavior to changes in pupil behavior
> (Bush, 1971, p. 65).

ATTITUDES AND BEHAVIOR OF STUDENTS

Teaching attitudes and behavior influence student attitudes and behavior. A great deal of what pupils do in classrooms are a result of the influence of the teacher. Some studies and literature related to this concern have been examined.

Moffitt (1963, p. 40) takes the view that "an effective in-service education program must be concerned with finding new and better ways of changing the behavior of school children and adding to the knowledge or skill of the teacher."

Soar (1967, pp. 275-276) asserts that increased teacher indirectness is associated with increased pupil growth in subject matter and more favorable attitudes. He found that more direct control and a non-supportive climate induces stress in pupils.

Sears and Sherman (1964, pp. 4-14) made a study to gain an understanding of how children's feelings of self-esteem develop in the school setting and how self-esteem (favorable opinion of self) influences their

motivation to learn and achieve. They found that "attitudes influence behavior." The self-esteem of children will be greater after a year in a classroom where the teacher shows relatively more behavior of a rewarding and approving type than in a classroom where the teacher is less rewarding.

> More important, schools discourage students from developing the capacity to learn by and for themselves; they make it impossible for a youngster to take responsibility for his own education, for they are structured in such a way as to make students totally dependent upon the teachers (Silberman, 1970, p. 135).

Kounin and Gump (1971, p. 273) found that children with punitive teachers manifest more aggression in their misconduct, are more un-settled and conflicted about misconduct in school, and are less concerned with learning.

Pupil attitudes are perceptions of the teacher and the classroom activities which are held in common by pupils in spite of their individual differences. A class average on a pupil questionnaire is a fairly stable and useful measure of their educational outcome. Measures of pupil attitudes do fluctuate from one teacher to the next and less frequently from one class to another with the same teacher. Content achievement tests fail to quantify all the important educational outcomes. These are the findings of Flanders (1970, pp. 317-318).

Flanders (1970, pp. 376-427) reports on research projects he designed to compare interaction analysis variables and pupil attitude and achieve-ment. The procedure followed in projects conducted in grades 4 and 6 is described:

1. An inventory assessing positive pupil attitude was

    administered to a sample of a classroom representative of a

geographical area.

2. Average scores on the inventory were calculated for each class. Classrooms were selected from the extremes and the middle of the distribution for observation.

3. These classes were observed and classroom interaction coded by trained observers. An assessment was made of content achievement before and after observation.

4. The general hypothesis was that teacher indirectness and flexibility would be positively related to average class measures of positive pupil attitude and final achievement adjusted for initial ability.

The grade six project was conducted in Michigan during the 1964-65 school year. Thirty classrooms were observed from a sample of 101 classes. Attitude and achievement were the outcome variables.

The grade four project was conducted in Michigan during the 1965-66 school year. Sixteen classrooms were observed from a sample of 72. The outcome variables were also attitude and achievement.

A factor analysis with a vari-max solution was carried out on 27 interaction analysis variables. The correlations with ten interaction analysis variables when fixed weights were used were:

	4th grade	6th grade
Achievement	0.260	0.284
Attitude	0.466	0.483

It appears that when classroom interaction patterns indicate that pupils have opportunities to express their ideas, and when these ideas are incorporated into the learning activities, then the pupils seem to learn more and to develop more positive attitudes towards the teacher

and the learning activities.

The conclusion of the Flanders studies are similar to the hypotheses in the dissertation study. The projects by Flanders are similar in that they are concerned with pupil attitude and achievement as related to teacher behavior in the middle elementary grades. The differences in the Flanders studies are that classes were selected, a formal observation system was utilized and individualized instruction was not a factor in contrast to the dissertation study which is utilizing informal observation techniques and includes all the fourth, fifth, and sixth grade teachers and pupils in selected schools, although fewer in number.

Attitudes and behavior are intricately related. The attitudes and behavior of teachers are difficult to separate from the attitudes and behavior of students. There appear to be both positive and negative effects on pupils of teacher attitudes and behavior. Many factors are involved in teacher-pupil interaction and much more research appears to be needed in this area.

SUMMARY

The intent of in-service education is to change instructional practices or conditions by changing people's behavior. Planned change implies a change agent, namely someone who examines the existing state of affairs in the light of some future desired condition. This is goal-directed through deliberate intervention. The importance of personnel development in the promotion of instructional change can hardly be emphasized enough as the human factors are crucial. More than in most other organizations, the school must depend on the systematic personal

development of people through in-service education for major improvements in its functioning.

In-service training will probably always be needed but new teachers would likely be more flexible and willing to try new ideas and approaches if pre-service education were rooted in a commitment to change.

From a review of research and literature on in-service training, individualized instruction, teacher attitudes and behavior, and student attitudes and behavior, it would appear the following conclusions can be drawn.

1. In-service training has not been too successful. If it is to be successful teachers must be involved in the planning and implementation of a particular program.

2. If teachers are going to individualize instruction, they must be trained in individualized ways.

3. Teacher attitudes and behavior required to implement individualized instruction may require some modification.

4. The attitudes and behavior of students are intricately related to the attitudes and behavior of teachers and many factors are involved in this relationship.

This study will seek to determine if teachers can be trained to implement individualized instruction through indirect individualized in-service techniques. If individualization of instruction occurs, will a change occur in the attitude and behavior of teachers and students?

If the hypotheses of this study are proven, the results will have implications for more than twenty thousand pupils. If an effective in-service model can be developed with the experimental group of teachers

this model could be utilized to improve teacher in-service programs at other grade levels and in other schools. The plans could be replicated or adapted to assist teachers in individualizing instruction. The ultimate results could be instruction that is more supportive of pupil ideas and initiative, more flexible, and less direct. This would also produce, it would be hoped, more positive attitudes in pupils towards school and teacher.

CHAPTER III

RESEARCH DESIGN

The research reported in this study was planned as an outgrowth of many questions raised by reading, personal experiences, personal observation, and the research experiences of others. Many questions were considered which have been related to the hypotheses as stated in Chapter I. The questions and tentative answers gleaned from an examination of the literature and research of others had an influence upon the research design.

A. What should be the goals of the administrator?

1. To improve instruction?

2. To individualize instruction?

3. To modify teacher attitudes and behavior?

4. To modify teaching methods and approaches?

5. To have pupils enjoy school to a greater degree?

6. To have pupils make some choices relative to their learning?

7. To have all pupils experience some success in school?

B. How can teacher behavior be modified?

1. By leading teachers to attempt different instructional approaches through an in-service program?

2. By involving teachers in self-analysis, self-study, and self-assessment through an individualized in-service program?

47

C. What kind of change should the administrator expect if instruction is modified?

1. Changes in teaching methods, attitudes or behavior?

2. Changes in pupil attitudes, behavior or achievement?

These are some of the questions which influenced the thinking and planning for this research.

A matched pre-test, post-test, experimental and control group design was developed utilizing two experimental groups and two control groups of approximately the same numerical size for pupils with the identical number of teachers. The experimental schools were chosen and the control groups were matched with them as closely as possible on such factors as physical location, ethnic make-up of pupil population, socio-economic level of families, and size of the school. No attempt was made to match teachers on specific characteristics as all the middle-grade teachers (4-5-6) on duty at the beginning and end of the study were included along with their pupils. The study was primarily concerned with modifying teacher behavior through an individualized in-service program designed to assist teachers in implementing individualized instruction in their classrooms. This intervention was planned in hopes of modifying pupil behavior as a result of change in teacher behavior.

This chapter will describe the subjects utilized in the study, the materials used, the procedures followed, and the statistical techniques applied to the data collected.

SUBJECTS

Limited research has taken place in the Chicago Public Schools.
That which has taken place has occurred primarily in programs specially
funded by the federal or state government for underprivileged pupils. It
was decided that this study should occur in a predominantly middle-class
community which has been involved in very little research.

The four schools involved in this project are located in the north-
east section of the city of Chicago. Schools I and III have a largely
homogeneous student population. There is stability in the homes,
stability in the teaching staff, and generally high academic achievement
on the part of the pupils. Schools II and IV are located in communities
undergoing change in pupil population with increasing numbers of pupils
whose first language is not English. An exodus of middle-class families
is taking place. There has been a slightly lowered level of academic
achievement observable in the last few years in these schools.

Staffs of the four schools are generally stable. Appendix H gives
a summary of some of the characteristics of the twenty-two teachers
included in the project. The age range is great as is the experience
range. Seventeen of the teachers hold a bachelor's degree while five
have earned a master's degree. Principal assessment of teachers'
performance may be summarized as follows:

Table 3-A

Principals' Evaluation of Teachers' Performance

School	Satisfactory	Excellent	Superior
I	1	3	1
II	0	1	5
III	0	5	0
IV	2	3	1
Totals	3	12	7

The vast majority were assessed as excellent or superior with new teachers being rated as satisfactory.

Schools I and II were deliberately selected as the experimental schools. Schools I and II are at the extremes on the continuum of schools within the district. School I includes the parents with the highest socio-economic and educational levels. School II has the parents with the lowest socio-economic and educational levels, the largest number of pupils whose first language is not English, the greatest transiency, and the largest minority racial membership. Schools III and IV were selected as control schools because they represented strong similarities to one of the other two (I and III, II and IV were matched).

Since observation of instruction over many years indicated that instruction in the middle grades is frequently weak, it was decided this would be the level for the study. These grades are often the entry level for new teachers with the intermediate-upper grade[1] certificate. Often

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[1]Intermediate grades are 4, 5, and 6 and upper grades are 7 and 8.

the most effective intermediate teachers will gravitate toward the upper grades. The intermediate grades are also the learning level where the curriculum is broadened in content areas. This is also the point where pupils have reached the maturity to accept greater responsibility yet are more alterable than when older.

The experimental group of School I included the five teachers of grades 4, 5, and 6 and their approximately 177 pupils. This was the total middle-grade population of that school. School II of the experimental group was composed of six teachers of grades 4, 5, and 6 and their approximately 196 pupils. This was the total middle-grade population of that school. The experimental group was composed of eleven teachers and approximately 378 pupils.

The control group included five teachers from School III and six from School IV for a total of eleven teachers and approximately 394 pupils. The five teachers of School III and their 180 pupils were paired with School I because of similarities in student population. The six teachers of School IV and their 214 pupils were matched with School II because of similarities in student population as shown in Appendix B.

One middle-grade teacher in School III left and one middle-grade teacher in School IV left. Their pupils were excluded from the study. All the other middle-grade teachers and pupils were included in the study. The loss of these two classes in the control schools made the number of control teachers and classes eleven, the same number as in the experimental group with approximately 394 pupils.

The range in years of teaching experience is great in all of the schools. The factors utilized in comparison of teachers did not include

principal assessment of performance, level of training, age, years of experience, type of certificate held, or personality components. The factors utilized to compare teachers were implementation levels of individualized instruction, change in teacher attitudes, and change in teacher behavior. The background characteristics of teachers were not controlled nor were they taken into consideration. The effects of the individualized in-service education program and the extent of the effects of the in-service program in changing teacher attitudes and behavior have been examined through initial and final assessment. Two measures of these changes have been taken. It is believed that teacher attitude and behavior must change before changes in student attitude and behavior can be attributed to the effects of the in-service program.

Pupil outcomes have been based upon pre-test, post-test mean gain scores on reading and arithmetic tests, mean gain scores on an independent work inventory, and mean gain scores on the Minnesota Student Attitude Inventory. Most of the pupils fall within the nine to twelve age range but age was not considered a major factor in this study.

Meetings for orientation and discussion were held with the principals of the four schools initially to outline and explain the project. Further meetings were held with the principals of the two experimental schools and individual follow-up meetings also took place. Participation in the study was accepted by all principals willingly.

Separate meetings were held with each target group of teachers in the four schools to explain the program and to solicit reactions. Teachers were given the option not to participate; however, all voluntarily accepted involvement. Enthusiasm appeared to be at a high level generally because individualized instruction has become a strong goal

within the school district.

Materials - All Teachers

A search for a suitable attitude scale for teachers resulted in the decision to use the Minnesota Teacher Attitude Inventory because it seemed appropriate for this study. Cook, Hoyt, and Eikaas (1956, p. 167), authors of the scale, state that "observation indicates that desired development of pupils depends to some extent on certain personality traits and attitudes of teachers."

The authors (Cook, et al., 1972, p. 3) of the Minnesota Teacher Attitude Inventory conclude that investigations carried out over a period of years indicate that the attitudes of teachers towards children and school work can be measured with high reliability and are significantly correlated with pupil-teacher relations found in the classroom. It is further suggested the Inventory can be used to measure the effectiveness of teacher education programs. The Inventory has been utilized in this manner in the present dissertation study.

The validity of the two experimental forms of the Inventory and the final edition, Form A, is based on these three assumptions: (Cook, et al., 1972, pp. 10-11).

1. It is assumed that the attitude of pupils toward their teachers and school work is a reflection of their teachers' attitude toward them and toward teaching procedures. Hence, if the attitudes of teachers and of pupils is reliably measured there should be a high relationship between them.

2. It is assumed that a principal who has worked with a group of teachers for some time can sense the emotional relationship between teacher and pupil and can discriminate reliably between teachers with good or poor rapport with their pupils.

3. It is assumed that an expert in the field of teacher-pupil relations can visit classrooms and, using methods as nearly objective as possible, judge reliably the climate which prevails.

The validity of the experimental form (X-164) was determined by administering the Inventory to a random sample of one-hundred teachers of grades 4-6 inclusive and correlating their scores with three outside criteria of teacher-pupil rapport. The first criterion was the rating of teachers by their pupils on the Pupil-Teacher Rating Scale. The reliability of this scale for twenty-five ratings on each teacher was .93. The second criteria was the rating of the teachers by their principals. The reliability of the Scale as determined by the split-half method was .87. The third criterion of teacher-pupil rapport involved the rating of the teachers by a specialist in the area of teaching effectiveness. A modification of Baxter's Rating Scale of the Teacher's Personal Effectiveness was used. The reliability of this scale as determined by the split-half method was .92. When the three criteria were combined with multiple regression weighting, the validity coefficient was found to be .60. The reliability as determined for the random group of one-hundred teachers by the Spearman-Brown split-half procedure was found to be .89.

The authors (Cook, et. al., 1972, pp. 3-4) of the Minnesota

Attitude Inventory support the philosophical basis for individualizing

instruction when they analyze the characteristics of teachers. These

ideas are in accord with the rationale which resulted in implementing

this instructional approach for this dissertation study.

It is asserted that teachers ranking at the high end of the scale

should be able to maintain a state of harmonious relations with pupils

characterized by mutual affection and sympathetic understanding. The

pupils should like the teacher and enjoy school work. The teacher should

like children and enjoy school work. The teacher and pupils should work

together in a social atmosphere of cooperative endeavor, of intense

interest in the work of the day, and with a feeling of security growing

from a permissive atmosphere of freedom to think, act, and speak one's

mind with mutual respect for the feelings, rights, and abilities of

others.

At the other extreme of the scale is the teacher who attempts to

dominate the classroom. He may be successful and rule with an iron hand,

creating an atmosphere of tension, fear, submission; or he may be

unsuccessful and become nervous, fearful, and distraught in a classroom

characterized by frustration, restlessness, inattention, lack of respect,

and numerous disciplinary problems. In either case both teacher and

pupil dislike school work; there is a feeling of mistrust and hostility.

The teacher tends to think of subject matter rather than what the pupil

needs, feels, knows, and can do.

The differences in teachers at the two extremes are the results

of numerous factors; however, it can be assumed that the attitudes of a

teacher are the result of the interaction of a multitude of factors and

affords a key to the kind of atmosphere a teacher will maintain in the classroom. Items in the Inventory discriminate sharply between teachers who have and those who do not have good rapport with pupils.

The authors of the Inventory suggest that available information indicates that attitudes of adults are resistant to change. They conclude that teacher attitudes are indicators of the teacher's classroom behavior, in the type of classroom atmosphere he will be able to maintain. Inculcation of better attitudes by instruction may not produce a change in teacher behavior, they conclude.

Norms were established for experienced teachers with the following conclusions:

1. Length of teaching experience was not significantly related to teacher attitudes in any of the analyses.

2. The amount of post-high school education was significantly and positively related to teacher attitudes in graded elementary schools.

3. Size of the school system was significantly and positively related to teacher attitudes in graded elementary schools.

Nine sets of norms have been established for the Minnesota Teacher Attitude Inventory. The norms utilized in the dissertation study are ones established for experienced elementary teachers in a school system with twenty-one or more teachers with a minimum of four years of college training.

The Minnesota Teacher Attitude Inventory was administered to the twenty-two teachers by the local school adjustment teachers (official pupil test administrator and guidance teacher in each school) at the

beginning of the study and at the conclusion of the study according to prescribed instructors.

The four principals gave an assessment of the degree of individualized instruction present in each classroom and of pupil attitudes towards the teacher before the project began (Appendix E) and an assessment at the conclusion of the study. The results of this evaluation will appear in the section on Statistical Techniques.

Materials - Experimental Teachers

The present study utilized an individualized in-service program for retraining teachers to implement individualized instruction. The in-service program used individualized techniques with the teachers with the view that this intervention would enable teachers to teach their pupils to the degree possible in much the same manner in which they were trained. The in-service program was designed to use a wide variety of learning materials and learning approaches.

Richard W. Burns (1971, pp. 421-423) made some good suggestions for involving teachers in innovation. Those suggestions which were utilized to some extent for the in-service program are listed:

Work initially with a small, select staff.
Select a problem that is generally recognized as such so that the idea of change will be more readily accepted.
Provide your staff with handy reference material relating to all aspects of the problem.
Hold planning sessions as necessary but keep them short.
Hold frequent, but short staff meetings.
Reward the staff involved - build into the project a system of incentives such as released time or extra compensation.
Give credit as often as possible, preferably publicly, to those involved.
Fix responsibility - everyone should be clear about his share of the responsibility and the goals he is to reach.
Set definite time limits - it is too easy to delay and procrastinate when time is open ended.

Short-term goals and short-term time limits, sequentially assigned, are preferable to complex goals and long time limits.

Encourage all types of communication between members and between levels. Encourage suggestions and permit free, constructive criticism. Get all the "feedback" possible. Training of a staff can be accomplished best by face-to-face or cross-table communication with "experts" and "advisors" rather than a more formal teacher-structured or academic approach.

Be flexible, and when errors occur, correct them. The best plans are not perfect; so, change plans when necessary. Encourage production.

Provide for helpful supervision. Supervisors should be resource persons rather than merely overseers.

What did the in-service program utilized in the dissertation study include?

1. <u>Workshops</u> in the following areas:

   a. Classroom interaction analysis

   b. Behavioral objectives

   c. Human relations in the classroom

   d. Individualized instruction

   e. Using audio-visual equipment

   f. Grouping

   g. New materials

2. <u>Visitation</u>

   a. To other schools

      Disney, King (Evanston), Boone, Field, St. Jerome

   b. Educational Facilities Center

   c. Intra-visitation among the teachers

3. <u>Principal observation</u>

   a. Classroom visits

   b. Conferences

4. <u>Individualized Instruction - A Learning Activity Packet</u>

   <u>for Elementary Teachers (Appendix A)</u>

   This individualized learning activity packet was devised to

   assist the experimental teachers in implementing individualized

   instruction through self-assessment, self-study and follow-

   through. The original instrument was field tested in a summer

   graduate class at Loyola University and revised in the light of

   experienced teacher input. This instrument was self-adminis-

   tered and was collected at the end of the study. The learning

   packet served as the teacher's basic implementation guide with

   a wide variety of options. It is self-paced and adaptable

   to individual teaching styles. Summary of input from the learn-

   ing packets is included in Cahpter IV.

5. <u>Journals</u>

   Each experimental teacher was provided with a journal and

   requested to include progress reports, thoughts, ideas, pro-

   cedures, successes, and failures on a regular basis. These

   journals have been utilized to determine some of reactions of

   teachers as well as to aid in determining the degree of

   individualized instruction which occurred in the classroom.

   The threads of the process of change or a lack thereof have

   been sought in an analysis of the journals. These materials

   are reported on in Chapter IV. This was also an effective

   means of obtaining feedback from the teachers.

6. <u>Weekly Meetings</u>

   The treatment teachers in each school met at least once per week

   as a group for thirty minutes for the duration of the project.

Each group had an informal chairman-leader from within the group. Materials relating to the individualization of instruction were sent weekly from the District Office (Appendix I). These included mimeographed sheets, articles, reports, printed sheets, books, and pamphlets with sufficient copies for the eleven teachers. The materials dealt with individualized instruction, teacher attitudes, and teacher behavior. The in-service materials were discussed, analyzed, and evaluated in the weekly planning and implementing sessions. Cross-fertilization of ideas, stimulation, sharing, and change in individual classrooms were some of the goals of this regular interaction. The professional library on individualized instruction was enlarged in the two schools.

7. College Workshop

Tuition-paid weekly extended-day seminars from February 5 to March 26 were offered to all participants. Three teachers attended these workshops for credit.

8. Administrative Support

Letters of encouragement were sent to experimental teachers. Verbal support was expressed at the time of classroom visitation.

9. Teacher Aides and Volunteers

Several teachers expressed opinions that teacher aides were needed. The teacher aides were late in arriving but eventually one per school was provided to serve the project teachers exclusively in the four schools. Parent and community

volunteers were also utilized in schools I and II.

10. Student Created Materials

Many original games and much creative writing were the result of classroom activities. Exciting examples of these were shared with fellow teachers as well as with the administrators.

11. Independent Study

Independent study by students was supported, encouraged, and reported. Samples of student-made contracts were submitted at the end of the study.

12. Individual Talent and Skill

Teachers conducted in-service activities for colleagues both within the project and for the members of their school's staff.

Materials - All Students

1. The Minnesota Student Attitude Inventory (Appendix C) with fifty-nine items was administered to all students by the adjustment teachers. Classroom teachers were asked to absent themselves during this administration so as not to have pupils feel any influence. Pupils were instructed not to put their names on the questionnaire so they would feel completely free to express their opinions. Some of the items tend to assess teacher behavior and performance. Statistical procedures have been applied to the results of these scales and will be reported later in this chapter.

2. A Student Independent Work Habits Inventory (Appendix D) was administered on a pre and post basis by the classroom

teachers. One set of answers indicate dependence and the other set indicate independence in a selected group of twenty-one questions. This instrument was developed and used by Dell and Kallenbach (1972). Experimental teachers were encouraged through the Learning Activity Packet to increase the amount of pupil planning in the classroom and to provide children with the opportunity to make decisions. Control teachers were not asked to do anything except to administer the instrument. The results will be analyzed later.

3. Metropolitan Achievement Test-Form B were administered to all students in reading and arithmetic at the onset of the project and at the termination of the project. These tests were selected for use because they are not currently being utilized in the citywide testing program of the Chicago Public Schools and are therefore independent of any current formal testing program. The test results have been utilized to determine if the special project had any statistically significant negative impact upon the reading and arithmetic achievement of the groups of pupils. These results are also reported in a later section.

Procedures

Some elements of the procedure have been mentioned previously, but the total procedure will be reviewed. The timetable for the study is included in Appendix G.

1. Broad examination of individualized instruction, in-service programs, teacher attitudes and behavior, and student

attitudes and behavior took place over a two-year (1971-1973) period with the identification of an area of study as the result.

2. August, 1973 - A tentative proposal for the dissertation design was presented to the committee members. Suggestions were received and incorporated into the plans.

3. September to December, 1973 - Materials were collected and prepared for the project.

4. November 1973 - A meeting was held with the four principals in preparation for the launching phase. An overview was shared. It was understood that the development of an in-service model to aid teachers in implementing individualized instruction with limited resources was one of the practical goals of the project.

5. December, 1973 - Meetings were held with the middle-grade teachers, adjustment teachers, and principal in each of the four schools. Cooperative involvement was solicited and voluntary cooperation received. Previous workshops had identified individualized instruction as one of the areas of concern and possible area for innovation. Teachers had been primed to a point of readiness for this experience.

6. January, 1974 - A meeting was held with the principals of Schools I and II for final review and clarification. Topics discussed in detail were:

   a. Materials - teachers' and pupils'

   b. Launching and time schedule

   c. Monitoring - principal's role

    d. Resource personnel and workshops

    e. Teacher in-service schedule, goals, and materials

    f. Role of the District Superintendent

7. January, 1974 - Individual evaluation of the twenty-two teachers was solicited from the principals with assessment in the following areas:

    a. Level of individualized instruction in the teacher's classroom

    b. Status of certification

    c. Efficiency evaluation

    d. Teaching style

    e. Age

    f. Relationship with pupils

8. January, 1974 - Classrooms were observed in School I and School II by the District Superintendent. Goals for this visitation were:

    a. Assessment of classroom climate

    b. Observable evidence of individualized instruction

    c. Evidence of grouping

    d. Evidence of the level of pupil involvement in classroom activities

    e. Indications of teacher and pupil attitudes

    f. Morale building through support

9. June, 1974 - Classrooms in the experimental schools were observed by the District Superintendent with the same goals as stated in number 8.

10. June, 1974 - Post assessment of each teacher by the building principal.

11. January to May, 1974 - The in-service program

    a. Opportunities were provided for teachers in the experimental schools to be participants in workshops.

    b. Consultants were provided for in-service sessions and demonstrations in the areas of individualized instruction, behavior modification, verbal interaction analysis, and behavioral objectives.

    c. Teacher aide assistance was provided during the month of May.

    d. Volunteers assisted during the period of the project.

    e. Visitations were made by teachers to other centers with models of individualization:

        Disney, King (Evanston), Boone, Field, St. Jerome Educational Facilities Center

    f. Three of the eleven experimental teachers attended College Workshops on Individualizing Instruction from February 5, 1974 to March 26, 1974.

    g. The spark or "change-agent" in each group of experimental teachers was encouraged to lead others towards newer directions.

    h. The project was monitored by the principal through classroom visitation, observation, and participation in in-service sessions.

    i. Special materials as identified by the special project teachers were secured for teachers and pupils.

j. Workshops for teachers were planned and implemented periodically.

k. In-service materials were sent to the experimental teachers weekly by the District Superintendent. These materials were utilized in the project Teachers' in-service meetings.

l. Each experimental teacher maintained a personal journal for the duration of the project.

The data collection plan is shown in Figure 3-1.

Figure 3-1

Data Collection Plan

Beginning January, 1974	Teachers	Completion May, 1974
MTAI	TJ	MTAI
POF$_1$	PO	POF$_2$

Beginning January, 1974	Students	Completion May, 1974
MSAI		MSAI
MRAT		MRAT
MAAT		MAAT
ISWI		ISWI

Key[2]

1. MTAT - Minnesota Teacher Attitude Inventory
2. POF - Principal Observation Form (1 and 2)

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[2]Samples of 2, 5, and 8 are found in the Appendices.

Data Analysis Techniques

The research hypotheses tested in this study are as follows:

I. If an individualized in-service program for teachers which concentrates on the individualization of instruction is given, more teachers involved in the in-service program will be able to individualize their instruction than teachers who participate in the regular in-service program.

II. If an individualized in-service program for teachers which concentrates on the individualization of instruction is given, a greater positive change in teacher attitude towards pupils will be effected in teachers involved in the experimental in-service training than in teachers who participate in the regular in-service program.

III. If instruction is individualized, pupil work-study behavior in these classrooms will be at a higher level of independence than the independence of those pupils who are not in classes where instruction is individualized.

IV. If instruction is individualized, attitudes towards school and instruction will be more positive than for those pupils who have a non-individualized type of instruction.

V. If instruction is individualized, student achievement in Reading and Arithmetic will not be significantly less for those pupils than for pupils whose instruction has not been individualized.

The following statistical tests were used in this study for examining

the hypotheses: (1) the likelihood ratio test[3] for testing the null hypothesis of the equality of proportions, and (2) the F test[4] for testing the significance of terms in the analysis of variance.[5] The statistical models and the hypotheses to which they were applied are given in Table 3-B.

Table 3-B

Hypothesis	Statistical Model
I	Likelihood ratio test for proportions
II	Fixed effects analysis of variance for a nested design
III	Fixed effects analysis of variance for a design with crossed and nested factors
IV	Fixed effects analysis of variance for a design with crossed and nested factors
V	Fixed effects analysis of variance for a design with crossed and nested factors

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[3]The likelihood ratio test is conducted in the following manner. A relation is found which expresses in an exact fashion the likelihood the data are explained by the null hypothesis. This expression is then divided by a relation which expresses the likelihood the data are explained by the alternative hypothesis (Wilks, 1962, p. 423).

[4]The F test is a test of the significance of the tatio of two variances (Guilford, 1956, p. 224).

[5]These analyses were computed at the Loyola University Computer Center inOctober, 1974, using the Multivariance Computer Program, Version 4.

There is an observable difference in the classrooms of teachers who are individualizing their instruction and those who are not. The physical arrangement of the classroom gives the initial clues. The variety or lack of variety in materials, the climate, the sounds, the activities of pupils all give indications of whether individualization of instruction is taking place.

The teacher who is able to individualize the instruction is usually flexible, creative, and a manager of resources. She is a consultant, sharing in the decision making. The classroom is democratic and open. Pupils work in a variety of group arrangements. They may make contacts or engage in independent study. Pupils may tutor other pupils but all pupils work at their own pace in their own style. Pupils have choices or options. There is flexibility in seating and interest centers are found throughout the room. A broad selection of materials is available including audio-visual materials. Pupil self-evaluation takes place as pupils check much of their own work. Pupils are evaluated by the teacher in terms of their own achievement but praise and reinforcement are given generously.

A non-individualizing teacher is traditional, more rigid and autocratic. She views herself as a fountain of knowledge and an enforcer of coverage. Pupils use the same texts and are taught the same thing at the same time. Instructional materials are limited. The climate is formal, over-structured, and pupils are likely to be stifled. The furniture is fixed in straight rows and the quiet is oppressive. Interest or activity centers are not operating. Strong discipline is inflicted by the teacher with rigid sets of achievement standards for all pupils. The teacher usually checks and grades all work. Pupils must raise their hands for

permission to move or converse. Questions and answers or lecture are the most common instructional modes.

All teachers were observed by the principals at the beginning of the study. At that time each teacher was rated as teaching in a manner which involved much, little, or no individualization (Appendix E, POF_1). For the purposes of the analysis it was decided to define those teachers who taught in ways that were considered to involve "much individualization" as "individualizing teachers" (IND), and all other teachers were considered to be "non-individualizing" (NON).

At the end of the study the principals re-rated the teachers (POF_2 in Appendix E). The information obtained from Item 6 of the second form was used in conjunction with the information from the First Observation Form to determine which teachers were teaching in individualized manners at the end of the study. A decision was made to define "individualizing" teachers as those who were rated on Form 1 as showing "little" individualization, but who were rated as showing "moderate" or "much" change in individualization at the end of the study. Any teacher who was rated as showing "much" individualization at the beginning of the study was defined as "individualizing" at the end only if he or she was rated as howing "much change" on the second form.

Graphic displays of the operationalization of this variable with the corresponding cell frequency information for the experimental and control groups are shown in Figures 3-2 and 3-3 respectively. The shaded areas correspond to those categories of teaching behavior that were defined as non-individualizing at the end of the study. The bottom rows correspond to the categories of teaching behavior that were determined at the beginning of the study.

Figure 3-2

Operational Definition of Individualized and Non-Individualized

Instruction for the Experimental Group

Initial Assessment - Form I

Final Assessment Form 2	Much	Little	None
No change			
Little change		1	
Moderate Change	3	1	2
Much Change	1	2	
Initial Categorization	4		

Figure 3-3

Operational Definition of Individualized and Non-Individualized

Instruction for the Control Group

Initial Assessment - Form 1

Final Assessment Form 2	Much	Little	None
No Change		1	
Little Change		7	
Moderate Change	2	1	
Much Change	2		
Initial Categorization	2	9	

Hypothesis I

If an individualized in-service program for teachers which concentrates on the individualization of instruction is given, more teachers involved in the in-service program will be able to individualize their instruction than teachers who participate in the regular in-service program.

The test of this hypothesis requires an examination of the data concerning the numbers of experimental and control group teachers who taught in individualized ways.[6] Since four teachers in the experimental group and two in the control were observed to be individualizing their instruction at the beginning of the study, it was found to be necessary to compare the two groups twice - first for the initial assessment of teaching status in order to determine if the groups were greatly different at the beginning of the study and for the final assessment of teaching status in order to determine if the groups were greatly different at the end. When considered jointly, the results of these two comparisons shed light on whether or not the experimental in-service treatment had a greater effect than the control treatment in promoting the individualization of instruction.

The data analysis method which is usually suggested for comparisons of this nature involves a normal distribution approximation to a difference of proportions. For the small sample sizes dealt with in this study, this approximate method should be considered as being very

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[6]An "ideal" analysis of this hypothesis would have incorporated some of the design features used in the analysis of Hypothesis II. Unfortunately, no such corresponding method of analysis is known to exist which does this for data of the form considered in Hypothesis 1 and which also is operative on such small numbers of observations.

insensitive and poor (Hoel, 1962, p. 149). An alternative method which may rely less heavily on approximations is known as the likelihood ratio test for the equality of proportions (Wilks, 1962, p. 423).

The likelihood ratio test is conducted in the following manner. First, a relation is found which expresses in an exact fashion the likelihood the data are explained by the null hypothesis. This expression is then divided by a relation which expresses exactly the likelihood that the data are explained by the alternative hypothesis. An appropriate standardization or transformation of this ratio allows one to test the null hypothesis by referring to a table of the X2 distribution.

The rationale for this likelihood ratio test is intuitively simple. If the null hypothesis is true, the expression for its likelihood becomes large relative to the likelihood that the data are well-explained by the alternative hypothesis. Thus, the ratio of the two likelihoods is found to be large. Conversely if the null hypothesis is false, the likelihood that it is true becomes small relative to the likelihood that the data are well-explained by the alternative hypothesis. Consequently, the ratio is found to be small. If this ratio is too small to be readily explained by random or chance fluctuations, the null hypothesis is rejected and is no longer considered as being an adequate description of the theoretical relationships which underly the data.

For Hypothesis I the null hypothesis is that the theoretical proportions of experimental and control teachers who teach in individualized ways are equal: i.e.,

$$Ho : Pe = Pc$$

where the letters e and c refer to the experimental and control groups, respectively; and P_e and P_c are estimated from the data by $\frac{Xe}{Ne}$ and $\frac{Xc}{Nc}$

with X_e being the number of teachers in the experimental group who taught in an individualized way and N_e being the total number of experimental group teachers. The alternative hypothesis is that these theoretical proportions are not equal, i.e.;

$$H_a : P_e \neq P_c$$

The likelihood ratio (R) for testing the null hypothesis is

$$R = \frac{L_{H_0}}{L_{Ha}} = \frac{\left(\frac{X}{N}\right)^X \left(1 - \frac{X}{N}\right)^{N-X}}{\left(\frac{X_e}{N_e}\right)^{X_e} \left(1 - \frac{X_e}{N_e}\right)^{N_e - X_e} \left(\frac{X_c}{N_c}\right)^{X_c} \left(1 - \frac{X_c}{N_c}\right)^{N_c - X_c};}$$

where L_{H_0} and L_{Ha} are the likelihoods that the null and alternative hypotheses are true, respectively; and $X = X_e + X_c$ and $N = N_e$ and N_c. An appropriate standardization or transformation of R is given as $-2\ln R$ where ln is the "natural" or Napierian logarithm. The statistical significance for the test on the null hypothesis can be obtained approximately by comparing $-2\ln R$ to the desired critical value of the X^2 distribution.

Hypothesis II

If an individualized in-service program for teachers which concentrates on the individualization of instruction is given, a greater positive change in teacher attitude toward pupils will be effected in teachers involved in the experimental in-service training than in teachers who participate in the regular in-service program.

The test of this hypothesis requires an examination of the gain scores of the teachers on the Minnesota Teacher Attitude Inventory. To facilitate this examination the analysis of variance was chosen to extract the pertinent information from the data.

In view of the structure of the experimental and control group

in-service treatments, a decision was made to include "school" as a factor in the particular analysis of variance model selected. This appeared to be necessary because the experimental and control in-service programs were administered for the most part within each school. Thus, within the control group the in-service programs were conducted in ways which were somewhat peculiar to each school. A certain amount of similarity between the programs of the two schools did exist because of district guidelines and emphases. Within the experimental group differences were found in the ways in which the in-service meetings were conducted. Since the program materials and other experiences were highly similar in these schools, there was a good deal of similarity between the in-service programs. The facts concerning differences in implementation of experimental and control group in-service programs suggest that the data of teachers' gains in attitude are to be viewed most informatively when the individual schools in which the treatments took place are included as a factor in the analysis. When this is done, important information can be obtained which allows one to assess whether or not these differences in implementation were strong enough to significantly alter teacher attitude gains. Furthermore, this step fills a precautionary role. If school differences in treatment implementations were indeed highly influential on attitude gain scores, but were not explicitly investigated, the test on the significance of the differences of the treatment effects could become insensitive.

As any school considered in the study is represented in only one of the various types of in-service treatments; i.e. experimental or control, the "school" factor is said to be nested within the "treatment" factor

(Scheffe, 1959 p. 178). The statistical design which describes the way in which the data were collected and are organized for the analysis is called a nested design. This design is depicted in Figure 3-4. The numbers of observations of teacher attitude gain scores are written in each cell.

Figure 3-4

Schematic Diagram of Design for

Hypothesis II
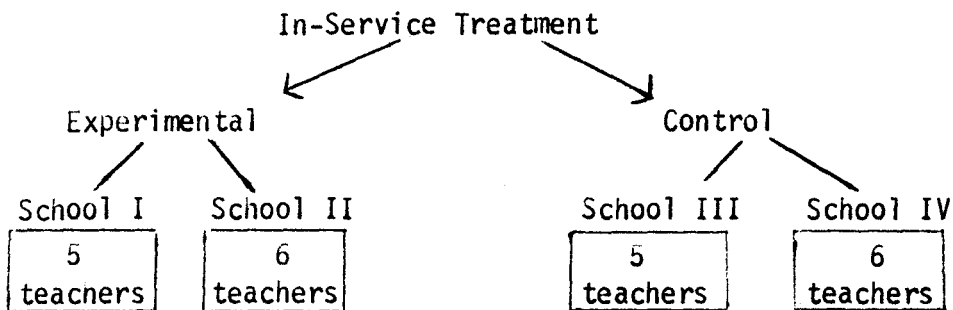
It was decided that the analysis should treat both the school and treatment factors as fixed because there were only four schools in the study and because these schools were selected in a nonrandom way. The algebraic model of the teachers' gain scores which is therefore appropriate for the analysis is given as follows:

$Yijk = M + Ti + Sij + Eijk$

Here, $Yijk$ is the observed gain score of the Kth teacher in the jth school in the ith treatment group. And   is that part of the observed score which is theoretically shared among all teachers. The term Ti is that part of the observed score which is theoretically shared only among those teachers in the ith treatment group and expresses a quantification of the effect of each treatment on the gain scores. The

Sij term represents that part of the gain score which is theoretically explained by idiosyncratic occurrences in the jth school in the ith treatment group. Eijk represents the residual or "error" involved in this model for the attitude gain scores of teachers. That is, Eijk is that part of a particular attitude gain score which is not explained by M,Ti or Sij and it equals Yijk-(M=Ti+Sij). Since Eijk represents the part of the gain score which is specific to the Kth teacher in the jth school in the ith treatment group, it may be referred to as part of the gain score which is specifically attributable to the difference in experiences that were encountered by the Kth teacher in the jth school in the ith treatment group.

It can be shown mathematically under the null hypothesis that when appropriate estimates of each term on the right hand side of the model equation are defined, the estimates of the portions of the total variance in attitude gain scores which are accounted for by each term are independent of each other (Hoel, 1962, pp. 302-4). This result can be expressed in simple algebra as

$$IJK. \text{ Var } (Yijk) = \text{Var } (\hat{M}) + (I-1). \text{ Var } (\hat{Ti}). + I(J-1) \text{ Var } (\hat{Sij}) + IJ$$
$$(K-1). \text{ Var } (\hat{Eijk}); \text{ where}$$

I is the number of treatment groups, J is the number of schools in each treatment group and K is the number of teachers in each school; Var stands for "variance" and the character $"\wedge"$ implies that the value of a theoretical term has been estimated from the data. Reflection on this fact in turn leads to a very simple result which is of importance. For example, if occurrences which arose due to the treatment factor were influential enough to cause large differences in the attitude gains of teachers, then those parts of the gain scores that relate to the treatment

term (T) should be found to be very different. Thus, an unbiased estimate of the variance or dispersion of the Ji should be found to be much larger than it would be if the treatment factor were not important. When an appropriate standard can be found against which this estimated amount of dispersion or variance can be compared, a decision may be made as to whether or not this amount is great enough to be attributable just to chance fluctuations alone. Therefore, an assessment can be made as to whether or not the values of the treatment term are sufficiently different to be considered statistically significant.

The standard against which the comparisons will be made can be obtained in the following manner. Work which follows the pattern suggested by Scheffe (1959, pp. 282-8) leads to the following analysis of variance table, which is closely related to the method of analysis utilized for Hypothesis II.

Table 3-C

Analysis of Variance Table for Hypothesis II

Source	Sums of Squares	d.f.	Expected Mean Squares
Treatments (J)	$JK \sum_i \frac{1}{i} Y_i^2 - IJKy_{...}^2$	1	$JK \sigma_J^2 + \sigma_E^2$
Schools in Treatment (S)	$K \sum_i \sum_j Y_{ij.}^2 - JK \sum_i Y_{i..}^2$	2	$K \sigma_S^2 + \sigma_E^2$
Residual (E)	$\sum_i \sum_j \sum_k Y_{ijk}^2 - K \sum_i \sum_j Y_{ij.}^2$	18	σ_E^2
Corrected Total	$\sum_{ijk} Y_{ijk}^2 - IJKY_{...}^2$	21	

In Table 3-C the dots indicate an averaging of gain scores over the corresponding subscripts which is done prior to the squaring operations. Thus, for example, Yij implies that an averaging was done over the subscript K; so

$$Yij. = \frac{\sum_K Yijk}{K} \text{ and } Y^2_{ij.} = \left(\frac{\sum_M Yijk}{K}\right)^2. \text{ and}$$

IJK are as defined before.

From this table it can be found, for example, that

$$Var \begin{pmatrix} \hat{T}i \end{pmatrix} = \frac{JK\sum_i Yi^2_{\cdot\cdot} - IJKY^2}{} \text{ and}$$

$$Var \begin{pmatrix} \hat{E}_{ijk} \end{pmatrix} = \frac{\sum_{ijk} Yijk^2 - K\sum_{ij}Yij^2}{18}.$$

It is also found that $Var(\hat{E}ijk)$ estimates σ_E^2, the theoretical "error" or residual variance; but $Var(\hat{T}_i)$ estimates $JK\sigma_T^2 + \sigma_E^2$, J.K. times the theoretical variance attributable to the treatment term plus the theoretical "error" variance. An appropriate standard for comparison is suggested by these facts. If the treatments are very different in their effects, then σ_T^2 will be large. Thus, $JK\sigma_T^2 + \sigma_E^2$ will be much larger than σ_E^2 alone. Consequently, the ratio of $Var(\hat{T}_i)$ to $Var(\hat{E}ijk)$ should be greater than one. Furthermore, since these variance estimates are independent, it can be shown mathematically and with certain assumptions that the tables of the F distribution permit a judgement on the statistical significance of this term (Hoel, 1962, pp. 303-4). Similar statements can be made about the term that corresponds to "school in treatment."

In the actual analysis of Hypothesis II, recognition must be made of the unequal numbers of observations in the cells of the design.

These disproportionate cell numbers cause the estimates of the portions of the total variance in attitude gain scores, which are accounted for by most terms in the model, not to be independent of each other. As a consequence, only the "first" F-test in reality can be unbiased; and all the others are affected to varying degrees by the outcome of that first test (Bock Chapter 5, 1972, p. 100). Noting also that K may be equal to either 5 or 6 makes it apparent that the analysis framework presented in Table 3-C is, strictly speaking, not of direct use in the analysis of the data collected for Hypothesis II. Table 3-C is of use, however, in describing the basic logic and rationale which holds, even for this case of an analysis of a design having disproportionate cell numbers. A complete and succinct discussion of the exact "nonorthogonal" analysis of variance used for the examination of Hypothesis II involves topics that are discussed only in terms of advanced mathematics (Bock, Chapter 5, pp. 97-108; Scheffe, 1959, pp. 112-116). Consequently, they have been omitted here.

The "exact" nonorthogonal analysis of variance and the corresponding F tests will be reported in Chapter V, because the numbers of observations in the cells are not "too" unequal in a relative sense. Strictly speaking, however, the F-test on the "schools in treatment" term is the only unbiased one found in the table since it was tested "first." In the discussion following the table the result is given concerning an unbiased F-test on the "treatment" term which was accomplished by testing it "first."

Hypotheses III and IV

III. If instruction is individualized, pupil work-study behavior in
these classrooms will be at a higher level of independence than the
independence of those pupils who are not in classes where instruction is
individualized.

IV. If instruction is individualized, attituues towards school and
instruction will be more positive than for those pupils who have a non-
individualized type of instruction.

The examination of each of these hypotheses was conducted in a
similar way. In all cases, mean scores for classes on the Student
Independent Work Habits Inventory and the Minnesota Student Attitude
Inventory were used because the variable of major interest, "type of
instruction," was defined at the level of the class. In the terminology
of Campbell and Stanley (1963, p. 23) the appropriate units for analysis
are the classes.

At the time the study terminated ten teachers (the original six and
four others) out of twenty-two were judged to be teaching in very
individualized ways. As six of these ten teachers were individualizing
the instruction at the onset of the study, the use of gain scores or the
analysis of covariance was ruled out. If these measures or adjustments
had been employed the gains in the class average scores on the tests
might be expected to be very low for the first six teachers. Thus,
average post-test scores for the classes were used in the examinations
of the hypotheses. The analyses basically compared the average outcomes
for ten "individualized" classes versus twelve "non-individualized"

classes.

The structure of the experiences thought to be of possible importance in explaining the post test data led to the statistical design. "Type of instruction" and "school" are thought to be of possible importance for the following reasons. It appears that "school" could be a useful factor in explaining the data because each school drew students from different types of neighborhoods. The variable or factor of "type of instruction" also is deemed important since it is the variable of major interest here. However, by the time the post-test data were collected it is thought that the "treatment" factor (individualized instruction experimental and control group in-service programs)could explain an amount of variation in the mean class post-test scores. The possible importance of this third factor can be imagined when it is remembered that materials were utilized and teacher aides were assigned to all four schools during the time of the study. For the control schools, these events can be thought of as having an impact on the ways in which student behaviors and attitudes were shaped. It should be expected that although there would be some differences in each school, by-and-large the manner in which the materials were implemented would be similar among the schools. On the other hand, because the experimental in-service training discussed ways in which these resources could be optimally used, it is expected that these teachers used the resources in ways which were similar among themselves but different from those teachers in the control group. These differences in implementation would probably have an impact on students.

This rationale leads to the specification of the design presented in Figure 3-5. At the time of the post-testing, ten teachers were

judged to be individualizing their instruction, and the analyses used this latest classification. The number of groups classified in the various ways is written in each cell. As in the design presented in Hypothesis II, schools as said to be nested within treatments; "type of instruction" remains as crossed.

Figure 3-5

Statistical Design for Analysis of

Hypotheses III and IV

		Inservice Experimental School		Training Control School	
		I	II	III	IV
Individualized		4	3	1	2
Type					
Non-Individualized		1	3	4	4

The model equation chosen for the purposes of analyzing the data that followed this design is as follows:

$Yijkl = M + Ti + Sij + jk + (Tj) ik + (Sj) ijk + Eijkl$

Here, $Yijkl$ stands for the average post-test score for the lth class which was observed in the jth school of the ith treatment group and was of the Kth type of instruction. As before, M and $Eijk$ represent respectively, those parts of the average post-test scores which are common to all classes and specific to each. The symbols Sij and T_i stand for the parts of the post test scores determined by effects occurring in schools and

treatments, respectively. The letter j represents the part of the scores affected by the type of instruction. The (T_j) and (S_j) terms represent possible "interactions" between effects of the treatment groups and types of instruction, and between the types of instruction in the two schools within each treatment group, respectively.

Since the numbers of observations in each cell are in a relative sense very different, it was decided to use the "approximate" analysis of variance procedure. Thus, averages of the class scores were taken for each cell and were examined through the procedure. The results on the exact tests of the term of major interest, "type of instruction", were listed in the discussions that followed the tables. Since data were available concerning both types of instruction in all schools, data on twenty-two classes were examined in the analyses. The analysis of variance table which was used for the approximate analyses is found in Appendix J.

Hypothesis V

If instruction is individualized, student achievement in Reading and Arithmetic will not be significantly less for those pupils than for pupils whose instruction has not been individualized.

The examination of Hypothesis V calls for an investigation of the post-test data on both reading and arithmetic scores. As the hypothesis considers these outcomes in a joint manner, the chosen method for analysis tested these variables in a simultaneous way. As before, average scores for classes on both post-test scores were calculated, and the analysis dealt only with this form of the data. Individual student scores were not used because, otherwise, a serious violation of the

independence of residual terms would have occurred.

The confirmation of Hypothesis V requires, in effect, either a demonstration that the null hypothesis of no difference in means should be accepted, or if it is rejected, a demonstration that the means for the individualized types of instruction are greater than for the non-individualized types. Appropriate p levels for examining these possible results were set at $p > .10$ for acceptance of the null hypothesis and $p < .05$ for rejection.

The design chosen for the examination of Hypothesis V is identical to that presented for the analysis of Hypotheses III and IV. The model equation, therefore, is analogous to that listed in the previous discussion. Multivariate analysis of variance, however, was the analytic method chosen for the analysis. A discussion of this procedure is not listed here, but it is identical in logic and rationale to the regular analysis of variance methods mentioned in an earlier section.

Since the cell sizes are very dissimilar, an "exact" nonorthogonal multivariate analysis was used. Only the results of the "exact" unbiased test on the "type of instruction" term are reported. This was done in an attempt to keep the interpretation of the results clear and unconfused.

Summary

The individualized in-service program on individualization with the Teacher Learning Activity Packet as the unifying instrument was developed as a result of utilizing the ideas and suggestions of experts in the field of Individualized Instruction.

The two experimental schools were selected because they represented

the extremes in many factors within the school district. All the middle-grade pupils and their teachers were included in the study.

The control schools were chosen because they more nearly matched the experimental schools in many factors. All of their middle-grade teachers and pupils were originally included in the study. One class and their teacher in each control school was eliminated in the final assessment because there had been change in the teacher between the onset and conclusion of the study.

The Minnesota Teacher Attitude Inventory was utilized to collect data on teacher attitude. Principal Observation Form One and Principal Observation Form Two (with ongoing principal observation) were utilized to collect data on the individualization of instruction in the classrooms.

The Minnesota Student Attitude Inventory, the Independent Student Work Habits Inventory, the Metropolitan Reading Achievement Test and the Metropolitan Arithmetic Achievement Test were utilized to collect data on pupil attitudes and behavior.

The likelihood ratio test for equality proportions, and fixed effects analyses of variance were used to analyze the data. These statistical models were selected because they were effective statistical tools and were appropriate to the research design. The hypotheses have been tested and the analysis of the results will be reported in Chapter V.

CHAPTER IV

TEACHER REACTIONS

Introduction

The eleven treatment teachers kept a personal journal of their experiences, reactions, successes, failures, and feelings during the course of the experimental study. Each experimental teacher was asked to utilize, "Individualized Instruction: A Learning Activity Packet for Elementary Teachers," (Appendix A). The reactions of each of the eleven teachers were analyzed as recorded during the period they received in-depth exposure to techniques for individualizing instruction.through work-shops, visitation, consultants, materials, and weekly group discussion sessions.

Teacher A

An Analysis of the Learning Activity Packet indicates that the teacher was more flexible than rigid in the pre-test. She was engaging in the type of classroom behavior conducive to movement towards increased individualization of instruction. She attempted many of the classroom activities which individualize instruction as many of these activities were described in her journal.

She expressed positive thinking towards the Independent Science Packets she developed in which students moved at individual rates. Faster students helped less able students. No grades were assigned although the work was corrected. This activity gave every pupil an opportunity to experience success. A negative aspect of this activity was that a few

students were not always eager to help other students indicating a more competitive spirit than a cooperative one. Some students were unable to handle relative freedom and utilized this opportunity to play rather than to work. Attitude changes seemed to take place along with the new teaching methods, on the part of the students as well as the teacher.

The teacher stated that the in-service experience assisting her most in giving her a sense of freedom to feel comfortable in using the different techniques occurred during two morning seminars conducted by a university professor in the District Office. Exposure to Flanders Interaction Analysis,

> . . .gave me insight into myself and how I could change my attitude. I realized I wanted to become more like the indirect teacher we discussed. At the same meeting, the interchange between teachers freed me from feeling obligated to complete a prescribed curriculum. I was immediately able, upon returning to the classroom to individualize all reading. This was a great feeling.

The impression received from the journal is that of a teacher who felt the experience in the special project to be very positive.

Teacher B

The teacher's Learning Activity Packet was returned later than requested. Her journal was submitted promptly which gives some of her reactions to the special project.

She utilized an individualized mathematics system which she found difficult for pupils to adapt to in the beginning. She was impressed with the pupil's progress once adjustment to the system took place. "I feel the program is more beneficial to the slow learners than the fast learners," she stated.

Pupils that found it difficult to keep up with the rest of the class in a teacher-directed Math lesson tend to do much better while working independently. They seem to be more relaxed and confident in themselves after a while and for this reason their quality and speed of work improved considerably.

This teacher reported that she took many suggestions from the students and put them into use. They especially enjoyed working on different activities. Many students rushed through as many activities as they could do -- competing with their friends. As she tried new ideas and techniques, she found some to be unsuccessful in a classroom of more than thirty pupils, however, some were adaptable to her situation.

The impression received from the Learning Activity Packet and journal is that of a teacher who had a mildly positive experience in the special project.

Teacher C

It was obvious that the Journal and Learning Activity Packet had been completed and returned to comply with the request. The impression received from these materials is one of weak enthusiasm and a veiled negative attitude towards the entire project.

The pre-test in the Learning Activity Packet indicated a number of traditional and rigid attitudes.

It was stated that committee work and independent study were two successful activities. "Student tutoring wasn't as successful as I had anticipated because many times the students weren't really prepared to tutor other students," is a statement made by the teacher which gives some insight into her lack of knowledge about handling this technique. She stated that there were at least six of the individualizing techniques with which she felt comfortable. The following quotation from the journal

indicated something about her knowledge. The word "surprising" is the key.

> Another approach to individualization was that of group activities. The children were allowed to decide upon a mutual topic of interest, form a group, gather material and information, and present this to the class as a group project. It was surprising how some of the children who before had shown little interest, came up with such creative ideas (discussions, posters, drawings, etc.)

Teacher D

It was obvious that the Journal had been kept on an ongoing basis. The Learning Activity Packet was returned with exciting samples of individualized materials created and utilized by the teacher.

The pre-test in the Learning Activity Packet revealed some traditional attitudes but a very large proportion of flexible thinking. This teacher became sufficiently interested in the subject to attend a college workshop which lasted several weeks during the special study. "Since taking the Workshop on Individualization, I have discussed objectives with my class," says the teacher.

Students were given lists of activities which they could pursue with a partner or alone. The teacher reported, "the end results were rewarding," as some chose additional projects which were not on a suggested list but appropriate alternatives. These were differentiated in difficulty for the "more able" and the "less able." The activities required a broad involvement and the utilization of multiple approaches.

Mini-courses were utilized successfully in this classroom. Approximately 75% completed a firs and began a second which, in the opinion of the teacher, "increased interest in learning on their own." Independent Study Contract Forms were used with some students.

The teacher served as co-leader for an in-service program on individualized instruction for the remainder of the school faculty. The overall impression of the teacher's commitment and involvement was at a highly positive level.

Teacher E

This teacher voluntarily attended workshops on individualized instruction at a college. She gives credit to these sessions of having an impact on her thinking about children and instruction. It is seen from the journal and the Learning Activity Packet that this teacher became deeply and successfully involved in the special project at a highly positive level.

Many new techniques were implemented by the teacher who exhibited flexibility in her pre-test and made great progress in implementing individualized instructional techniques. She served as co-leader of in-service sessions for other staff in her school.

To indicate her insight, she said, "I am not always successful in having all the children assume responsibility for their own learning. One reason may be that this is a new experience and it will take a little more time for them to adapt to this approach."

Other conclusions which indicate teacher growth and commitment may be indicated by the following quotes:

"I now write behavioral objective with great ease."

(student tutors) ". . . benefit as much as the ones they tutor."

I am more adept at writing learning packets."

"I enjoy the interaction of workshops and derive benefit from
the experience."

"The child's exposure and benefit that he derives from an
interest center outweighs any possible loss of material."

Many more similar quotes support the teacher's statement.

I would like to add that my participation in this project
and the exposure to the philosophy of individualized
instruction has heightened my awareness of the child's
need for a good self-image and the importance of pacing
his instruction. The attendance at the Institute, plus the
excellent material from the District Office fortified me and
gave me direction and insight into how to proceed. I am sure
that next year will be "smooth sailing."

Teacher F

The responses of this teacher in the pre-test of the Learning

Activity Packet indicated some tendency toward more traditional thinking.

The overall impression received from the journal and the Learning Activity

Packet was positive as there were many successful efforts to individualize

instruction and an evaluation that "it improved the classroom atmosphere."

Some of her opinions were included in a summary statement, and are

partially quoted here.

The Individualized Program, after it was established to some
degree certainly has many advantages. The class as a whole
exhibited more mature concern for the contract on which they
were working. Students who were never too responsible became
involved in developing projects. All of the machines and
manipulative devices have been utilized by every student. They
feel free to study with their help at any time. Committees as
well as small groupings have been conducted and worked together,
most independently of the teacher. Some of the projects seemed
more successful than others -- that was a personal opinion -- but
on the whole it worked well. More time must be spent to really
implement this program.

Teacher G

This teacher maintained a detailed, ongoing descriptive journal

which indicated teacher progress in utilizing individualized instructional

techniques. Samples of class work were included with the journal. The

general impression of the involvement of the teacher in individualizing instruction was very positive. Two areas of concern were expressed.

> I tried the volunteer pool with the IMS program.
> It was just not successful because the volunteers
> were not reliable. The children complained about
> no grades and were not satisfied with an O.K. Many
> said their parents wanted to see a grade on their
> paper.

It was evident that the teacher was attempting many individualizing techniques and questioning the reasons for lack of total success. Her perception appeared insightful and her progress was apparent.

Teacher H

This teacher kept an ongoing journal filled with illustrations of individualized activities and of progress. Her assessment early in the project was, "It's starting to work, but I must keep on my feet every minute going from one group to another."

Another comment was made which indicated the strong need for para-professional help. She stated, "I find that you have more chance for individual work when you divide them into small groups, but we have no help in the classroom which makes it hard to divide them into small groups." There was also a complaint that under this program, "there isn't enough space in the classroom."

One of her most positive statements was that, "children are able to manage things successfully in class." Samples of student projects confirmed this conclusion. The other summaries of individualized instructional activity indicated a strong effort to implement with a very positive attitude. "The children did more work because they had a choice," also indicates an open approach. She felt that the teachers involved in

the special project had gained a great deal from their weekly meetings, visits, workshops, sharing, and exchanging of ideas.

"I am very much interested in the program and I am going to do more reading and may be take a course on Individualized Instruction this summer," concluded this teacher. "Parents have come up to me and told me their children have really had a good year and have really grown," is another positive conclusion.

> I feel I have grown from the experiences of my children. I will continue individualizing in the fall with even greater success, I hope. We needed help. I feel so pressured with no help and so much paper work.

Teacher I

The journal of this teacher was a detailed and comprehensive account of her implementation of individualized approaches. Many fine materials were created with samples provided. Many type of individualized instructional techniques were very successful with rewarding feelings by the teacher and pupils. The teacher's objectives were clear and well constructed and known by the pupils. Students learned to think through and construct their individual and small group objectives. Individual contracts in Language Arts was one of the most successful activities.

The evaluation of this teacher listed some of her problems, concerns and observations. She found checking students' work a problem as she had difficulty finding the time. "Evaluation requires time and student self-evaluation is not sufficient in all areas." Establishing acceptance of responsibility on the part of pupils was difficult to achieve. Carelessness with equipment was widespread. Some students floundered with less structure. Pupils wanted grades in a spirit of competition. Class

absenteeism posed some problems. Volunteers were not consistent in attendance to give classroom help. Some parents questioned the covering of prescribed curriculum in the Social Studies area.

> I'm uncomfortable with no grades because the students are uncomfortable. They seem to want grades. They seem to enjoy competition, and lose interest in activities when they work at tasks which aren't evaluated by someone other than themselves. Not yet -- the joy of learning for it's own sake.

The pre-test of this teacher in the Learning Activity Packet suggested some traditional attitudes. Great effort was made to implement many types of individualized instructional activities with success as demonstrated by work created in ner class and submitted for review. Her reactions appeared to be more positive than negative.

Teacher J

The Journal and Learning Activity Packet were permeated with negative strands. The pre-test in the Learning Activity Packet indicated rigidity, inflexibility and extremely traditional attitudes although some great effort was made to appear innovative on the surface.

> General interest of class fallen off -- terribly passive. No enthusiasm or interest in anything -- not even art projects.

Many of the teacher's reactions made the question arise as to whether the projection of the teacher's attitude did not heavily bias her comments and her relationship with the students. She felt that slower children had low motivation and needed much help. To initiate individualized instruction was "hard going" yet the claim was put forth that most of these types of activities had been ongoing in the classroom before the special project began. Two valid needs were identified; need for good diagnostic tools and a need for paraprofessional help.

This teacher seems to favor brighter children as a negative attitude towards slower children filters through. "Evidence of structure needed by students," was stated by the teacher to imply that individualizing instruction meant that there was no structure in this concept. The conclusions from the journal gives insight into the less positive attitudes of this teacher. Why were the objectives not made clear to the students?

> There is better learning when there is more structure in instruction and less permissiveness. Most students are not inwardly developed enough to take on responsibility for their work without a great deal of help and supervision. Too much experimentation that appears as purposeless to students, can deaden the classroom atmosphere. Para-professionals would have made a difference. (The school) has no volunteer help at all and with our particular school population we are more and more in need of "extra hands" if individualization is to become a reality.

Some of the teacher's comments have validity, especially in terms of the need for adult assistance, however, many of the comments seem to indicate a lack of understanding or acceptance of the philosophy of individualizing instruction.

Teacher K

The teacher's journal and Learning Activity Packet indicate a highly traditional, inflexible, rigid or unknowledgeable set of attitudes. Some comments which support this statement are:

"Chapter by chapter coverage"

"Chapter was well covered"

"The students on the lower level try to 'use' the brighter students"

(Science) "We read and discussed a chapter. Afterwards, I gave a test."

"Reading -- not much individualizing in the textbook ..."

"At the beginning of this project the results were not
as well (good) as I expected. However, as time passed,
I began to see more improvement."

"I feel that individualized instruction has helped most
of my students but I will admit that I did have to keep
a structured basis as well at some times."

This teacher views her role as an enforcer of coverage. She sees
learning as work, expressed a lack of comfort in working with other
teachers, likes pupils at the same place in texts, views classroom
visitors as an intrusion, and listed questions as a most frequently used
classroom tool. It would appear that the philosophy of individualized
instruction failed to penetrate the teacher's armor.

"Giving students options -- I don't feel I really
accomplished anything as a teacher."

Summary and Conclusions

An overall assessment of the reactions of the treatment teachers
towards individualizing instruction was seen as positive in varying
degrees. Some negative comments have a valid basis, particularly in
terms of a crucial need for paraprofessional assistance. Teacher aides
were planned for this project but their assignment was delayed until the
latter part of the experiment. Some of the concerns of teachers related
to facilities. The size of classrooms posed problems if independent
activities and projects were to be completed in space where a learning
center and audio-visual stations existed as well as small group work.
Some teachers viewed class size and number of students served as a
problem. Other concerns expressed related to the high cost of systems
packages and the additional record keeping. Colleagues who reject new
concepts were also mentioned as a deterrent to innovative practices.

An evaluation of the experimental teacher's reactions would have to state that all made a genuine effort to implement individualized instructional techniques. Their degree of success depended upon many variables including experience, attitude, frustration level, commitment, and personal involvement among others. Personal observation would support the written accounts in the conclusion that some level of individualized instruction occurred in each of the eleven classrooms and more teachers exhibited a positive attitude towards this philosophy than a negative attitude.

A summary of teacher reactions from the journals and Activity Learning Packet may be seen in Table IV-A. Seven of the eleven teachers exhibited a high degree of flexibility as opposed to three who gave evidence of a low level of adaptability. Eight of the eleven manifested a high level of cooperation and three indicated a low level of cooperation. Fifteen was the combined total for the teachers who appeared to have qualities of adaptability and cooperation at a high level. Adaptability was viewed as including creativity, flexibility, persistence and initiative. Cooperation was defined as working together and acting jointly. Seven was the combined total for the experimental teachers who appeared through their own journals to have low levels of cooperation and adaptability.

TABLE IV-A

TEACHER REACTIONS[1]

Qualities	High		Low	
Adaptability Flexible, creative persistent, initiative	A D E F G H I	7	B C J K	4
Cooperation Working together Acting jointly	A B D E F G H I	8	C J K	3

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[1]Experimental Teachers. Taken from Teacher Journals and Teacher Learning Activity Packet.

CHAPTER V

RESULTS OF THE STUDY

Data were collected and analyzed according to the procedures outlined in Chapter III. The results of the study will be presented with the hypotheses as they are restated.

Hypothesis I

If an individualized in-service program for teachers which concentrates on the individualization of instruction is given, more teachers involved in the in-service program will be able to individualize their instruction than teachers who participate in the regular in-service program.

The initial assessment and final assessment of the initial status and the final status of teachers relative to the individualization of instruction were obtained through principal observation. These results can be seen in Table 5-A

TABLE 5-A

Relative Frequencies of Teachers Who Were Judged

to be Teaching in an Individualized Way

GROUP	Initial Assessment	Test of Differences in Proportions	Final Assessment	Test of Differences in Proportions
Experimental	4/11		7/11	
Control	2/11		3/11	
		$X^2_1 = .934,$		$X^2_1 = 5.002,$
		$.50 > p > .25$		$p < .05$

The test on the equality of proportions at the time of initial

assessment showed that they were not statistically significantly

different ($X_1^2 = .934$, $.50 > p > .25$).

The test on equality of proportions at the time of final assessment

showed that they were statistically significantly different ($X_1^2 = 5.002$,

p $.05$).

Since there were no statistically significant differences at the

beginning of the study, but statistically significant ones by the end of

the study (and in favor of the Experimental Group; that is 7/11 versus

3/11) then 14 must be concluded that the experimental in-service program

was more effective than the control in-service program in leading more

teachers to teach in an individualized way.

Each school develops a local in-service program with the teachers.

These sessions take place twice a month on Wednesdays for forty minutes

and five afternoons per year for two hours each. These programs are

developed by the teachers and principals based upon the identified needs

within the local school. The experimental in-service program on

individualized instruction was in addition to the regular program of in-

service in the experimental schools.

The initial assessment by the principals indicated that some teachers

were already teaching in an individualized manner at the onset of the

study. All teachers did not change at the same time and it is not known

exactly when teachers changed or began to change their mode of instruction.

Hypotheses I was accepted as there was a significant difference

between the experimental teachers and the control teachers. It would

appear that an effective in-service program was developed to aid teachers

in individualizing their instruction. The finding of significance required the use of the likelihood ratio test based on the X^2 distribution.

The initial assessment POF, (Appendix E) required the principal to state the level of individualizing in each teacher's classroom. The final assessment form required an evaluation of the amount of change which had been observed in the classrooms.

The observations of the District Superintendent gave support to the observations of the principals. Classroom visits substantiated the assessment of the principals as to the teacher's levels of individualized instruction. This was a second level of administrative evaluation to increase the reliability of the observation of the principles.

The teacher's journals and Learning Activity Packets gave additional evidence of the types of classroom activities and interactions taking place with pupils to support the individualized instructional concepts. There was much evidence of independent study, contracts, mini-courses, tutoring, varied size groupings, varied classroom arrangements, increase in variety of materials, and other types of operations which would tend to support the principal's evaluation.

Hypothesis II

If an individualized in-service program for teachers which concentrates on the individualization of instruction is given, a greater positive change in teacher attitude toward pupils will be effected in teachers involved in the experimental in-service training than in teachers who participate in the regular in-service program.

The pre-test and post-test data collected in the administration of

the Minnesota Teacher Attitude Inventory were utilized to test Hypothesis II. The eleven experimental group teachers and eleven control group teachers were administered this instrument at the onset and at the termination of the study. These results have been analyzed and are presented here with interpretation.

TABLE 5-B

Analysis of Variance Table for the
Test of Hypothesis II

Source	Sum of Squares	d.f.	Mean Squares	F Value	P Level
Treatment	2684.00	1	2684.00	5.166	.036
School in Treatment	217.32	2	108.66	.209	.813
Error	9352.13	18	519.56		
Corrected Totals	96422.62	21			

The test on "school in treatment" shows that this is probably not an important factor. This means that in terms of attitude gain, particular events that occurred in the individual schools (in schools I and II in the treatment group, and in schools III and IV in the control group) and which were specific to these schools were not of great importance in influencing teacher attitude gains.

The statistical test on the experimental teachers shows that this is a statistically important factor (F=5.166, p .05). Since the mean attitude gain for teachers in the experimental group was 8.545 and that for control group teachers was - 13.545, it is seen that this hypothesis

has been confirmed statistically and may be furthermore of practical significance.

Hypothesis II was accepted. This means that individualized in-service training had an effect on the attitude of the teachers in treatment. The in-service program apparently achieved what it hoped to achieve.

It is not known for certain the reason for the negative gain of the control group teachers. Possible explanations may relate to the end of the year time of the evaluation when many extra duties face teachers. Pupils begin to become restless as vacation time nears and record keeping is at its highest level. The enthusiasm of the experimental teachers however remained high regardless of the time of the post-test.

Hypothesis III

If instruction is individualized, pupil work-study behavior in these classrooms will be at a higher level of independence than the independence of those pupils who are not in classes where instruction is individualized.

All pupils were administered on a pre-test, post-test basis the Independent Student Work Habits Inventory. These results or findings were used to test Hypothesis III. The interpretation of these data follows.

TABLE 5-C

"Approximate" Analysis of Variance Table
For Test of Hypothesis III

Source	Sums of Squares	d.f.	Mean Squares	F Value	P Value
In-service Treatment	3.6122	1	2.6122	1.5688	p>.10
Scnool in Treatment	1.4368	2	.7184	.3120	p>.10
Type of Instruction	10.0651	1	10.0651	4.3713	.10>p>.05
Treatment X Type	6.0847	1	6.0847	2.6426	p>.10
Type X School in Treatment	.8448	2	.4224	.1834	p>.10
Residual	32.2350	14	2.3025		

Due to the fact that the results were somewhat inconclusive concerning the factor of principal interest in this hypothesis (.10 > p > .05), an exact test on the type of instruction variable was made since it is more precise. The exact test on "Type of Instruction" gave an F value of 4.3715 for a p level of .0553 on 1 and 14 d.f. These results were .0053 away from the significant level.

The results of this exact test still shows that p is greater than .05 and less than .10 but closer to the .05 level than to the .10. Since the exact F test is close to the region of rejection and since it is based on only 22 observations, its power to consequently accept the null hypothesis of no differences in mean Student Independent Work Habits Inventory scores attributable to the type of instruction given must be considered to be very low. However, since the independent work habits of

the pupils in the two groups were not statistically significantly different, Hypothesis III was rejected.

All factors and terms except individualization are shown with a good degree of conclusiveness (all had p levels of $>$.10), but they were not of statistical significance in supporting the contentions that causal factors subsumed by them were important in affecting the independent work habits of the students.

The mean scores of the students in the individualized instruction classrooms on the Student Independent Work Habits Inventory may be compared with those of pupils in classrooms that were non-individualized. The mean score of the pupils in individualized classrooms was 9.12962 as compared with the mean score of the non-individualized group which was 6.43749. This indicated that pupils in the individualized classrooms had mean scores 2.69213 greater than pupils in classrooms where the instruction was not individualized. Further research incorporating larger numbers of classes might well show that higher levels of independent work habits among students will be caused by individualizing the instruction.

Hypothesis IV

If instruction is individualized, pupil attitudes towards school and instruction will be more positive than for those pupils who have a non-individualized type of instruction.

All pupils in the experimental and control classrooms were administered the Minnesota Student Attitude Inventory on a pre-test and post-test basis. The results of these data findings were utilized to test Hypothesis IV.

TABLE 5-D

"Approximate" Analysis of Variance Table
for Test of Hypothesis IV

Source	Sum of Squares	d.f.	Mean Squares	F Value	P Value
In-Service Treatment	11.3721	1	11.3721	.0377	$p > .10$
School in Treatment	981.0152	2	490.5076	1.6298	$p > .10$
Type of Instruction	682.8982	1	682.8982	2.2691	$p > .10$
Treatment X Type	21.1288	1	21.1288	.0720	$p > .10$
Type X School in Treatment	185.6386	2	92.8193	.3097	$p > .10$
Residual	4213.3196	14	300.9514		
Corrected Total	6095.3725	21			

An analysis of these data indicates that no term of interest was found to be statistically significant. The exact test on "Type of Instruction" gave an F of 2.2691 for a p level of .1543 on 1 and 14 df which was not significant at the .05 level, therefore Hypothesis IV was rejected.

The results on the Minnesota Student Attitude Inventory which was utilized on a pre-test, post-test basis did not yield significant results. Individualized instruction may not be a factor that affects student attitudes as operating through the teacher's attitude and behavior. There may not have been sufficient time in this study to show results in this area. Perhaps there are other factors that may exert more influence on

student attitudes; such as peers, family, community, or pupil person-
ality.

Hypothesis V

If instruction is individualized, student achievement in Reading
and Arithmetic will be not significantly less for those pupils than for
pupils whose instruction has not been individualized.

The Metropolitan Reading Achievement Test and the Metropolitan
Arithmetic Achievement Test were administered on a pre-test, post-test
basis to all pupils in the classrooms of experimental and control
teachers. All tests were scored and class mean scores were calculated
for each group.

The post-test mean gain scores of the pupils in the classes where
instruction was individualized were compared with post-test mean gain
scores of pupils who had not been exposed to individualized instruction.
This examination was made for reading and arithmetic, using average gain
scores for classes on both sets of post-test data.

The results of this analysis utilizing the F-Ratio for multivariate
test of equality of mean vectors equaled .1917 with p=.8279. There was
no significant difference in the achievement of the two groups and the
null hypothesis was here assumed to be confirmed. Individualized
instruction had no positive effect on the achievement of pupils, but it
also had no negative effect.

One factor in the test scores that may merit mention is that the
ceiling score on the tests was achieved by a significant number of pupils
on pre-tests and post-tests and this may represent weakness in the
instrument or in the selection of the instrument. These results were

eliminated from the data as it was not possible to determine the amount of pupil gain.

SUMMARY

The analysis of the data may be summarized as follows:

1. Hypothesis I was accepted.

    A significant number of teachers were able to individualize their instruction as a result of the experimental in-service program.

2. Hypothesis II was accepted.

    There was a significant change in teacher attitude towards children as a result of the experimental in-service program.

3. Hypothesis III was rejected.

    Although the pupils in the experimental classes evidenced a higher post-test mean score on independent work habits than pupils in the control classes the difference was not statistically significant.

4. Hypothesis IV was rejected.

    There was no significant difference in the pupils in the experimental and control groups on attitudes. It would seem that the attitude change in the experimental teachers did not produce a change in pupil attitude.

5. Hypothesis V was accepted.

    Individualizing instruction did not affect the reading and arithmetic achievement of the pupils in the experimental classes.

    The results of the study have more positive aspects than negative. Many of the teachers were able to individualize instruction and to experience a change in attitude as a result of an effective in-service program. The effects on the children were not as clear-cut and need

further study. It would also be an observation that not all changes in pupils over a short period of time may be determined through the use of formal instruments. Teachers indicated in their journals that there were observable changes in pupil attitude and behavior. A larger period for study would be needed to obtain more objective information in this area.

CHAPTER VI

SUMMARY AND CONCLUSIONS

SUMMARY

Review of the literature and research confirmed the need for effective in-service training for teachers. Observation of classroom instruction reinforced the desire to see the individual differences of children given greater consideration. The present study evolved because individualized instruction is seen as a desirable goal along with providing better in-service training for teachers.

This study was designed to implement individualized instruction in classrooms through an in-service program for teachers that was individualized. Through training received in workshops, meetings, visitation, observation, institutes, demonstrations, and materials teachers were able to individualize their instruction. Evidence of this was seen in the Journals, The Learning Activity Packets, and through observation. The teachers presented material evidence of individualized instruction in the creative work of their pupils.

For the teachers who actively engaged in the individualization of their instruction there was a positive change in their attitude toward children. This was a hoped-for result as it is believed the teacher's attitude and behavior are crucial in the classroom. Both teachers and pupils benefited from this change in varying degrees.

Although the tested attitudes and behavior of the pupils did not show striking results through the instruments utilized, the teachers through their journals indicated changes in pupils had been observed.

111

Perhaps the four months were too short a time for the changes produced
in teachers to have a resultant measurable effect on their students. A
longer period for study would be needed to pursue this further.

The results of the study were positive enough to make an extended
effort to implement individualized instruction for students through in-
servicing their teachers in an individualized way. Efforts will be made
to continue to improve in-service programs for teachers and to move
further into individualized instruction in classrooms still operating under
very traditional modes. It is certainly not viewed as an answer to all
instructional problems but would begin with that basic entity -- the
individual child and his needs.

It would appear that these are challenging times for those inter-
ested in helping teachers improve classroom instruction and more needs to
be done in this area if significant progress is to be made. In-service
training is basic. Teachers must be stimulated to seek opportunities to
find alternative instructional procedures. Glaser (1972, pp. 5-12) thinks
there is no reason an educational environment cannot be designed to
accommodate varieties in background, cognitive processes, interests,
styles, and other requirements of learners. This may be held applicable
for teachers as well as students.

There is a need to design in-service programs which will retrain
experienced teachers in the skills they have already used in group-
centered classrooms. This study has attempted to develop such an in-
service program and to measure its effectiveness. The in-service training
of teachers needs new approaches and herein lies a fertile thrust for
administrators, Morphet (1967, p. 170) says, "No school in America has
really moved forward significantly without dynamic innovative leadership

provided by a competent and dynamic principal." Teachers should be active participants in analyzing the problems and deciding on strategies for improvement for ultimately only through self-analysis and self-evaluation will any impact be made upon instruction.

Many factors are involved in the process of classroom instruction, but the teacher is a critical element. One of the overall objectives must be related to attitudes which affect the behavior of teachers which, in turn, may affect the attitude and behavior of pupils. Successful change in a school requires a great deal of interaction among members of the staff, as shown in this study.

LIMITATIONS

This study had certain limitations and some of these are listed below:

1. The schools were selected in a non-random fashion. The selection of pupils in the experimental and control schools was all-inclusive, however. Random selection would have presented other types of limitations in expediting the study.

2. The teachers and schools were not perfectly matched in the experimental and control groups, but were matched as far as possible within the available choices.

3. Many teacher characteristics were not taken into consideration. Personality characteristics (other than attitude towards children), age, and family background were not factors or variables in this study, nor was any effort made to control them.

4. A good measure of the degree of individualization was not found.

Such a measure would be difficult to find. The measure utilized was principal observation. The District Superintendent verified this observation through personal visitation to classrooms.

If additional variables had been considered other results might have been obtained. It was not seen as possible within the time limits established for this study.

IMPLICATIONS

The researcher has a goal of improving the learning of pupils through the individualization of instruction. It is hoped that success-ful elements of the study may be replicated in the in-service training of other teachers in the same schools and in other schools being super-vised. The Learning Activity Packet has already been shared with a large number of teachers and administrators interested in individualized instruction.

It is believed that individualized instruction must begin in the education of teachers already in the classrooms and teachers-to-be so as to serve as a model for their instructional practices. This study utilized individualized techniques with some success in support of this belief.

The results of this study are promising enough to recommend that similar studies might be conducted to test the effects on students of individualized instructional techniques in teacher in-service programs. Longer time studies and follow-up studies may be necessary to determine lasting change in teachers' and students' attitudes and behavior.

Potential implications of the results of this research are important for further individualization of instruction in the area under the

researcher's supervision. The most effective, feasible, and inexpensive arrangement needs to be discovered to help provide for the in-service training of teachers. A step has been made in this direction.

RECOMMENDATIONS

As a result of this study, the following recommendations are offered:

1. There should be additional research in the area of teacher in-service training as related to individualized instruction. The results of this study offer enough promise to make this pursuit appear worthwhile.

2. Additional information should be sought about the changes in the attitude and behavior of teachers and students when involved in individualized instruction. Follow-up-information or data should be gathered.

3. The feasibility of developing local in-service mini-courses that might be packaged and shared between schools should be explored.

4. Micro-teaching experiences should be provided for experienced teachers so that they might engage in self-analysis with a goal toward self-improvement.

5. More research needs to be done to measure the effectiveness of teacher in-service programs.

6. Video tape equipment should be purchased on the school or district level for staff development purposes.

7. Each school should be encouraged and supported in efforts to develop a library learning center as well as the development of

interest centers in classrooms.

8. Rapid movement should be made away from the graded concept at
the elementary level and toward mastery learning.

CONCLUSIONS

It is the right of every child to acquire an education within the
public school system in his own way and at his own rate of learning.
This means adapting the school to the individual by harnessing all the
techniques of modern education, communication, and technology to assist
the individual towards self-development and self-fulfillment. There is
no standard child, only individuals.

It is difficult for teachers to make curriculum and instructional
changes which differ significantly from the norms in their schools,
especially without peer, administrative, and parental support. Teachers
who have the courage to experiment with new modes of teaching need to be
flexible. The most innovative style of teaching is one in which the
teacher is willing to share some of the control of his class with the
students. This does not seem to be an easy step for some teachers to
take.

Planning and effecting needed changes in individual schools is
difficult. A climate must be established that will be fertile for change.
There must be time for planning, for staff interaction, for thinking, for
dreaming. Patience is needed as well as a recognition of individual
teacher differences. Not all teachers can change immediately and one must
be willing to accept teacher growth at an individual pace. Goals can be
established after the administrator and teachers know in which direction
they desire to go. The administrator can ultimately only organize the

framework in which individualized instruction takes place. Most class-
rooms are still teacher dominated, therefore the administrator must
help teachers discover and develop potential in pupils for self-direction
and self-fulfillment.

The goals of the administrator should be:

1. To have each student educated to the fullest extent of his
   talents and abilities.

2. To provide differentiated instruction wherever possible.

3. To help teachers give increased attention to individual learners.

4. To provide more effective in-service training for teachers and
   thereby improve instruction.

5. To effect change with the ultimate goal of providing educational
   experience for children more consonant with current learning
   theory.

6. To keep informed about current theories and modern practices.

7. To help make school a happier place for children and youth as
   they learn.

It is a great challenge to replace obsolete concepts and procedures
and to help teachers implement innovation. Administrators should accept
this challenge.

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118

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119

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APPENDICES

APPENDIX A

INDIVIDUALIZED INSTRUCTION:

A LEARNING ACTIVITY PACKET FOR ELEMENTARY TEACHERS

INDIVIDUALIZED INSTRUCTION

A LEARNING ACTIVITY PACKET FOR ELEMENTARY TEACHERS

I. RATIONALE

In order to provide the best education possible for all children, some of the instruction should be individualized. This activity packet will help the teacher to analyze his/her attitudes towards the instructional process. At the end of this activity the teacher should be able to individualize some/more of his/her instruction.

II. PRETEST

Work through the following exercises: Check the statements most in accord with your thinking. Answers are provided at the end of this section.

1. What is the role of the teacher?

    a. _____ Fountain of Knowledge
    b. _____ Consultant
    c. _____ Resource Person
    d. _____ Director of Learning
    e. _____ Pacer of Learning
    f. _____ Manager of Learning Resources
    g. _____ Enforcer of Coverage
    h. _____ Assistant in Student's Self-evaluation

2. In a well managed classroom

    a. _____ Furniture should be flexible
    b. _____ Quiet indicates a good learning climate
    c. _____ Freedom of movement is acceptable
    d. _____ Learning is fun
    e. _____ Learning should be work
    f. _____ Talking is not permitted
    g. _____ Furniture should be fixed
    h. _____ The teacher provides the discipline
    i. _____ All pupils do the same work
    j. _____ Activity cannot occur in the corridor

3. If you were restricted to __one__ type of instructional tool,

    which would you choose?

    a. _____ Games, toys, puzzles
    b. _____ Wide variety of leaflets
    c. _____ Good textbooks
    d. _____ Materials for independent
    e. _____ Programmed materials
    f. _____ Teacher made learning packets
    g. _____ Tapes and media materials

4. Check the items you think describe the best ways to help

    the children learn.

    a. _____ Children learn from each other
    b. _____ Child corrects own papers and errors
    c. _____ Teacher corrects papers and errors
    d. _____ Teacher establishes time for completion
                 of assignment
    e. _____ Work in small groups
    f. _____ Has practice in decision making
    g. _____ Teacher provides drill
    h. _____ Teacher instructs the group
    i. _____ Teacher plans the learning activities
    j. _____ Children help plan the learning activities

5. How would you feel about teaching in a team?

    a. _____ I would not be comfortable
    b. _____ I would like this approach
    c. _____ It would be wasteful of time
    d. _____ I would rather teach my own class
    e. _____ I would not like to have other teachers
                 observe me teaching
    f. _____ I can take criticism
    g. _____ I would feel competent in any teaching
                 situation
    h. _____ I would lose my confidence
    i. _____ I prefer my own classroom
    j. _____ I like trying new ideas
    k. _____ This would be more work
    l. _____ Pupils might benefit from this approach

6. Which of these are found in your classroom?

    a. _____ Pupils work individually most of the time
    b. _____ Pupils work in groups part of the time
    c. _____ Pupils have choices or options in activities
    d. _____ Differentiated homework
    e. _____ Independent Study

f. _____ Pupil planning
g. _____ Interest centers
h. _____ Flexibility in seating
i. _____ My standards
j. _____ Self-pacing by students
k. _____ Potential dropouts
l. _____ Pupils at same place in texts
m. _____ Activities with no grades
n. _____ Pupils know the objectives
o. _____ Pupil self-evaluation
p. _____ Time for one-to-one help
q. _____ Area rug
r. _____ Pupil tutoring pupils

7. Check the items which you think characterizes your classroom

climate most of the time.

a. _____ Exciting
b. _____ Controlled
c. _____ Creative
d. _____ Fun
e. _____ Formal
f. _____ Informal
g. _____ Inviting
h. _____ Fearful
i. _____ Pressure
j. _____ Quiet
k. _____ Happy
l. _____ Positive
m. _____ Sharing
n. _____ Active participation
o. _____ High interest level
p. _____ Permissive
q. _____ Frustration
r. _____ Joyful
s. _____ Structured
t. _____ Stimulating
u. _____ Mutual respect

8. How do you feel about daily visitors and volunteers in your

classroom?

a. _____ Comfortable
b. _____ An intrusion
c. _____ Welcome them
d. _____ Uncomfortable
e. _____ Interruptive
f. _____ Neutral
g. _____ Would not permit
h. _____ Hostile

i. _____ Happy

9. Check the statements which most closely approximate

the way you feel.

a. _____ I like a quiet classroom
b. _____ I like to feel in control of my classroom
c. _____ The principal equates quiet with good teaching
d. _____ I feel that I am a good teacher
e. _____ I see no reason to change my teaching style
f. _____ I engage in self-evaluation
g. _____ The principal thinks I am a good teacher
h. _____ Pupils need praise and reinforcement
i. _____ I do not believe in coddling students
j. _____ Most new ideas are useless
k. _____ Pupils do not know what is good for them

10. List the two types of teaching behavior used most frequently

in your classroom.

a. _____ Lecture
b. _____ Direction
c. _____ Questions
d. _____ Evaluation
e. _____ Discussion
f. _____ Interaction

11. Check the statements which describe your classroom.

a. _____ The furniture is fixed
b. _____ Seats are in straight rows
c. _____ Shades are at even level
d. _____ Materials are neatly put away
e. _____ All pupils have the same textbooks
f. _____ Pupils are working on the same assignment
g. _____ Pupils are quiet except when reciting
h. _____ Teacher's desk is at the front of the room
i. _____ No space for activity centers
j. _____ You take pride in your discipline
k. _____ The teacher checks and grades all papers
l. _____ Pupils raise their hands to speak
m. _____ The teacher knows all the answers
n. _____ Humor and laughter wait for recess
o. _____ Pupils are punished for talking
p. _____ The teacher decides on all assignments
q. _____ Homework is always assigned by the teacher
r. _____ Pupils are eager to leave when the bell
         rings
s. _____ Little time for audio-visuals

If you checked half of these items, it is suggested that you think about your instructional methods and study the Objectives in Section III and the Activities in Section IV.

Answers to the Pre-Test

The following answers suggest more traditional attitudes which in themselves are not necessarily undesirable. Go back and look at all of the other items critically to see if they could possibly be acceptable to you.

1. a, d, e, g
2. b, e, f, g, h, i, j
3. c
4. c, d, g, h, i
5. a, c, d, e, h, i, k
6. a, i, k, l
7. b, e, h, i, j, r, t
8. b, d, e, f, g, h
9. a, c, e, i, j, k
10. a, b, c, d
11. Half or more checked

DEFINITIONS

INDIVIDUALIZED INSTRUCTION

Instruction that recognizes individual differences and provides a creative approach to the teaching-learning process. Individualization takes place when the child (1) assumes some responsibility for his own learning in order to become an independent learner, (2) learns at a pace comfortable for him, (3) learns through materials related to his own perceptual strength, (4) learns in accord with his own learning style, (5) is evaluated in terms of his own achievement, (6) feels a sense of achievement, and (7) selects options from among alternatives.

TEAM TEACHING

Two or more teachers assume the responsibility (by working together) for all or a significant part of the instruction of the same group of pupils. They plan, prepare, and evaluate cooperatively

utilizing the strengths of each teacher.

ACTIVITY PACKET

Learning tool with basic parts; rationale, objectives, pre-test, activities, and post-tests.

TRADITIONAL

Methods associated with past practices as opposed to innovative methods. All pupils are taught the same thing at the same time.

BEHAVIORAL OBJECTIVES

Objectives stating the behavior of the student in the achievement of the objective.

III. OBJECTIVES

A. Instructional

1. The teacher analyzes his/her attitude towards pupils and learning.

2. The teacher engages in selected activities related to the individualization of instruction.

B. Terminal

The teacher modifies his/her behavior to the degree that he/she can move from the more traditional approach of teaching to individualizing some/more of his/her instruction.

IV. ACTIVITIES

Select at least one new (for you) individualizing technique from this list and attempt to implement it to some degree in your classroom as a first step. You may use your own individualizing ideas if you have others. Move to other activities as you feel able to do so comfortably.

A. SOME WAYS TO INDIVIDUALIZE INSTRUCTION:

1. Independent study - Youngsters can choose to work on activities or projects of particular interest to them.

2. Committee work - A class can be organized so that more than one activity can be carried out at one time.

3. Giving students options - Students are given choice in selecting assignments, methods or areas of study that are particularly suitable or a-pealing to them.

4. Use of more than one text - Using a variety of texts allows differing viewpoints to be presented and often points out that there is more than one answer to a particular issue. This also promotes critical thinking skills.

5. Student tutoring - Students of differing ages or the same age, work together and help each other.

6. Volunteer talent pool - Use of parent or college volunteers to work with individuals or small groups for tutoring or for special interest studies.

7. Paraprofessional help - Non-professionals helping in a classroom allows more adult personnel to work with youngsters in a variety of ways.

8. Team teaching - Cooperative efforts on the part of two or more teachers can be used to serve a variety of student needs.

9. Use of multi-media - Students use media such as tapes, film loops, records, in addition to books and magazines. This facilitates gathering of information even for those with reading problems. It also motivates and develops research skills.

10. Learning Center - A learning center, whether it's one room in an entire building or part of a regular classroom, can be an area of interesting and varied materials for students to examine.

11. Grouping of youngsters for various activities - All subject areas, academic and non-academic, can be approached by grouping of youngsters (not necessarily according to ability). Youngsters can have a chance to work with a variety of students who share some kind of common interest or attitude.

12. No grades - Getting away from the use of traditional grades allows youngsters to focus on their own progress. They do not have to compete with other students.

B. ATTEMPT AS MANY OF THESE ACTIVITIES AS YOU ARE ABLE:

Write behavioral objectives in the subject where individualization is attempted.

Develop activity learning packets.

Visit schools using individualized instructional techniques.

Visit non-graded classroom.

Discuss ideas and concepts with fellow teachers.

Attend workshops.

Ask the principal to invite consultants to the school.

Read about experiments in individualized instruction in books and periodicals.

Ask to have program developers visit your school and describe their program.

Try different seating arrangements.

Develop interest centers in the classroom with pupil help.

Have pupils join you in collecting materials.

Differentiate the assignments by difficulty.

Use students to tutor other students.

Collect all the media materials you can.

Share and exchange successful techniques with colleagues.

Attend in-service meetings away from the school on the subject of individualization.

View films on individualizing instruction.

Ask for intervisitation between classrooms and schools.

Vary homework assignments.

Permit independent study for pupils who can handle this.

Permit pupil choice based on interest for projects.

Involve pupils in planning the activities of the classroom.

Have students assist in the management of classroom procedures.

Utilize college student and parent volunteers as much as possible.

Encourage and permit pupils to work in small groups.

Observe the different learning styles of pupils.

Have students check their work and the work of each other.

See that _every_ child experiences some success in much of his/her work.

Insist that pupils accept responsibility for his/her work.

Work with colleagues who are close friends or who work at your teaching level to develop and experiment with one new approach to instruction or individualization.

Keep a brief journal or log of your individualizing activities.

V. SELF-TESTS

List the activities from Section IV which you, as the teacher, have implemented in your classroom which were successful to any degree. Describe briefly what you saw good in them and the reasons they succeeded.

List the activities which you tried to implement but were not successful. Analyze and suggest reasons for the lack of success, if you can.

List the activities from Section IV with which you now feel comfortable. State the reasons, if you can.

List the activities from Section IV with which you feel uncomfortable. State the reasons, if you can.

VI. POST-TEST

A. The teacher engages in self-evaluation.

B. The teacher may invite the principal to visit the classroom to observe and evaluate with the teacher any of the following:

1. Seating arrangement
2. Climate
3. Pupil behaviors
4. Materials (amount and usage)
5. Interest centers
6. Learning process
7. Pupil activity with pupil
8. Pupil attitude
9. Teacher interaction with pupils
10. Other adult involvement

C. The principal may ask the teacher to assess her success in any of these areas.

D. The teacher will talk with pupils, parents, and other teachers of the same pupils to obtain their reaction, especially noting any change in regard to attitude towards learning or school.

E. The principal will talk with pupils, parents, and other teachers of the same pupils to obtain their reaction, especially noting any change in regard to attitude towards learning or school.

SELF-EVALUATION GUIDE

1. Rigidly planned programs   or   flexibility in program

2. An autocratic classroom atmosphere   or   a democratic classroom atmosphere

3. Convergent thinking   or   divergent-convergent thinking processes

4. Mass instruction   or   individualized instruction

5. Thinking of conformity   or   thinking of individuality and ways to develop it

6. Planning on the verbal, symbolic level   or   planning more direct manipulative-discovery experiences

7. Seeing creativity as creative arts   or   seeing creativity as a quality to be developed in all areas of curriculum

8. Seeing the creative child as a nuisance   or   seeing the creative child as a precious asset

9. Evaluating children's work as final   or   seeing children's work as a step in the process of growth

10. Emphasizing competition   or   emphasizing cooperation

11. Making plans yourself   or   involving children in planning

12. Teaching in isolated class periods   or   integrating curriculum: unit teaching

13. Stereotyped conformity   or   free expression and willingness to try new ideas

14. Imposed direction   or   cooperative planning

15. Teacher Domination   or   responsible self-direction by pupils

16. Fixed ways of thinking   or   more flexible response to teaching situations

VII. QUEST

The teacher demonstrates evidence of some of the following:

Enrolled in workshops

Enrolled in university classes

Reading widely

Preparing instructional materials at home

Has happy and stimulated pupils

Expresses satisfaction with a job more effectively done

Seeks to influence other teachers to change

Volunteers to serve as a team leader for a new program

APPENDIX B

SCHOOL   DATA

SCHOOL DATA

1973-74 SCHOOL YEAR

School	Total Pupil Enroll-ment	Total Teach-ing Staff	Experi-mental or Control	Pupils Whose First Lang. is not English	% of At-tend. of Pupils for the Year	Pupils by Grades 4 5 6	Total Pupils
I	535	25.5	E	1 / .1%	90.03	61 54 62	(177)
II	740	29.5	E	107 / 14.5	88.11	74 58 64	(196) Total Experimental-373
III	682	30.0	C	8 / 1.2	91.14	33 74 73	180
IV	800	32.5	C	120 / 14.7	91.06	94 84 36	214 Total Control - 394

APPENDIX C

MINNESOTA STUDENT ATTITUDE INVENTORY

MINNESOTA STUDENT ATTITUDE INVENTORY

This is not a test because there are no wrong answers. The answer to each question is A MATTER OF OPINION, and your true opinion, whatever it if, IS THE RIGHT ANSWER. You will be asked a lot of questions about how much you like this class, the teacher, and the work you are doing here. All the questions refer to THIS ONE CLASS AND THIS PARTICULAR TEACHER. By giving frank, true answers to show exactly how you feel, you can help us understand the opinions of students.

DIRECTIONS: 1. Please do not write your name on this questionnaire.
                2. Do not skip any questions--answer each one carefully.
                3. Circle the answer you choose for each statement.

HERE IS AN EXAMPLE

I think this homework is very hard.

    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNCERTAIN   A--AGREE
    SA--STRONGLY AGREE

You have five alternatives to choose from. You might STRONGLY DISAGREE with the statement. If so, you would circle the statement as follows:

    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNCERTAIN   A--AGREE
    SA--STRONGLY AGREE

If you felt UNCERTAIN about the statement, you would circle as follows:

    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNCERTAIN A--AGREE
    SA--STRONGLY AGREE

Or, for example, you might AGREE with the statement, but not STRONGLY. If so, you would circle as follows:

    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNCERTAIN A--AGREE
    SA--STRONGLY AGREE

1. This teacher asks our opinion in planning work to be done.

    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

2. This teacher keeps order with a fair hand.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

3. I get along well with this teacher.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

4. I find it easy to talk to this teacher.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

5. This teacher never asks trick questions to show how dumb we are.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

6. Most of us get pretty bored in this class.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

7. This teacher never slaps us or handles us roughly.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

8. No one dares talk back to this teacher.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

9. This teacher is one of the best I have ever had.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

10. I just don't trust this teacher.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

11. It is easy to fool this teacher.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

12. This teacher makes sure we understand our work.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

13. This teacher often sends boys and girls out of the room as
    punishment.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
    SA--STRONGLY AGREE

14. This teacher really understands boys and girls my age.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

15. Our teacher is very good at explaining things clearly.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

16. Frankly, we don't pay attention to this teacher.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

17. This teacher has lost the respect of the class.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

18. Sometimes things "get out of control" in this class.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

19. This teacher certainly knows what he (she) is doing.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

20. This teacher often "bawls you out" in front of the class.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

21. This teacher makes it fun to study things.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

22. This teacher has some special favorites or "teacher's pets."
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

23. Our teacher never gives us extra assignments as punishment.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

24. This teacher wants to check our work to make sure we are on the right
track.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

25. I really like this class.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

26. Sometimes I think this teacher is deaf.
SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
SA--STRONGLY AGREE

27. This teacher helps us get the most out of each hour.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

28. This teacher is cool and calm.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

29. In this class we fool around a lot in spite of the teacher.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

30. When I'm in trouble I can count on this teacher to help.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

31. This teacher becomes confused easily.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

32. This teacher will punish the whole class when he (she) can't find out
    who did something bad.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

33. This Teacher thinks clearly.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

34. Some of the students are smarter than this teacher.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

35. This teacher lets us discuss things in class.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

36. It is fun to see how much we can whisper before we get caught.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

37. This teacher makes everything seem interesting and important.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

38. I wish I could get even with this teacher.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

39. This teacher knows a lot.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

40. This teacher is quick to see a new point.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

41. This teacher is too busy.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

42. This teacher never gets angry and shouts at us.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

43. We often complain just to get out of work.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

44. If I could get away with it, I'd sure like to tell this teacher off!
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

45. This class is noisy and fools around a lot.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

46. This is the best teacher I have ever had.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

47. You can't walk around in this class without permission.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

48. It seems that somebody is always getting punished in this class.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

49. I wish I could have this teacher next year.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

50. This teacher has lots of fun with us.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

51. Sometimes just thinking about this class makes me sick.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

52. This teacher makes very careful plans for each day's work.
    SD--STRONGLY DISAGREE D--DISAGREE U--UNDECIDED A--AGREE
                          SA--STRONGLY AGREE

53. This teacher helps students when they have problems with their work.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

54. Frankly, we just don't obey the teacher in this class.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

55. This teacher always takes time to find out your side of a difficulty.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

56. This teacher never pushes us or shakes us in anger.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

57. This teacher punishes me for things I don't do.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

58. This teacher likes to hear students' ideas.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

59. We behave well in this class even when the teacher is out of the room.
    SD--STRONGLY DISAGREE   D--DISAGREE   U--UNDECIDED   A--AGREE
                            SA--STRONGLY AGREE

APPENDIX D

STUDENT INDEPENDENT WORK HABITS INVENTORY

Room_____   School_____

Circle the answer that tells what you do in each of these cases:

What do you do when you:

1. Want books or other materials to work with? | The teacher passes them out. | I go to the shelves and get them.

2. Want to know what to do next and the teacher is busy? | I take out a Contract and decide which activity to work on. | I wait until the teacher isn't busy and ask him (her).

3. Want to know what you will be doing in the afternoon? | I ask the teacher. | I plan my work for the afternoon.

4. Are finished with a book or material? | I wait until the teacher calls for it to be passed in. | I return it to the shelf.

5. Come into the room in the morning, at noon, or after recess? | I start working. | I sit down and wait until the teacher starts class.

6. Need help on your work? | I find someone to help me. | I raise my hand or wait for the teacher.

7. See that materials are left out? | I leave them until the teacher says to put them away. | I put them away.

8. Need to discuss a question with others? | I ask several other students to have a discussion with me. | I ask the teacher if we can discuss the question.

9. See that someone else needs help? | I offer to help him. | I wait to see if the teacher will help him.

10. Want to use the audio-tape recorder? | I ask the teacher if I can use it. | I use it.

11. Want to write a story about something that happened to you? | I ask the teacher if I can. | I write it.

12. Work with another student? | I ask the teacher if I can. | I ask the other student if he will work with me.

13. Want to work on a social studies project? | I wait until social studies period. | I work on it.

14. Think you are ready to take the test on math problems you have studied? | I take the test. | I take the test when the teacher passes it out.

15. Would rather see a film-strip which is in the class-room than to read about the topic? | I look at the film-strip. | I ask the teacher if I can look at it.

16. Don't know when you are sup-posed to have a task finished? | I ask the teacher. | I decide when I want to finish it.

17. Where to sit when you study? | I sit in my desk or ask the teacher if I can move. | I sit in the area where the materials are or where I want to sit.

18. If you need to continue working on a lesson? | I check to see if I've learned enough to achieve the objective. | I ask the teacher.

19. If you're ready to take a test? | I ask the teacher. | I review the activities to see if I can achieve the objectives.

20. What objectives to work on the first thing in the morning? | I ask the teacher. | I look to see what I need the most work on.

21. If you can make a project that occurs to you when you are reading? | I look for the materials I need to start it. | I ask the teacher if I can.

APPENDIX E

PRINCIPAL INFORMATION AND REPORT FORMS

PRINCIPAL OBSERVATION REPORT

Please supply the following for my special project.
This is confidential information

School _____

Please circle your answers.

Teacher _____

Principal _____

Individualized Instruction	-	Much Little None
Status	-	Assigned F.T.B.
Efficiency Evaluation	-	Superior Excellent Satisfactory Unsatisfactory
Teaching Style	-	Rigid Traditional Progressive Highly Progressive
Age	-	20-30 30-40 40-50 50-60
Relationships With Pupils	-	Disliked by No strong feelings Well liked by many pupils by pupils most pupils

Nina F. Jones
District Superintendent

January, 1974

156

March 5, 1974

Principal, -------- School

Dear ---------:

RE: Special Project Teachers

Please answer the following questions and return this sheet to me.

1. Have you observed evidence of any increased Individualized Instruction in classrooms of the special project teachers?

2. Which teacher appears to have made the most successful effort?

3. Were you aware in-service discussion materials were being sent to each teacher weekly by the District Office?

4. Are you having problems supporting the philosophy of Individualized Instruction?

5. What additional support and assistance do you see the District Office giving at this time?

6. Are the special project teachers meeting once each week for interaction experience sharing and discussion? What day?

7. What do you see as the greatest problem the special project teachers are having?

8. Is the chairman of the group exercising a leadership role in the weekly in-service meeting sessions?

Thank you,

Nina F. Jones
District Superintendent

NFJ:cr

May 31, 1974

PRINCIPAL OBSERVATION REPORT

Teacher _____   School _____

Circle your assessment of the teacher and her pupils since January.

1. Observable positive teacher attitude towards children.

   NO CHANGE   LITTLE CHANGE   MODERATE CHANGE   MUCH CHANGE

2. Observable positive pupil attitude towards this teacher.

   NO CHANGE   LITTLE CHANGE   MODERATE CHANGE   MUCH CHANGE

3. Observable positive change in teacher behavior.

   NO CHANGE   LITTLE CHANGE   MODERATE CHANGE   MUCH CHANGE

4. Observable positive change in her pupil's behavior.

   NO CHANGE   LITTLE CHANGE   MODERATE CHANGE   MUCH CHANGE

5. Physical arrangement of environment of the classroom.

   NO CHANGE   LITTLE CHANGE   MODERATE CHANGE   MUCH CHANGE

6. Current level of individualized instruction.

   NO CHANGE   LITTLE CHANGE   MODERATE CHANGE   MUCH CHANGE

7. Independent activities of pupils.

   NO CHANGE   LITTLE CHANGE   MODERATE CHANGE   MUCH CHANGE

8. Independent initiative on the part of the teacher towards the desired
   goals of individualized instruction.

   NO CHANGE   LITTLE CHANGE   MODERATE CHANGE   MUCH CHANGE

9. Classroom climate (atmosphere, rapport, interaction, mutual respect,
   etc.).

   NO CHANGE   LITTLE CHANGE   MODERATE CHANGE   MUCH CHANGE

10. Additional Comments:

APPENDIX F

SAMPLES OF LETTERS SENT TO TEACHER PARTICIPANTS

January 24, 1974

Dear   ,

Thank you for your willingness to participate in the individualization project. Your efforts are sincerely appreciated. I plan to visit you occasionally and to meet with the group from time to time to discuss progress and problems. I have also asked Mr. ----- to assist in this area.

May I review for you expected activities related to the experimental teachers.

1. Utilize the Activity Learning Packet in any way you decide it can assist.

2. Meet weekly in a group to discuss problems and successes. Additional meetings may be needed.

3. Indicate additional resources needed for which an effort will be made to obtain.

4. As new materials that may be helpful are obtained, these will be shared with you.

5. Maintain your individual journal with <u>brief</u> entries related to problems, ideas, successes, thinking, conclusions, etc.

6. Try not to feel frustration or failure without sharing it with one of the group or with me. It helps to share these feelings.

You have been asked to perform a very difficult assignment, but I have confidence in your success. I shall be thinking of you and supporting your effort every step of the way.

Sincerely,

Nina F. Jones
District Superintendent

NFJ:cr

January 31, 1974

Mrs. --------
-------- School, Room ---
Chicago, Illinois

Dear Mrs. -------:

        It was a pleasure for me to see you on Wednesday
and to be able to thank you personally for your effort
in the special project. I am most appreciative of
your assistance.

                        Sincerely,

                        Nina F. Jones
                        District Superintendent

NFJ:cr

May 22, 1974

Dear ------ :

Your participation in the Special Project has been sincerely appreciated. The results of my study will be shared with you. As your final contribution, may I please ask that you send the following items in the enclosed envelope:

1. The journal that you were asked to keep. If you wish it can be returned to you next fall.

2. Your completed Individualized Instruction Learning Activity Packet. Any and all comments will be appreciated. Identify these with your name and room number, please.

The teacher aide assigned to the Special Project will assist you during the remainder of the school term.

Sincerely,

Nina F. Jones
District Superintendent

NFJ:cr

APPENDIX G

PROJECT TIME SCHEDULE

INDIVIDUALIZED INSTRUCTION PROJECT

Schools I-II   Schools III-IV
Experimental   Control

Time Schedule

November 27, 1973

Meeting with the four principals of the experimental and control schools.

December 4, 5, 6, 10, 1973

Meeting with middle grade teachers and principals in the four schools.

January 2 to 4, 1974

Materials delivered to each school.
Conference with the adjustment teacher in the four schools.
Conference with the principals of the experimental schools.

January 7 to 18, 1974

Student test administration:

1. Attitude Scale administered to all pupils.
2. Independent Work Habits Scale administered to all pupils.
3. Reading and Arithmetic tests administered to all pupils.

    a. Metropolitan Elementary Form B - Grade 4.
    b. Metropolitan Elementary Form B - Grades 5 and 6.

January 16, 1974

Teacher Attitude Scale administered (pre-test).

January to May, 1974.

Experimental Group Project at Schools I and II.
Informal and formal visits by administrators.

May 24, 1974

Teacher Attitude Scale administered (post-test).

May 20 to 31, 1974

Student test administration (same post-tests as pre-tests).

June 3 to 7, 1974

All scales, tests, Activity Packets, journals collected from each school.

APPENDIX H

TEACHER CHARACTERISTICS

CHARACTERISTICS OF TEACHERS IN THE STUDY

	Sex	Age	Certificate Permanent or Temporary	Performance	Training	Years of Experience
School		**EXPERIMENTAL**				
I						
A	F	40-50	T	Excellent	B.E.	3
B	F	20-30	P	Excellent	B.S.	3
C	F	20-30	P	Satisfactory	B.E.	1
D	F	40-50	P	Superior	B.E.	20
E	F	50-60	P	Excellent	M.A. + 36 hrs.	24
II						
F	F	50-60	P	Superior	B.E. + 16 hrs.	16
G	F	20-30	T	Excellent	B.E.	1
H	F	30-40	T	Superior	B.S. + 7 hrs.	1
I	F	50-60	P	Superior	B.A. + 14 hrs.	14
J	F	30-40	P	Superior	M.E. + 15 hrs.	9
K	F	20-30	T	Superior	B.S.	2
		CONTROL				
III						
L	F	50-60	P	Excellent	M.E. + 36 hrs.	30
M	F	20-30	T	Excellent	B.S.	5
N	F	50-60	P	Excellent	M.S. + 36 hrs.	33
O	F	50-60	T	Excellent	B.S.	15
P	F	50-60	P	Excellent	M.E. + 36 hrs.	22

CHARACTERISTICS OF TEACHERS IN THE STUDY

	Sex	Age	Certificate Permanent or Temporary	Performance	Training	Years of Experience
School			CONTROL			
IV						
Q	F	30-40	P	Superior	B.S.	11
R	F	40-50	P	Excellent	B.A. + 30 hrs.	30
S	F	20-30	T	Satisfactory	B.A.	1
T	F	20-30	P	Satisfactory	B.S.	1
U	F	20-30	P	Excellent	B.A.	2
V	F	50-60	P	Excellent	B.A.	30

APPENDIX I

MATERIALS FURNISHED EXPERIMENTAL TEACHERS

Duplicated Materials[1]

1. Categories for the Flanders System of Interaction Analysis
2. Attitudes and Behavior Supportive of Individualized Instruction and Detrimental to Individualized Instruction
3. The Role of the Teacher
4. Individualized Instruction: Its Nature and Effect
5. Individualized Instruction: Its Objectives and Evaluation Procedures
6. Individualized Instruction: Diagnostic and Instructional Procedures
7. Individualized Instruction: Its Materials and Their Use
8. Individualized Instruction: Its Problems and Some Solutions
9. (Learning Centers) Why You Should Have Them in Your Classroom and What You Have to do to Get Them There by Thomas Benson
10. Information on Behavioral Objectives
11. Why Independent Study?
12. Identification of Independent Studies
13. Independent Study Contract
14. Practical Questions Teachers Ask About Individualizing Instruction - And Some of the Answers by Rita Stafford Dunn and Kenneth Dunn
15. Individualized Instruction - Principles of Learning
16. Individualized Instruction - Learning Style Analysis
17. A Diagnostic Test on Learning Styles
18. Individualized Instruction and Different Learning Styles

Books

1. Howes, Virgil M. Individualization of Instruction, A Teaching Strategy.
2. Gibbons, Maurice. Individualizing Instruction, A Descriptive Analysis.
3. National School Public Relations Association. Individualization in Schools.
4. Stahl, Dona K. and Anzalone, Patricia M. Individualized Teaching in Elementary Schools (one for each experimental teacher).
5. Rapport, Virginia. Learning Centers: Children On Their Own.

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[1]Much of this material was furnished by Sr. Mary Stephenette.

APPENDIX J

"APPROXIMATE" ANALYSIS OF VARIANCE TABLE
HYPOTHESES III AND IV

APPENDIX J

"APPROXIMATE" ANALYSIS OF VARIANCE TABLE
HYPOTHESES III AND IV

Source	Sums of Squares	d.f.	Expected Mean Square
Treatment Group	$JKL\sum_i Y^2_i... - IJKLY^2....$	1	$JKL\sigma^2_t + \sigma^2_e$
School in Treatment Group	$KL\sum_i\sum_j Y^2_i... - IJKLY^2....$	2	$KL\sigma^2_j + \sigma^2_e$
Type of Instruction	$IJL\sum_k Y^2..k - IJKLY^2...$	1	$IJL\sigma^2_j + \sigma^2_e$
Treatment X Type Interaction	$JL\sum_{ik} Y^2_i.k. - IJL\sum_k Y^2..k.$ $-JKL\sum_i Y^2_i... + IJKLY^2....$	1	$JL\sigma^2_{ji} + \sigma^2_e$
Type X Schools in Treatment Inter-action	$L\sum_{ijk} Y^2_{ijk}. - JLY^2_i.k$ $-KLY^2_{ij}.. + JKLY^2_i...$	2	$L\sigma^2_{ji} + \sigma^2_e$
Residual^2	14 MS.	14	σ^2_e
Corrected Total		21	

The averages of the class mean scores on either post-test were calculated and an analysis of variance (on a design with equal cell sizes now) was conducted. This approach has been suggested by Scheffe (1959, pp. 360-368). In this setup $I=2$, $J=2$, $K=2$, and $L=1$.

This sum of squares has been estimated by involving Scheffe's formula (1959, p. 363).

APPROVAL SHEET

The dissertation submitted by Nina Flemister Jones has been read and approved by the following Committee:

> Dr. Barney Berlin, Chairman
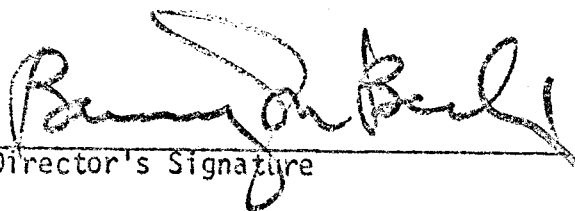> Associate Professor, Curriculum and
> Instruction, Loyola

> Dr. James H. Smith
> Professor Emeritus, Administration and
> Supervision, Loyola

> Sister Mary Stephenette, Ph.D.
> Lecturer, Curriculum and Instruction,
> Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Education.

May 18, 1975
Date

Director's Signature