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#### A STUDY OF PUPIL ACHIEVEMENT

IN

DIFFERENTIATED AND TRADITIONALLY STAFFED ELEMENTARY CLASSROOMS

BY
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Submitted in partial fulfillment
of the requirements for the Doctor of Education Degree
in
The Center for Teaching and Learning
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#### Chapter I

#### INTRODUCTION

#### Purpose of This Study

It is the purpose of this study to determine the differences, if any, in academic achievement of elementary school children in grades four through six when taught under a differentiated staffing pattern as compared to the achievement of similar groups of children in self-contained classrooms.

#### BACKGROUND AND SIGNIFICANCE

Differentiated staffing is an effort to divide the responsibilities of the teacher into different professional and paraprofessional tasks according to specific functions and duties that need to be performed. Assignments of these tasks are based on the unique talents and strengths that are evident within the human resources of the school staff. Some differentiated staffing models include a hierarchy of tasks with responsibilities that are commensurate with a range of pay.

Schools have had some form of differentiated staff for many years, as evidenced by the distinctive roles of classroom teachers when compared with principals or, at the instructional level, between science teachers and mathematics teachers. However, the concept of differentiated staffing includes provisions for career steps for teachers, increased responsibility and authority, improved pay scales and a greater choice of career opportunities.

Historically, teachers have been promoted from classrooms into administration. There is little career incentive for an ambitious new teacher who must wait a number of years and acquire a specific amount of college credits before reaching the top of a salary schedule. Lacking the patience to wait, many teachers leave the field in order to find job satisfactions and higher remuneration in other occupations. English has said, "By recognizing unique competencies in teachers, differentiated staffing permits staff members to do things they do best and incorporates more teacher participation in curriculum development and decision-making."

Teacher organizations such as the National Education Association and the American Federation of Teachers regard differentiated staffing with its variety of functions as a threat to teaching solidarity. Robert Bhaerman<sup>2</sup>, Director of Research for the American Federation of Teachers, said, "...for the time being, we are left with a choice--to pay teachers according to the role they fulfill or to pay teachers according to their academic and experience background... Teaching is not competitive; it is a cooperative and communal effort and so it should remain. Nothing must be injected to create divisiveness."

The National Education Association, composed of many professional divisions, is not agreed upon a position toward differentiated staffing.

The National Commission on Teacher Education and Professional Standards

<sup>&</sup>lt;sup>1</sup>English, Fenwick, "ETTU, Educator, Differentiated Staffing?"

Rationale and Model for Differentiated Staff, TEPS Write-In Papers on Flexible Staffing Patterns, No. 4, August, 1969.

<sup>&</sup>lt;sup>2</sup>Bhaerman, Robert D., INSTRUCTIONAL TECHNOLOGY AND THE TEACHING PROFESSION, QUEST PAPER SERIES, NO. 6, Washington, D. C.: American Federation of Teachers, 1969.

(NCTEPS) has endorsed differentiated staffing. The Association of Classroom Teachers<sup>3</sup> has an attitude toward this staffing pattern that is similar to that of the American Federation of Teachers, asking, "...Can differentiated staffing be accomplished only by establishing a new hierarchy within the school system? Might there not be a horizontal movement or a plan of rotating assignments that could be equally effective?"

Differentiated staffing embodies concepts that are complementary to the accountability movement and competency-based teacher education. Previous to the formation of a differentiated staffing model, a study and analysis of the teaching functions should be made. Functions, after identification, must be assigned to specific roles within the staffing model. Differentiated staffing, describing specific work roles, will provide a basis for teacher performance evaluation. For each teacher role that is identified, there will be specific performance criteria the teacher must meet. The teacher, then, becomes accountable for performance.

English<sup>4</sup> describes the accountability aspect of differentiated staffing, "By tying the senior teacher's role directly to the recipients of the effects of that role and by systematically building into the system procedures whereby roles and role incumbents may be changed, debureaucratization occurs and the dominant one-way communication mode, and with it the traditional superior-subordinate concept, is radically altered... Services become teacher-centered and teacher-designed."

<sup>&</sup>lt;sup>3</sup>National Association of Classroom Teachers, "Classroom Teachers Speak on Differentiated Teaching Assignments." Report of the Classroom Teachers National Study Conference on Differentiated Teaching Assignments for Classroom Teachers, Washington, D. C., The National Education Association, 1969.

<sup>&</sup>lt;sup>4</sup>English, Fenwick, "Making Form Follow Function in Staffing Elementary Schools," The National Elementary Principal, Vol. Ll, No. 4, January, 1972.

The term "differentiated staffing" implies a variety of different ways of deploying personnel. In practice, however, the system described as the Temple City System<sup>5</sup> is the most common. The hierarchy of roles inherent in this plan allows for relatively easy promotion and administration. It is, however, conceivable that more than one differentiated staffing plan might operate in a single building or system.

A differentiated staffing pattern has the potential to allow for a great deal of diversity in the educational program of schools. Thus, if the principle of uniformity is thought of as essentially important, this aspect of diversity might be of little value. Barbee<sup>6</sup> states, "...that a vigorous differentiated staff will develop more self reliance and greater independence, especially when a differentiated staff unit serves as a base of reference and support. As a result, teachers may feel less restricted by institutional pressure and community restraints," and "When differentiated staffing is formed, the administrative staff can expect that direct teacher-administration interaction may be reduced and that the administrator's relationship with groups and group leaders are likely to be increased."

English<sup>7</sup> describes a major objective of differentiated staffing as "a division and extension of the role of the teacher through the creation of a hierarchy with job responsibilities that are commensurate with the

<sup>&</sup>lt;sup>5</sup>English, Fenwick, "A Handbook of the Temple City Differentiated Staffing Project, 1965-70," Temple City, California, Temple City School District, June, 1970.

<sup>&</sup>lt;sup>6</sup>Barbee, Don, "Differentiated Staffing: Expectations and Pitfalls," Papers on Flexible Staffing Pattern #1, Washington, D. C., NEA, NCTEPS, March, 1969.

<sup>&</sup>lt;sup>7</sup>English, Fenwick, "Differentiated Staff: Education's Techno-Structure, "EDUCATIONAL TECHNOLOGY 10:24:27, February, 1970.

range of pay."

Differentiated staffing may have many advantages in terms of teacher compensation, professional status, building utilization and operational costs. However, schools are generally held accountable by the public for pupils' academic achievement and attitude toward learning. This investigation is designed to study how school achievement is affected by differentiated staffing. Information may be obtained which will influence public acceptance of this relatively new way of employing human resources. Since there has been little done in exploring the worth of the practice, a need for evidence exists.

#### LIMITATIONS

This study was conducted under normal classroom conditions. There was no attempt to control or influence extraneous variables present, therefore, generalizations of the findings will be limited to existing learning conditions.

The population sampled included fourth, fifth and sixth grade children having a wide range of intellectual abilities. These subjects were from middle class homes. Other factors which limit the generalizability of the findings are the mobility of the population and the diversified backgrounds of the subjects.

#### SCOPE OF STUDY

This study was designed to explore the following questions:

(1) There is no significant difference in grade equivalent scores as measured by the Iowa Test of Basic Skills between children taught by a differentiated staff and those in a traditional setting.

- (2) There is no significant difference in the frequency of school attendance between the two groups.
- (3) There is no significant difference in the frequency of absence from work between the teaching staffs of the two groups.

The study is divided into six parts or chapters. Chapter I defines the purpose of the inquiry and discusses the background, significance, limitations and scope of the study. The purpose of Chapter II is to critically review literature relevant to the problem and to critically review the present status of research in the area of differentiated staffing. Chapter III presents information on the procedures used in collecting data, the design of the study, the analysis employed and the null hypothesis tested. The findings of this investigation and subsequent development of differentiated staffing in Grand Forks is described in Chapter IV. Chapter V is addressed to the future role of the differentiated staff structure. Chapter VI concludes and summarizes the study and, upon the basis of findings, suggests recommendations for future research.

#### SUMMARY

The purpose of this study is to determine the difference in learning of children instructed by a single classroom teacher and those who have been taught by teachers arranged in a differentiated pattern.

This chapter discussed the background and significance of the study and defined terms that are used throughout the study. Limitations were discussed and the scope of the study was reported.

#### Chapter II

#### REVIEW OF RELATED LITERATURE

This investigation was designed to study the differences in achievement between traditionally staffed classrooms and those manned by a differentiated staff. The purpose of this chapter is to review the development of differentiated staffing practices. There is a prolificacy of writing about differentiated staffing in a broad sense but it is primarily descriptive in nature. An examination of the literature revealed few attempts to analyze the academic effects of differentiated staffing.

#### DEVELOPMENT OF DIFFERENTIATED STAFFING PATTERNS

Differentiated staffing is a systematic way of developing teacher talents and abilities in a manner which would enable more children to be exposed to the best that every staff has to offer. The pattern is so designed that students work with and relate to a number of adults each day, each of whom has a specific role in the instructional experiences of each child. The student may at various times, according to the manner of activity, work in small groups, large groups, or individually, but always near to teacher assistance, if needed.

Such a staffing pattern may be developed through a felt need on the part of teachers and principals to make better use of the varied talents which exist within a school facility, or population conditions within a local school district may make the idea of large group instruction, at least for part of each day, attractive as a space saving device. Financial problems and an accompanying inability to employ certified teachers may

create a condition where employment of teacher aides is attractive to the local school district. The same is true of conditions, mostly uniquely regional, where a shortage of qualified teachers may force a school district to program the educational facility in a manner that will require fewer teachers and more aides.

Kaplan<sup>8</sup> states, that "Differentiated staffing is new to education, yet old to most fields of employment. Differentiated staffing is experimental but can be widely applied from simple team teaching patterns to highly developed functional models involving a hierarchy of staff jobs based on the difficulties to be performed at each level. Differentiated staffing represents a sharp break with the traditions of the past and with traditional staff patterns."

Bhaerman<sup>9</sup> lists specific purposes claimed for differentiated staffing as follows:

- (1) An aid in the recruitment of new teachers.
- (2) A factor in the retention of teachers, i.e., "teaching as a career."
- (3) An effect which, hopefully, would lead to the retaining of teachers and new approaches to their preparation.
- (4) An effect which would lead to the re-definition of the role of the classroom teacher.
- (5) The better use of teacher abilities, talents and interests.
- (6) Greater flexibility in the use of time.

<sup>&</sup>lt;sup>8</sup>Kaplan, Harold, "Differentiated Staffing--The Road Ahead", Croft Educational Service, November, 1972.

<sup>&</sup>lt;sup>9</sup>Bhaerman, Robert D., AFT QUEST REPORT ON DIFFERENTIATED STAFFING, Washington, D. C.: American Federation of Teachers, 1969, 24 p.

- (7) More systematic evaluation of competencies, which then would be related to one's level of responsibility and one's salary.
- (8) Wider variety of career patterns.

Bhaerman also lists limitations of differentiated staffing as shown below:

- Differentiated staffing was created to serve not student achievement, but administrator convenience.
- (2) Differentiated staffing, properly implemented, requires substantial increases in educational funds while present basic needs may remain under-financed.
- (3) Differentiated staffing embodies the philosophy and weakness of merit pay.
- (4) Differentiated staffing provides the legal means for using "unqualified personnel" at reduced salaries in an effort to economize on personnel costs.
- (5) Differentiated staffing does not reward all qualified teachers who seek advancement.
- (6) The right to hold and express opinions which are in opposition to those held by the bureaucracy would be effectively suppressed under differentiated staffing.
- (7) Any educational change that does not involve real teacher participation in the planning is an exercise in futility.

In 1962,  $Macey^{10}$  pioneered an early effort to describe roles within

<sup>10</sup> Macey, "Roles and Organization in a Differentiated Staff," Elementary Principals Service, (Croft Educational Service) May, 1971.

a teaching staff similar to that which is now referred to as differentiated staffing. He designated a hierarchy of roles as:

- (1) Principal;
- (2) Team leader;
- (3) Senior teacher;
- (4) Teacher; and
- (5) Teacher aide.

This effort was more of a team planning endeavor than a true team teaching condition directed toward individualized instruction. Macey identified the role of the principal as one of "administration leadership and public relations." Later models of differentiated staffing placed more responsibility on the team leader. The principal had a lesser role.

Hair<sup>11</sup> describes a differentiated staffing project conducted in Kansas City, Missouri, in 1968 as an effort to give teachers a chance to advance in status and salary and yet remain in education. This program includes eight levels of responsibility: coordinating instructor, senior instructor, instructor, associate instructor, intern, student teacher, paraprofessional and clerk. All four instructor classifications are involved in the instructional process. Their jobs are clearly different.

The coordinating instructor coordinates the activities in a broad segment of the curriculum; supervises the ordering and distribution of instructional materials; teaches demonstration classes on occasion; investigates and initiates curriculum innovations; plans evaluation of his segment of the instructional program; plays a key role in the development and implementation of in-service educational activities.

<sup>11</sup> Hair, Donald, "Differentiated Staffing and Salary Patterns Underway in Kansas City", School and Community, April, 1969, pages 8-14.

The senior instructor serves as a team Teader; is responsible for scheduling both daily and long-range activities; exerts leadership in a subject field or a great level, diagnoses and prescribes for needs of pupils; and supervises training of student teachers.

The instructor participates on the team as a fulltime teacher; is responsible for large-group presentations in his field of specialization; and works with individual pupils and small groups of pupils in enrichment and development activities.

The associate instructor teaches part-time; participates in teaching as assigned by the senior instructor; and participates in the implementation of plans and schedules developed by the team.

The *intern* contributes to the teaching team in his field of instruction; participates in teaching activities as defined by the coordinating instructor; and follows a course of action planned with the college or university with which he is affiliated.

The student teacher observes and participates in teaching activities as prescribed by the senior instructor; follows activities consistent with the purposes of student teaching as agreed upon with the teacher training institution.

The paraprofessional, who is a fulltime or part-time member of the staff, supervises movement of children; takes daily attendance; and prepares instructional materials as directed and operates machines as required.

The Kansas City plan requires no prescribed number of years of experience at one level for advancement to another classification. Teachers are protected by the continuing contract law of Missouri but a senior instructor of a coordinating instruction has no guarantee that he will

occupy that same position next year.

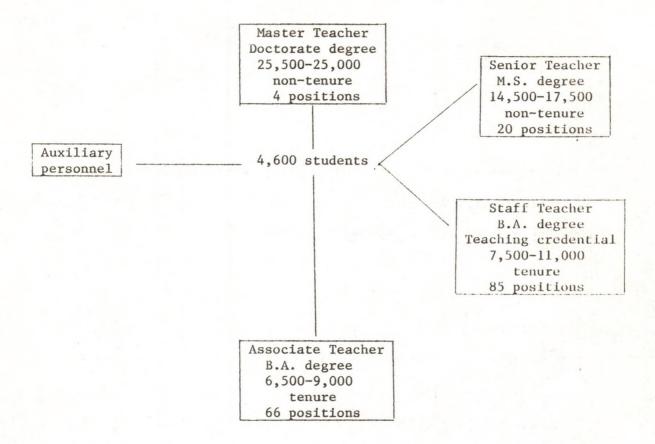
The Temple City Model of Differentiated Staffing (Rand<sup>12</sup>) represents one of the early and most comprehensive efforts to develop total staffing models of differentiation. This project recognized differentiated staffing as an "interested reorganization of the teaching profession" and that it would be necessary to design an in-service training component. "Teacher training had to be re-tooled to produce a new type of teacher product."

The Temple City Model was developed on the concept that teaching lacked career incentives and that members frequently leave as their skills increase because of an inability to advance within the profession. Classroom teaching, in other words, can be and is, in many cases, a terminal position. Traditionally, teachers are promoted only by leaving teaching and accepting administrative positions. This results in an abundance of female teachers in the early school years and a scarcity of effective male teachers.

The Temple City project was funded by the Kettering Foundation under a proposal which gave teachers early and active involvement in staffing policies. The pattern of staffing which evolved has at its core, a four-level teacher hierarchy and auxiliary personnel support system.

The hierarchy of differentiated staffing projected for the school year 1972-73 is illustrated in the following diagram.

<sup>12</sup>Rand, M. John, and English, Fenwick, "Towards a Differentiated Teaching Staff," Phi Delta Kappan 49:264-68; January, 1968.



The associate teacher is a beginner, a first-year teacher with a Bachelor of Arts degree. He has a fulltime teaching responsibility and can be protected by tenure. His teaching load is lighter and less demanding than that of the staff teacher.

The staff teacher is an experienced classroom teacher and is expert in at least one of the several learning modes. He has a Bachelor of Arts degree and a teaching certificate. He is competent in diagnosing basic learning problems. He, too, is protected by tenure.

The senior teacher is a master practitioner in his subject area. His basic job is to apply educational innovation to classrooms. He is actively involved in teaching for about 35 to 50 percent of the time. This individual must have a valid teaching credential, as Master of Science or Master of Arts degree, or equivalent, in professional experience. His position is untenured and of ten to eleven months per year duration.

The master teacher is recognized as an effective classroom teacher and also as an expert of scholarly depth in a particular subject area. He is required to have a valid teaching credential and a doctorate degree. He is assigned the responsibility of a continuous program of research and evaluation. It is necessary for a master teacher to have experience and skill in research design and in the application of such planning to educational practices.

Auxiliary support personnel work with students and teachers in resource centers, learning laboratories and libraries. Duties for each position are different and varied according to the background and skills of the auxiliary personnel or aides  $^{13}$ .

employed solely to provide clerical support to teachers and have no direct responsibility for working with students.

Differentiated staffing received its first formal recognition on a national basis by the Association of Classroom Teachers at the 1964-65 annual Classroom Teachers National Study Conference, when the responsibilities of professional associations relative to staffing patterns were discussed. In 1966-67, the Study Conference considered auxiliary personnel. The year 1968-69 was the beginning of a study of an expanded concept of auxiliary personnel, which included differentiated teaching assignments for classroom teachers.

Edelfelt $^{14}$  said, "Differentiating roles means assigning personnel in terms of training, interest, ability, aptitude, career goals and the

<sup>13&</sup>quot;New Careers in Teaching: Differentiated Staffing," a publication of the Temple City Unified School District, Michael Stover, Editor, 1969.

<sup>14</sup> Edelfelt, Roy A., Executive Secretary, National Commission on Teacher Education and Professional Standards, NEA, "Differentiated Staffing: Supervision," Today's Education, March, 1969, pages 53-62.

difficulty of tasks. Differentiated staffing provides an opportunity for teachers to prepare for increased responsibility and status with accompanying increases in compensation.

"For now, differentiating teaching roles should remain highly experimental. No school faculty can expect an easy transition from an established pattern to one where much is unknown.

"The differentiated staff concept is clearly not another form of merit pay. It equates significance of responsibility, level of training and experience with compensation. Different levels of responsibility for teachers are based on the nature of the teaching tasks and not on added administrative assignments."

Rather than attempt to study the entire spectrum of various staffing patterns, the Association of Classroom Teachers 15 has committed its resources to limited scope because of limited meeting time and the conviction that if teachers wanted to be involved in the future course of education, they must take the initiative in decision making.

English<sup>16</sup>, Director of Projects and of the Differentiated Staffing Plan in Temple City, California, School District, has given a desire to provide a more individualized program as a reason for developing an early pattern of differentiated staffing. English stated that teachers must be separated by different roles and that, while the tendency has been to pretend all teachers are equal, in truth they are not. The Temple City plan attempted to match various combinations and degrees of talent to children's needs. While prototypes of differentiated staffs have existed for some

<sup>&</sup>lt;sup>15</sup>Association of Classroom Teachers, "CLASSROOM TEACHERS SPEAK ON DIFFERENTIATED TEACHING ASSIGNMENTS," NEA, Washington, D. C, 1969, 21p.

<sup>16</sup>English, Fenwick, "Questions and Answers on Differentiated Staffing",
Today's Education 58:53-54, March, 1969.

time, most early models used additional duties as a method of separating teacher roles beyond the staff level. Several staffing models exist which involve a much more sophisticated teacher hierarchy.

One model recently proposed by Bernard McKenna, utilizes a five level learning-task hierarchy and identifies the teacher technologist; the liberal enlightner; the identifier of talents; the developer of talents; and the facilitator of attitude and interpersonal behavior development.

Allan<sup>17</sup> proposed a model in which the staff was divided into four levels of responsibility, as well as one in which separate schools would be organized vertically around a subject or a discipline. Students would transfer from one school to another during the school day for various types of in-depth learning experiences. Teaching responsibilities would be delineated for each discipline within the school.

Differentiated staffing or any educational innovation requires clear-cut measurable objectives that can be used for judging the success of reorganization. Teachers should be involved in decision-making and, according to Beaubier<sup>18</sup>, schools must have more autonomy in decision-making. He suggests that buildings be constructed so that every six or eight classrooms be clustered around a core room, called a learning center. This room contains teaching and learning materials. Each school has a primary (K-3, middle (3-5) and upper (5-8) learning center. The Fountain City Plan calls for a coordinating teacher, who is a carefully selected expert in curriculum. He does not have students assigned

<sup>17</sup>Allan, Dwight W., "A DIFFERENTIATED STAFF: PUTTING TEACHER TALENT TO WORK," The Teacher and His Staff, Occasional Papers, #1, National Commission on Teacher Education and Professional Standards, NEA, 1967, 27p.

<sup>18</sup>Beaubier, Edward, and Hair, Donald, "Experiences with Differentiated Staffing," Today's Education 58:56-58, March, 1969.

directly to him. The coordinating teacher is involved with learner diagnosis, selection of appropriate learning materials and cooperative student evaluation.

The *learning analyst*, a psychologist with a psychometric or counseling background, works with the classroom teacher, coordinating teacher, principal and other special teachers. His responsibilities include testing, placement and referrals. He is expected to conduct research and to test field materials.

Each learning center is also staffed with a teacher aide who works closely with the team to assist in non-instructional capacities. His function is to free teachers to teach. Additional assistance is provided through a community action program.

The Mesa Public Schools, Mesa, Arizona<sup>19</sup>, staff differentiation project is a design for performance contracting. In this program, small teams of teachers submit bids to the school board, competing with colleagues for contracts to accomplish teaching tasks. Results must be measurable in terms of student performance. Basically, it is implemented as follows:

Goal definition - The school board establishes an educational goal.

Diagnosis - Students are evaluated by various instruments to determine their present status. Included in this diagnosis, are achievement, attitude, and language facility.

Definition of objectives - Based on test results, objectives are prepared for achievement within a specified length of time.

19"Operational Briefing," Croft Educational Services, New London, Conn., May, 1971.

- Specifications From the above information, specifications are developed for new achievement of the students.
- Proposal requests The board presents the specifications to the teaching staff in which is called a request for proposals (RFP).
- Proposal submissions Teaching teams draft proposals that include staff and salaries, materials, supplies, facilities needed, supporting services and cost figures.

The board awards contracts to teacher teams on the basis of economy and apparent soundness of the program. After the contract has been awarded, the teaching team is in complete charge of the program. Fenwick English, project director, said, "It's a way of building bridges between teacher function and students' needs."

The Cherry Creek School District, Englewood, Colorado, has instituted differentiated staffing in ten of its twelve schools. Walnut Hills Elementary School was one of the first to differentiate staffing. Principal Dave Mathias states that his costs for school operation were \$39,017.00 less during the first year, 1969-70, than when conventional staffing was used. He offers as a reason for this cost reduction: employment of few professionals and more paraprofessionals, non-certified personnel and paid trainees. Projecting the model over a twenty-year period, Mathias estimates a saving of about \$100.00 per pupil over conventional staffing.

The children are grouped by age into "families"--five to seven-year olds, seven to nine-year olds and nine to eleven-year olds. Each family is housed in a learning center manned by a team leader, three certified teachers (senior resident, junior resident, apprentice), a fulltime intern

(a graduate education student), a part-time instructional assistant (under-graduate education major), senior and junior high students and parent assistants. Student assistants are used for tutoring and are either interested in careers in education or are problem learners who may help themselves by helping younger children.

Beaubier<sup>20</sup> describes four key concepts and teacher roles that are basic to the differentiated staffing patterns now in use in the Fountain Valley, California, School District: "Four key concepts that have become apparent during the past three years are basic to the differential staffing patterns now in use in the Fountain Valley School District.

"First, it is essential to establish clear-cut, measurable learning objectives for the youngsters to be served by the plan. Second, the honest involvement of teachers in decision-making is crucial to the development of any program. Third, if wise decisions are to be made with regard to teaching and learning, the staff that works directly with the youngsters to be served must make them. Fourth, if teachers are to be effective decision-makers, they need in-service education in group dynamics and human relations skills.

"Under the Fountain Valley plan for staff differentiation, the school becomes a stage for learning and an operational center for the teachers' supporting staff. The twelve schools in Fountain Valley have reorganized the use of space so that every six or eight classrooms are clustered about a core room, called a learning center.

"In the Fountain Valley plan, each person on the teaching staff performs a defined role. The coordinating teacher is a carefully

<sup>20</sup> Beaubier and Hair, op. cit., p. 62.

selected expert in curriculum, has in-depth knowledge of child growth and development and an understanding of human relations skills. The *Learning* analyst, a psychologist with a psychometric or counseling background, works with the classroom teacher, coordinating teacher, principal and other special teachers.

"Each learning center and its teaching team is staffed with a teacher aide who works closely with the team to assist teachers in a non-instructional capacity. His function is to 'free teachers to teach'.

"Another means of freeing the teacher to teach at Fountain Valley, is having teacher assistants from the University of Southern California work in non-instructional areas. 'Work-study' college students and 'work-experience' high school students also give non-instructional assistance to the teaching team.

"Additional assistance comes through a community action program, in which over a thousand parent aides work as volunteers in service capacities once a week for four hours."

Concern for learning by different staffing patterns is not new but very little research has been done. Most frequently, creative or unique methods of staff utilization have been implemented and judged on an observable merit.

However, Theimer and Locke $^{21}$  studied a project that was designed to develop teacher competencies in reading and mathematics. Their efforts lacked detailed analysis of participant learning but noted that children did better work in classes staffed with additional adults or aides than those in which there were no aides.

<sup>21</sup>Theimer, W. C. and Locke, Marvin E., Jr., LEARNING TO HELP THEM LEARN, AN EVALUATION OF PROFESSIONAL DEVELOPMENTAL CENTERS, 1969-70. ERIC ABSTRACT ED. 051 094.

Simons<sup>22</sup> related differentiated staffing as an integral part of a three-component study that attempted to study the social and economic effects of a year-found school, based upon individually Prescribed Instruction (2PT). The author concluded that the Temple City Plan, described earlier in this paper, was the most usable. He found that "a county salary schedule which clearly indicated differentiated levels of responsibility and corresponding differentiated levels of compensation, would be valuable if it were uniformly applied."

A study conducted by the Teacher Education Research Center<sup>23</sup> concluded, after studying a group of loosely coordinated and unrelated projects, that preparation should include experience leading to effective roles in the self-contained classroom and technology of today but the preparation should also provide experiences to equip teachers to cope with membership on instructional teams that are differentiated by specialized roles expected of teachers in the schools of tomorrow.

English, Frase and Melton<sup>24</sup> designed and implemented a study to evaluate the effects of the changes brought about as a result of differentiated staffing in Mesa, Arizona. The project was directed toward answering questions such as, "Should differentiated staffing be expanded to include more schools?" and "Does differentiated staffing enhance education for the learner?"

<sup>&</sup>lt;sup>22</sup>Simons, J. C. and Garvue, Robert J., AN EXAMINATION OF THE SOCIO-ECONOMIC IMPLICATIONS OF THE ADOPTION OF INDIVIDUALLY PRESCRIBED INSTRUC-TIONAL SYSTEMS BY SCHOOL SYSTEMS, January, 1969, page 69. ERIC ED 031 801.

<sup>23</sup>The Teacher Education Research Center, THE TEACHER EDUCATION RESEARCH CENTER ANNUAL REPORT, 1969. ERIC 038 343.

<sup>24</sup>A Tentative Position Paper, EVALUATING THE EFFECTS OF IMPLEMENTING DIFFERENTIATED TEACHING STAFF: PROBLEMS AND ISSUES, Fenwick English, Mesa Public Schools, November, 1971, 20p. ERIC 056 993.

The study concluded that differentiated staffing in Mesa did not develop more pupil centered activities than conventionally staffed class-rooms. It was hypothesized at the study's conclusion that the staffs organized in a differentiated manner possessed more positive attitudes toward children than the control teachers before the study was undertaken, as measured by the Minnesota Teacher Aptitude Inventory.

The researchers also concluded that the lack of baseline data prior to the treatment, the absence of randomization and lack of controls were definite handicaps in their research project.

#### SUMMARY

The literature presented is illustrative of the widespread interest in differentiated staffing and describes some of the early and recent attempts to implement the practice. While the number of projects are limited and the effects are relatively untested, it is possible to present certain existing commonalities.

- School districts are interested in trying new staffing arrangements.
- (2) A hierarchy of roles is common to all styles of differentiated staffing.
- (3) Teachers' associations accept the concept of differentiated staffing, subject to reservations.
- (4) There has been little inquiry about the academic results of differentiated staffing.

#### Chapter III

#### METHODOLOGY

This study attempted to determine the differences in academic achievement of pupils in classrooms staffed by a single teacher as compared with pupils in classrooms staffed in a differentiated manner. The purpose of this chapter is to present information on the procedures used in collecting the data, the design of the study, the analysis employed and the null hypothesis tested.

#### SELECTION OF STANDARDIZED TESTS

One standardized test was used to assess achievement. The Iowa Test of Basic Skills, Form 3, 1964 edition, was selected because it has been widely used and has a good reputation as a skills test. Also, the Iowa Test of Basic Skills provided an instrument that was already a part of the achievement testing program of the Grand Forks Schools.

The Iowa Test of Basic Skills reports reliability data for the vocabulary, reading comprehension and arithmetic problem solving subtests.

TABLE I

RELIABILITY DATA
IOWA TEST OF BASIC SKILLS SUBTESTS, FORM 3

		ivalent eliabili		Split-half Reliability		
Subtest	grade 4	grade 5	grade 6	grade 4	grade 5	grade 6
Vocabulary	.85	.85	.86	.89	.89	.90
Reading Comprehension	.85	.86	.83	.93	.93	.91
Arithmetic Problem Solving	.77	.73	.71	.80	.82	.81

(Description of the vocabulary, reading and arithmetic problem solving portions of the Iowa Test of Basic Skills. Description of norming procedures and sample used.)

Validity data reported on the Iowa Test of Basic Skills included both national and statistical data. The national data was based on the test's content validity which was determined by the population sample selected.

The statistical validity data report included item validity and predictive validity.

The three areas of the Iowa Test of Basic Skills with which this study is concerned, represent only a part of the skill areas tested by this instrument. The material is divided into five major areas: vocabulary, reading, language, work-study skills and arithmetic. A single comprehensive test is provided in each of the first two areas. Separate subtests are provided for each of four aspects of language development: spelling, capitalization, punctuation and usage. Three subtests in the work-study area are concerned with map reading, reading graphs and tables, and knowledge and use of references. In the area of arithmetic, separate subtests are provided for arithmetic concepts and problem solving.

No grades take exactly the same test. The pupils in each grade take only items which are appropriate in difficulty and content for their particular grade level.

The reading test consists of selections which vary in length from a few sentences to a full page. The passages were chosen in an attempt to represent as completely as possible all of the types of material encountered by the pupil in his everyday reading.

#### ORIGINAL SAMPLE FOR THE STUDY

The original sample for the study included 521 children who were classified as fourth and fifth graders from Carl Ben Eielson and Nathan Twining Schools and sixth graders from Carl Bel Eielson, Nathan Twining and Viking Schools in Grand Forks, North Dakota. The schools were selected for the study on the basis of their staffing patterns and on the basis of representing a variety of economic levels. This economic criterion was used for the selection of schools because it was concluded that inclusion of schools with a population of lower socio-economic children might admit variables that would add other dimensions to this study. Children involved in the study from Eielson and Twining Schools live on the Grand Forks Air Force Base. The children involved in the study from Viking School live in the City of Grand Forks and their parents are, for the most part, white collar workers.

#### SELECTION OF THE SAMPLE

Selection of pupils was based on two criteria: teacher willingness to participate and staff organization. Each teacher was advised by his building principal of the study and requested to administer Form 3 of the Iowa Test of Basic Skills to his class in September and Form 4 in late March or early April.

In order to test the differentiated staffing models as compared with classrooms taught in a conventional manner, three subtests were used: vocabulary, reading comprehension and arithmetic problem solving. The control and experimental groups at the Grand Forks Air Force Base consisted of 224 students at Eielson School who participated in pre and post-testing as the experimental group and 297 students at Twining School who participated in pre and post-testing served as the control group. 83 children at Viking

School served as a control group. Scores were reported in grade equivalents.

#### DESIGN AND ANALYSIS

This investigation was designed to study the differences in the academic achievement of children in classrooms staffed in a differentiated manner, as compared with the achievement of children in a traditionally staffed classroom.

The study involved 521 pupils in grades 4, 5, and 6. The group taught by a differentiated staff was divided as follows:

Grade	Experim Class		Contr		Te	est Used	
4	Eielson	(N-56)	Twining	(N-112)	Iowa Test Vocabulary,		
5	Eielson	(N-80)	Twining	(N-102)	Iowa Test Vocabulary,		
6	Eielson	(N-188)	Viking	(N-83)	Iowa Test Vocabulary,		

Comparisons were made on the following basis:

- Experimental groups in grade 4 were compared with control groups in grade 4.
- (2) Experimental groups in grade 5 were compared with control groups in grade 5.
- (3) Experimental groups in grade 6 were compared with control groups in grade 6.

The test instruments were administered on a pre-test basis in September, 1970, as a part of the regular Grand Forks Public School District evaluation program and a post-test was given in the experimental and control schools in late March or April, 1971. To counter the effects

of practice, an alternate form of the Iowa Test of Basic Skills was used for the second testing.

#### SUMMARY

It has been the purpose of this chapter to present information on the procedures for collecting data, the design of the study and the statistical analysis that was used.

#### Chapter IV

#### RESULTS WITH OBJECTIVE DATA

The purpose of this study was to determine the differences in student achievement when children are taught in a conventionally staffed classroom as compared with a staff organized in a differentiated manner. More specifically, answers were sought to the following questions:

- (1) There is no significant difference in grade equivalent scores as measured by the Iowa Test of Basic Skills between children taught by a differentiated staff and those in a traditional setting.
- (2) There is no significant difference in the frequency of school attendance between the two groups.
- (3) There is no significant difference in the frequency of absence from work between the teaching staffs of the two groups.

#### POPULATION AND SAMPLE

The experimental population was made up of students who were being instructed by differentiated staffs. They were compared to a similar group of children in conventionally staffed classrooms. The sample included children in grades 4, 5, and 6. A total of 745 students participated in pre and post-tests. The distribution is shown on Table II.

Table II

DESCRIPTION OF THE EXPERIMENTAL AND CONTROL GROUPS

Grade	Experimental Group	Control Group	Test Used
4	Eielson (n=56)	Twining (N=112)	ITBS- Vocabulary, Reading Comprehension, Arithmetic Problem Solving
5	Eielson (n=80)	Twining (N=102)	ITBS- Vocabulary, Reading Comprehension, Arithmetic Problem Solving
6	Eielson, Twining (n=188)	Viking (N=83)	ITBS- Vocabulary, Reading Comprehension, Arithmetic Problem Solving

#### TEST INSTRUMENTS AND STATISTICAL TREATMENT

The Iowa Tests of Basic Skills, developed at the University of Iowa and published by the Houghton-Mifflin Publishing Company, were used as a measurement in the study. The analysis of variance and the analysis of covariance was used. Basically, analysis of covariance is a procedure that removes the initial error variance attributed to differences in some variables. At each grade level, a control group was selected that was comparable to the experimental group. In every case, the pre-test was done as a part of the school's usual testing program. The post-testing was conducted in late March.

#### PRESENTATION OF DATA

The data are given by grade level. The pre-test and post-test means and F ratios and the adjusted covariance F values are reported.

#### FOURTH GRADE

To appraise the effectiveness of the fourth grade model, the Iowa Test of Basic Skills (ITBS) was used as a criterion. Three subtests were used: Vocabulary, Reading Comprehension and Arithmetic Problem Solving. Both control and experimental groups were in schools on the Grand Forks Air Force Base. The fourth grade students who were available for pre and post-testing at Carl Ben Eielson School (N=56) were the experimental group and fourth graders at Nathan Twining School (N=112) who were available for both pre and post-testing, were the control group. Scores were recorded as grade equivalents and are reported on Table III. No significant difference was found at the fourth grade level.

Table III

MEANS AND F RATIOS FOR SELECTED PORTIONS OF THE ITBS, FOURTH GRADE

	Group	Pre-test mean	Post-test mean	F Ratio	Adjusted Post-test mean	F Ratio
: ITE	S Vocabulary				•	
	Experimental	4.21	4.92	.00	4.94	.01
	Control	4.24	4.93		4.92	
: ITE	S Reading Comprehension					
	Experimental	4.32	4.71	.49	4.66	2.21
	Control	4.22	4.86		4.88	
: ITE	S Arithmetic Problem Solving	3				
-	Experimental	3.73	4.50	.33	4.50	.46
	Control	3.73	4.60		4.61	

#### FIFTH GRADE

The fifth grade model is essentially the same as the fourth grade. Carl Ben Eielson School again provided the experimental group (N=80) and Nathan Twining School students served as the control group (N=102). The subtests of the ITBS used were Vocabulary, Reading Comprehension, and

Arithmetic Problem Solving. Scores are recorded as grade equivalents.

The results are summarized in Table IV. The pre-test and adjusted post-test scores for the two groups showed only a small variation, consequently, there was no significant difference.

Table IV

MEANS AND F RATIOS FOR SELECTED PORTIONS OF THE ITBS, FIFTH GRADE

	Group	Pre-test mean	Post-test mean	F Ratio	Adjusted Post-test mean	F Ratio
est:	ITBS Vocabulary					
	Experimental	5.31	6.32	2.93	6.22	2.40
	Control	5.10	5.99		6.06	
est:	ITBS Reading Comprehension					
	Experimental	5.30	6.06	.00	6.08	.06
:	Control	5.33	6.06		6.05	
est:	ITBS Arithmetic Problem Sol	vina				
	Experimental	4.86	5.74	.27	5.67	.08
	Control	4.65	5.65		5.71	

#### SIXTH GRADE

In the sixth grade, the experimental groups were all the students at the two Air Force Base Schools (Eielson and Twining) who took both the pre-test and post-test (N=188). The control group was composed of the sixth grade students at Viking School (N=83). Again, the tests used were the three subtests of the ITBS (Vocabulary, Reading Comprehension and Arithmetic Problem Solving). The scores are reported as grade equivalents in Table V.

The only significant difference in the sixth grade occurred in the subtest on Arithmetic Problem Solving, where the classroom staffed by a differentiated model exceeded the control group on both pre-test and adjusted post-test scores.

	Group	Pre-test mean	Post-test mean	F Ratio	Adjusted Post-test mean	F Ratio
est:	ITBS Vocabulary Experimental Control	6.62 6.43	7.34 7.18	. 97	7.30 7.27	.09
est:	ITBS Reading Comprehension Experimental Control	6.57 6.48	7.11 6.85	1.89	7.09 6.89	2.51
est:	ITBS Arithmetic Problem Solv Experimental Control	7ing 5.62 5.76	6.73 6.33	5.05	6.75 6.26	11.92 <sup>b</sup>

<sup>&</sup>lt;sup>a</sup>Significant at the .05 level

<sup>&</sup>lt;sup>b</sup>Significant at the .01 level

Table VI TEACHER ABSENCES

for

### CONTROL AND EXPERIMENTAL CLASSROOMS

	Group	Days Present	Days Absent	% of Absence
Grade	4			
	Experimental, Eielson Teacher #1 Teacher #2 Teacher #3	179 182 177.5	3 0 4.5	1.7 0 2.5
	Control, Twining Teacher #1 Teacher #2 Teacher #3 Teacher #4	177 181 180.5 179.5	5 1 1.5 2.5	2.8 .5 .8 1.4
Grade	5			
	Experimental, Eielson Teacher #1 Teacher #2 Teacher #3 Teacher #4	181 181 176 179	1 1 6 3	.5 .5 3.4 1.7
	Control, Twining Teacher #1 Teacher #2 Teacher #3 Teacher #4 Teacher #5 Teacher #6	175 178 182 181 182 179	7 4 0 1 0 3	4.0 2.2 0 .5 0
Grade	6			
	Experimental, Twining Teacher #1 Teacher #2 Teacher #3 Teacher #4 Teacher #5 Teacher #6	182 176.5 181 182 179 176.5	0 5.5 1 0 3 5.5	0 3.1 .5 0 .7 3.1

Table VI shows the number of days each teacher involved in the study worked during the school term. It also shows the number of days they did not report for duty and the percentage of absence from work. There is no discernible difference. Both experimental and control teachers missed very little work. On the other hand, teachers from both groups were absent from their work up to seven days. It appears that differentiated staffing patterns have little or nothing to do with teacher absence.

Table VII

DAYS OF SCHOOL ATTENDANCE FOR GRADES 4, 5, 6

Group	No. of Students	Days of Attendance	Days Membership
Grade 4 Experimen	tal 1 1 1 3 5 1 1 10 11 9 9 9 5 Total 56	3 5 29 30 36 40 55 57 160 180 182	3 5 29 90 180 40 550 627 1,440 1,620 910 5,494
Control	1 1 2 5 80 23 Total 112	59 12 31 73 182 180	59 12 62 365 14,560 4,140 19,198
Grade 5 Experimen	Total 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 15 28 35 41 100 110 160 180 182	5 15 28 35 41 300 330 1,440 1,800 9,100 13,094
Control	1 1 1 5 1 1 1 1 90 Total 102	20 35 36 75 90 99 165 170 182	20 35 36 375 90 99 165 170 16,380

Table VII (continued)

Group	No.	of Students	Days of Attendance	Days Membership
Grade 6		,		
Experime	ntal	1	4	4
		4	17	68
		4	26	52
		1	27	27
		1	28	28
		1 2 4	29	58
		4	30	120
		1	49	49
		1 2	80	160
		1	89	89
			90	90
	,	1 2	100	200
		1 4 5	131	131
		4	141	564
		5	168	840
		156	182	28,392
	Total	188		30,872
Control		1	30	30
		1	64	64
		1	90	90
		1	174	174
		79	182	14,378
	Total	83		14,736

Table VIII
FREQUENCY OF SCHOOL ATTENDANCE

Gr	rou	0	N	Days Present	Days Absent	Days Membership	Percent of Attendance
Grade		Experimental Control	56 112	5,189 18,238	305 960	5,494 19,198	94.9 95.0
Grade		Experimental Control	80 102	12,837 16,519	257 851	13,094 17,370	97.9 95.1
Grade		Experimental Control	188 83	29,730 13,912	1,142 824	30,872 14,736	96.3 94.4

Table VII and the days of attendance listed on pages 35 and 36 show the attendance patterns of children involved in the study. Some classes had a good many transfers in and out of the rooms, while others were quite stable. Most movement was noted in the schools located on the Grand Forks Air Force Base and was the result of parent transfer.

The information was obtained from pupil enrollment records and it is noted that, as illustrated by Table VIII, there is little difference in attendance patterns between children in a conventional classroom as compared with their counterparts in a classroom staffed in a differentiated manner. Table VIII shows that there is only .1 percent difference in attendance in grade four, 2.8 in grade five and 1.9 in grade six. The higher percentage of attendance, however small a difference, is not unique to either type of staffing pattern. It is concluded that the staffing pattern does not affect attendance.

## Chapter V

### AN EVALUATION OF DIFFERENTIATED STAFFING SINCE 1970

In 1970, the year following the described study, differentiated staffing continued to interest administrators, principals and, to a lesser degree, teachers. A system of rewards was developed that provided principals who were willing to participate, an allocation of five dollars for each student taught in a large group setting by teachers who were designated in a role hierarchy. Principals and teachers were permitted to spend this additional sum of money for materials and equipment of their own choice. The administration, in obtaining Board approval for this unprecedented and here-tofore unique method of funding, asserted that differentiated staffing offered a potential for instruction improvement. This assertion was based on several premises: full staff utilization, improved continuity of instruction, more efficient use of space and more effective use of material and equipment.

The prospect of full staff utilization was attractive to teachers and principals. Differentiated staffing, it was argued, allowed teachers to practice favored methodologies in their strongest subject areas. It was argued that differentiated staffing permitted freedom in techniques.

The administration, in requesting an expansion of differentiated staffing, pointed out that a variety of personality types in a teaching staff increased the possibility of each child to relate favorably with an adult. It was further maintained that differentiated staffing provided better use of school buildings through development and utilization of large group instructional areas, the ability to develop interest centers and to promote

a free flow of materials and equipment from one level to another.

The Board was also informed that increased differentiated staffing would provide teachers with an opportunity to spend more time teaching and less time involved in clerical or mundane tasks.

A study completed in 1970 by the University of North Dakota Bureau of Educational Research, under the direction of Dr. John Williams and Dr. John Thompson, suggested that differentiated staffing reduces the total staffing cost.

Staffing guidelines were proposed on the basis of twenty-eight elementary students to one qualified and certified teacher. Table IX gives one option for a staffing guideline.

Table IX

Position	Staff Ratio	Enrollment
Team Leader	1.25	106
Staff Teacher	1.00	
Instructor	.75	
Instructional Aide	.45	
Clerical Aide	.35	

In the above table, 106 students would be taught by five adults, two of whom must be certified: 1.00 ratio would be considered a fulltime certified teacher.

Table X

Position	Staff Ratio	Enrollment
Team Leader	1.25	210
Staff Teacher	1.00	
Instructor	.75	
Instructional Aide	.45	
Instructional Aide	.45	
Instructional Aide	.45	

Table XI

Position	Staff Ratio	Enrollment
Team Leader	1.25	220
Instructor	.75	
Staff Teacher	1.00	
Instructional Aide	.45	
Instructional Aide	.45	
Clerical Aide	.35	

Table X provides nine adults for 210 children. Table XI provides ten adults for 220 children. The proponents of differentiated staffing maintained that the overall cost would be less, compared to a traditionally

organized school setting.

The School Board, after listening to the arguments, gave cautious consent to continue differentiated staffing and to facilitate its expansion by a five dollar per student financial advantage. Principals quickly took advantage of the opportunity and proposed differentiated staffs were requested by principals at Roosevelt and J. Nelson Kelly Schools. By the fall of 1971, differentiated staffing had spread to twelve buildings and involved 94 adults as follows:

School	Staffing	Staff <u>Equivalency</u> 25	Enrollment	Staff- Pupil Ratio
J. Nelson Kelly	Team Leader	1.20	75	28.5
	Staff Teacher	1.00		
	Instructional Aide	.45		
Carl Ben Eielson	Team Leader	1.20	220	29.1
	Assistant Team Leader	1.10		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Instructor	.75		
	Instructor	.75		
	Aide	.25		
	Aide	.25		
•	Aide	.25		

<sup>25</sup>Staff Equivalency provides a ratio between positions. A regular classroom teacher is given a staff equivalency of 1.00. All other positions are computed on a ratio which relates to this value: team leader, 1.25; instructor, .75; instructional aide, .50; clerical aide, .43.

School School	Staffing	Staff Equivalency	Enrollment	Staff- Pupil Ratio
Carl Ben Eielson	Team Leader	1.20	205	30.1
	Asst. Team Leader	1.10		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Aide	.25		
	Aide	.25		
Carl Ben Eielson	Team Leader	1.20	230	31.9
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher (½ tim	ne) .50		
	Aide	.25		
	Aide	.25		
	Aide	.25		
Winship	Team Leader	1.20	170	28.5
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		•
46	Staff Teacher	1.00		
	Instructor	.75		

School	Staffing	Staff Equivalency	Enrollment	Staff- Pupil Ratio
Belmont	Team Leader	1.20	80	26.5
	Staff Teacher			
	Instructional Aide			
	Instructional Aide			
Nathan Twining	Team Leader	1.20	150	28.8
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Instructor	.75		
	Aide	.25		
Washington	Team Leader	1.20	75	27.7
	Staff Teacher	1.00		
	Staff Teacher (½ tim	e) .50		
Washington	Team Leader	1.20	110	30.3
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Instructional Aide	.43		
Roosevelt	Team Leader	1.20	110	27.8
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Instructor	.75		

The configuration of the teams listed, shows staffing units that vary from eleven (11) to three (3) participants. Principals were given the prerogative to organize creatively just as long as the cost per pupil reflected at 28 students to one teacher cost.

In 1971, schools that featured differentiated staffing were provided with a basic payment of \$500.00, plus \$1.00 per hour per year per child instructed by the team. For example, the first unit listed for Carl Ben Eielson School shows 220 children in the unit. Eielson would receive \$500.00, plus \$1,320.00 ( $$1.00 \times 6$  (hours of instruction per pupil per day) x 220 (number of children), or \$1,820.00 for supplies and equipment over and above the amount allocated to conventionally staffed classrooms. Needless to say, such a financial advantage stimulated interest among teachers and principals. Classrooms organized in a differentiated manner soon became equipped with varieties and quantities of audio-visual equipment, learning kits, supplementary reading materials, science supplies and, in some cases, additional furniture. Principals and teachers not involved in the "Islands of Continuous Progress" program of differentiated staffing frequently expressed concerns and even irritation at what they interpreted as preferential treatment. Schools were sometimes referred to as the "haves" and "have nots".

The Grand Forks Education Association discussed the implications of differentiated staffing at several meetings during the winter of 1970 and 1971. The G.F.E.A. Staffing Study Committee was formed "for the purpose of studying differentiated staffing in the Grand Forks Public School System and making any recommendations this Committee deemed

necessary." The Committee consisted of one representative from each building within the District. The Committee reviewed current literature, worked with resource people and surveyed teacher currently involved in differentiated staffing.

The Grand Forks Education Association studied local differentiated staffing patterns, staffing ratios, salaries, job descriptions and culminated their inquiry with a questionnaire which was circulated to all local teachers.

Differentiated staffs are listed on page 41 of this paper. The teacher report indicates identical information.

Ratios were explained on the basis of 28 students to one teacher. For example, a team with 160 elementary students is entitled to a staff equivalency of 5.7 teachers (160  $\div$  28). The staff would be identified with their weighted roles as follows:

1 Team Leader =	1.25
3 Staff Teachers =	3.00
1 Instructor =	.75
2 Teacher Aides =	.75
	5.75

Salaries for teachers in differentiated settings varied according to responsibility. A team leader was paid a base salary according to his place on the salary schedule, based on experience and education, plus \$500.00 for fifteen days of additional employment and \$1.00 per pupil per hour.

For example, a team leader working in a differentiated staff with 120 children for six hours a day, would receive:

\$8,000.00 (salary schedule)
500.00 (extended work days)
720.00 (6 x \$120.00)
\$9,220.00

A staff teacher would receive pay appropriate to his or her position on the salary schedule.

The instructor was paid \$5,000.00 per school year for 3/4 time.

Teaching assistants were paid \$1.68 per hour and aides received \$1.60 an hour.

The School District identified the roles of positions in a differentiated hierarchy by job descriptions:

### A. Team Leader

- Directs team planning sessions.
- 2. Leads in daily scheduling of individual and groups of students.
- Delegates instructional responsibility to team members. Seeks out staff strengths and plans for maximum utilization.
- Coordinates team endeavors with the overall plan of the school.
   Works with principals and other team leaders.
- 5. Coordinates learning center utilization.
- Is responsible for selection of materials for learning center coordinates with librarian and team resource needs.
- Assists with student problems and makes referrals for student evaluation and counseling to principals.

- Coordinates evaluation of student progression and reports to parents.
- 9. In-service leader.
- 10. Curriculum leader.
- 11. Counsels students.
- 12. Leads in large group instruction.
- Leads team to evaluate existing practices in terms of objectives and recommends modifications.
- 14. Small group coordinator.
- 15. Analayzes team effectiveness.
- 16. Concentrates efforts in one or more subject matter areas.
- 17. Supervisor of teaching interns and student teachers.
- 18. Leads in decision-making process.
- 19. Supervises record keeping.
- 20. Coordinates activities with community organizations.
- 21. Has a full instructional load.

#### B. Staff Teacher

- 1. Independent study advisor.
- 2. Small group expert.
- 3. Large group presenter.
- 4. Develops instructional strategy and techniques.
- 5. Meets with students to plan independent work-student seminars.
- 6. Learning skills development specialist-diagnostician.
- Concentrates efforts in one or more subject matter areas.
- 8. Counselor.

- 9. Analyzes team effectiveness.
- 10. Has a full instructional load.

### C. Instructor

- 1. 3/4 instructional load.
- 2. May make subject matter contribution to the team.
- 3. Large group presenter.
- 4. Small group leader.
- 5. Learning and activity center advisor.
- D. University Intern (working on Master's Program at U.N.D.)
  - 1. Independent study advisor.
  - 2. Small group expert.
  - 3. Large group presenter.
  - 4. Develops instructional strategy and techniques.
  - 5. Meets with student to plan indendent work-student seminars.
  - 6. Learning skills development specialist-diagnostician.
  - 7. Concentrates efforts in one or more subject matter areas.
  - 8. Counselor.
  - 9. Analyzes team effectiveness.
  - 10. 3/4 instructional lead with 1/4 follow-up.

# E. Teaching Assistant

- 1. Gives remedial help, one-to-one or very small group.
- 2. Test administrator.
- Interest group leader
- 4. Responsible for material gathering and production.
- 5. Learning and activity center assistant.

- 6. Pupil record supervisor.
- 7. Student orientation and counseling.

#### F. Teacher Aide

- 1. Team secretary (checking, recording, typing, filing, etc.)
- 2. Independent study supervisor.
- 3. Assists in material gathering and production.
- 4. Learning center aide and supervisor at times.
- 5. Pupil record expert.
- 6. Volunteer supervisor.
- 7. Supervises student entry, exit and lunch.
- 8. Visitor hostess.

The Grand Forks Education Association developed and administered a "Differentiated Staffing Questionnaire" to 39 teachers who were part of differentiated teams. The questionnaire and the results are reproduced in their original form.

# DIFFERENTIATED STAFFING QUESTIONNAIRE (1971-72)

The following is a questionnaire devised by the Grand Forks

Education Association Differentiated Staffing Study Committee. Its purpose
is to obtain the feelings of staff teachers, interns and instructors about
the program in which they are presently working.

This questionnaire will be completed by all members of a Team, except

Team Leaders and Teacher Aides. The questionnaire was administered by a

person in the Team other than the Team Leader and the results will be compiled

by a member of the Grand Forks Education Association Study Committee.

For the purpose of this study the term "instructor" applies to a 3/4 time person, while the term "intern" applies to one involved in the University Master's Program.

 Check the number of years' experience you have had in a Differentiated Staffing Team.

(19) 1

(15) 2

(1) 3

 Check the number of years' experience you have had in any other teaching setting (example: self-contained classroom).

(5) 0

(2) 1

(6) 2

(5) 3

(3) 4

(5) 5

(12) 6 or more

3. Do you feel being a member of a differentiated team requires

- (4) a. considerably more
- (4) b. less
- (15) c. more
- (15) d. about the same

of your time than teaching in a self-contained classroom?

Do you feel that the quality of instruction in a differentiated team
 is

- (8) a. considerably better
- (3) b. not as good
- (18) c. about the same
- (8) d. better

than teaching in a self-contained classroom?

5. Do you feel the team leader spends

- (32) a. more time
- (3) b. less time
- (4) c. about the same time

as the other members of the team spends?

- 6. Do you feel the salary of the team leader as compared to members of the team is justified in view of their added responsibilities and time?
  - (34) yes
  - (4) no
- 7. Has it been possible for your complete team to have planning time during the school day?
  - (11) yes
  - (27) no
- 8. Do you feel no planning time for the complete team during the school day is necessary for adequate preparation?
  - (2) yes
  - (32) no
- Do you feel the position of the instructor as it pertains to your team situation has
  - (23) a. added to
  - (2) b. deleted from
  - (1) c. made no difference
  - (8) d. does not apply to my situation

in the overall quality of the instructional program? (Evaluate the <u>position</u>, not the <u>individual</u>, if it applies to your team.)

		YES	NO
10.	I was given the choice to be or not to be in a differen-		
	tiated staff situation.	(21)	(18)
11.	I feel that my professional standing is negatively		
	affected by a differentiated staffing.	(8)	(30)
12.	The position of instructor entails greater responsib-		
	ilities than it should, considering the salary.	(19)	(10)
13.	An aide's job should be strictly clerical.	(8)	(30)
14.	An aide threatens the job security of a classroom		
	teacher.	(5)	(32)
15.	I would prefer to be in a self-contained classroom	(13)	(23)
16.	The aide, as part of a team, enables the teacher to		
	do more professional duties.	(38)	(0)
17.	Cooperative planning makes for better instruction.	(37)	(1)
18.	Personality factors are a big consideration in the		
	success of the team.	(38)	(0)
19.	The team leader should select the members of the team.	(22)	(13)
20.	The team members should select the leader of the team.	(14)	(20)
21.	I find adequate or more time for planning in a differ-		
	entiated staff situation than you would in a self-		
	contained classroom.	(13)	(22)
22.	I do not feel that I am an important or equal part of		
	the total staff.	(11)	(25)
23.	After working as a staff member in a differentiated		
	staff situation, I feel the quality of instruction is		

		YES	NO
	(17) a. better		
	(11) b. same		
	(5) c. poorer		
	than in a self-contained classroom.		
24.	A differentiated staff situation doesn't allow for an		
	individual teacher's creativity (inflexible).	(11)	(27)
25.	The differentiated staffing situation doesn't allow		
	as close a teacher-pupil relationship.	(22)	(17)
26.	Differentiated staffing allows student a greater		
	choice of authority figures for identity.	(33)	(6)
27.	Evaluation of the various team positions should come		
	from within the group.	(29)	(5)
28.	Evaluation of the team members should be done only by		
	the team leader.	(5)	(32)
29.	Differentiated staffing promotes a lot of "brown		
	nosing".	(6)	(28)
30.	I feel as a staff teacher that I am doing what I was		
	trained to do more than when I was in a self-contained		
	classroom.	(8)	(26)
31.	Do you feel there are more advantages in working in a		
	large team?	(16)	(17)
32.	Do you feel team members should be involved in the		
	initial organization of the team?	(37)	(1)
33.	Do you feel the instructor position is a fair one in		
	respect to monetary compensation for hours worked?	(8)	(22)

YES NO

- 34. Do you feel the University intern position is a good
  part of the total program? (28) (4)
- 35. The following question was asked of all teachers in Grand Forks: Are you in favor of differentiated staffing? (88) (254)

The Differentiated Staffing Study Committee made a number of recommendations to the Grand Forks Education Association (G.F.E.A.), after studying the results of the survey, as follows:

The following recommenations are made by the G.F.E.A.

Differentiated Staffing Study Committee to the members of the G.F.E.A. These recommendations are restricted to only differentiated staffing and not to any specific teaching methods or programs. It is our intent that any G.F.E.A. member contemplating becoming a member of G.F.E.A. thoroughly study these recommendations.

- A. The implementation of any new differentiated staffs should be cooperatively planned and developed by the teaching staff and principal of the particular school involved, along with the Central Administration.
- B. Teachers should be given the option of participating or not participating in a differentiated staff.
- C. The responsibilities and salary of the Instructor position should be equivalent to that of a certified staff teacher. This Instructor should be a first year teacher who is hired on a one-year provisional

contract. Upon satisfactory completion of one year, as determined by the principal and other team members, this Instructor would qualify for a staff teacher position. (This could be a means whereby teachers are given the opportunity to decide who enters our profession.)

- D. Because of the necessity for total team planning, each differentiated staffing team should be alloted one-half day each week (Wednesday) for team planning.
- E. The staffing pattern of teams should be computed on the basis of an adult-pupil ratio of 25 to 1 and a certified teacher-pupil ratio of 32 to 1. (The adult-pupil ratio includes teacher aides, instructors and interns.)
- F. Because the size of the team is a real concern to its members, the number of students should be about 120, not exceed a maximum of 150. Any teacher contemplating employment in a larger team should do so after a thorough consideration of the advantages and disadvantages.
- G. Any new team members should be selected by the Personnel Director, principal, team leader and as many staff teachers as possible of a particular team.
- H. The entire team should be involved in extended employment. The team leader should be employed for ten days previous to the beginning of the school year and the remaining team members for five days.

- I. The members of G.F.E.A. should avail themselves of current resources so they can be aware of the problems which may arise when two or more members work cooperatively rather than in a differentiated staffing arrangement. Members of a cooperative teaching situation should further study their situation to determine the necessity of a team leader in their particular program. No teacher should accept team leader responsibilities without adequate remuneration.
- J. Members of G.F.E.A. should be involved in a continuous study of the entire concept of differentiated staffing. Two separate committees, elementary and secondary, should be formed to further study differentiated staffing and to keep all members of G.F.E.A. attuned to the latest trends in the Grand Forks Public School District.

The School District did not respond directly to the teachers' recommendations. The effect of this G.F.E.A. activity was rather difficult to detect.

Recommendation A - Expansion of differentiated staffing has been mainly a matter of principal recommendation. Staffs are contacted as a matter of information, but the principal is the prime mover.

 $\frac{\text{Recommendation }B \text{ - Teachers are not forced to become a member of a}}{\text{differentiated staff but may transfer to another teaching situation if they desire.}}$ 

Recommendation C - Little regard has been accorded this recommendation. The most qualified and most capable person willing to work for a 3/4 salary was employed. No assurances were given regarding future staff level employment and the position is not recognized as an assured stepping-stone.

Recommendation D - No time was set aside for team planning.

Recommendation E - The staffing ratio of differentiated teams as compared with conventionally staffed classrooms was the same. No preference was accorded the former.

 $\underline{\text{Recommendation }F} \text{ - No limitation was imposed on the numbers of }$  children assigned to differentiated staffing units.}

Recommendation G - Principals quite commonly involved the team leader and the other staff members when employing team members.

Recommendation H - Only the head teacher has an extended employment contract. This was provided for in the original design and was not a response to the teachers' recommendation.

### DIFFERENTIATED STAFFING: 1971-72

During the following school year, 1971-72, there was a good deal of attention given to the study of a proposed Family Living Program and to a shortened noon hour, but little mention was made of differentiated staffing until the spring months.

In March, 1972, the Grand Forks School Board declared that there be no further expansion of differentiated staffing, except by express consent of the Board. Principals were required to explain the need for additional differentiated staffs based on improving instruction, as well as the judicious use of space and resources.

### DIFFERENTIATED STAFFING: 1972-73

The Superintendent of Schools presented an administrative recommendation in September, 1972, asking that "The moritorium on differentiated staffing expansion previously imposed by the School Board be considered lifted: principals shall have authority, with Central Administration approval, to form new staffing teams within their present staffing allocation. The School Board shall be especially informed of each differentiated staffing team so designed. Further, that no steps be taken which involve building modification without prior approval of the Board of any renovation scheme." The Board rejected the recommendation with a four to three vote.

After some discussion, the Board voted to "encourage the continuation for another year of the now existing differentiated teaching situations and further study its effect and urge the Board to continue to think positively about any new requests by Central Administration regarding extension of differentiated staffing."

In November, 1972, the Superintendent of Schools presented a request for the extension of current practices of differentiated teaching teams for Carl Ben Eielson School in order to accommodate additional students. The Board approved. At the same time, a request for two additional teams at Benjamin Franklin School was approved by a five to two vote.

Mid-point in the 1972-73 school year, the Superintendent of Schools received a letter from an instructor in a differentiated team which expressed dissatisfaction with her position. The letter stated that she had been given every responsibility of a staff teacher but did not enjoy the same privileges or financial rewards.

The Professional Rights and Responsibilities Committee, a part of the Grand Forks Education Association, met and discussed this problem with the Superintendent. As a result of these communications, the Superintendent advised principals that it is not his intent to exploit people and that schools be places where professionals and para-professionals "can be employed productively." He also requested that "equity be the rule and exploitation the exception." Principals were asked to use care in the manner in which they used instructors.

On March 28, 1973, the principal of Benjamin Franklin School appeared before the Curriculum Services Committee and asked for additional expansions. He asked to differentiate the teachers of the fifth and sixth grades. The request was approved after a motion to table failed and another motion to support was defeated.

In May, 1973, the principal of Benjamin Franklin School again requested an expansion of differentiated staffing to the Curriculum Services Committee. At the same time, the principal of Wilder School requested a similar staffing arrangement in order to accommodate an over-population of children at the third and fourth grade levels. The Board deferred action on both requests and asked for additional information that would justify additional teams.

The differentiated team at Roosevelt School was disbanded in June, 1973, and the classes were re-organized in a conventional self-contained design. This action was prompted by a change in team leadership, community sentiment regarding the team structure, a reduction in staff because of decreased federal funds and an inability to function within limitations imposed by the building design.

## DIFFERENTIATED STAFFING: 1973-74

When schools opened in the fall of 1973, differentiated staffing continued to be practical in a number of schools. Roosevelt and Nathan Twining Schools no longer had teams but Benjamin Franklin School had increased its involvement. Differentiated staffing was as follows:

School_	Staffing	Staff Equivalency	Enrollment	Staff- Pupil Ratio
J. Nelson Kelly	Team Leader	1.20	73	27.4
	Staff Teacher	1.00		
	Instructional Aide	.43		
Carl Ben Eielson	Team Leader	1.20	151	25.7
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher (½ tim	me) .50		
	Clerical Aide	.25		
	Team Leader	1.20	122	25.1
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Clerical Aide	.25		
	Team Leader	1.20	116	23.8
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Clerical Aide	.25		

School	Staffing	Staff Equivalency	Enrollment	Staff- Pupil Ratio
Carl Ben Eielson (continued)	Team Leader	1.20	175	26.9
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Clerical Aide	.25		
	Team Leader	1.20	180	26.6
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Clerical Aide	.25		
Winship	Team Leader	1.20	125	22.0
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Clerical Aide	.43		

School	Staffing	Staff Equivalency	Enrollment	Staff- Pupil Ratio
Benjamin Franklin	Team Leader	1.20	125	27.9
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Clerical Aide	.30		
	Team Leader	1.20	147	26.9
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	.55		
	Clerical Aide	.30		
	Team Leader	1.20	147	26.1
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	1.00		
	Staff Teacher	.70		
	Clerical Aide	.38		
	Clerical Aide	.30		

In order to secure an opinion about the future of differentiated staffing in Grand Forks, Superintendent of Schools, Dr. Richard Hill, was interviewed. His responses to various questions follow.

- Question: What is the present status of differentiated staffing in Grand Forks?
- Dr. Hill: I believe in the school year 1973-74, we will have sixteen teams operating. That's up from a low of zero and down from a high of about twenty.
- Question: In your own opinion, what will happen to differentiated staffing in terms of growth or decline?
- Dr. Hill: I think we'll get both growth and decline. I don't know if that means that over a long term we will be equal to sixteen teams but I think that we will see some increase in variations from strictly self-contained classrooms.
- Question: Will differentiated staffing persist in its present form or do you expect modifications?
- Dr. Hill: I expect both. I think that one of the consequences of staffing in a different fashion is to encourage other varieties of teaming which may or may not have the same hierarchical characteristics of the differentiated staff.
- Question: As differentiated staffing defined the hierarchy or roles, will each position require a separate job description with its own negotiating unit? If so, will this be an impediment to future growth?
- Dr. Hill: Hopefully, no, to the question of having separate negotiating units. Practically, I suppose, the answer is "yes" with regard at least to position descriptions. I think questions generated

by the existence of differentiated staffing within a district will find their way to a negotiating table in various forms and perhaps we'll get into some questions in a little bit that will relate to why that is so. One of the interesting peripheral points here is that differentiated staffing is really not so new and different as some advocates would like us to believe. Football coaches, for instance, have almost always organized themselves in a differentiated staff. At the college level, the existence of teacher aides and instructors is a fairly common organizational scheme.

Question: What has enhanced the growth of differentiated staffing in Grand Forks?

There has been past administrative advocacy and Board support Dr. Hill: for differentiated staffing and then, of course, the literature and most particularly the School Board literature, has argued that differentiated staffing is cost effective. I have several comments about all of those points. I think that our Board is no longer attitudinally impressed with differentiated staffing, although some of them think there may be some instances of cost effectiveness associated with it. The claims for lower cost, I think, are generally exaggerated. I think differentiated staffing can cost more than, be equal to or less than self-contained classrooms, depending upon many factors. In my own point of view and, I think, the point of view of this administration, it is simply another way to organize which should be considered, given certain circumstances; but it has not demonstrated its superiority to any other form of organization. At the same time, it has not demonstrated that it is inferior to other forms of organization. So, my own point of view is that I wish principals and staffs would consider this as one of the possible organizational alternatives they have.

Question: What has impeded the growth of differentiated staffing in Grand Forks?

Dr. Hill: Well, there's a pretty clear American Federation of Teachers'

position that's antagonistic to differentiated staffing because

it is believed that this will reduce the number of teaching jobs.

In Grand Forks, I think there is some teacher perception that

the practice was "foisted" on them. Also, there exists concern

that non-professionals may be working with youngsters in "in
structional situations" which, to follow the line of reasoning,

would be unfortunate and ineffective.

Question: Do you see the negative attitude of some teachers as a significant impediment to differentiated staffing growth?

Dr. Hill: Yes. At the same time, I think it should be recognized that many teachers like many facets of what differentiated staffing promotes, for instance, the existence of teacher aides working with other people whether or not there is an additional hierarchy of roles.

I think that there is some understandable distrust of the cost arguments. The likelihood of pressure for growth within the profession of teachers seems unlikely on a cost basis—there exists little incentive to make decisions based on efficiency arguments. At the same time, I think the idea may grow with teachers if it is perceived that they have some capacity to participate in the decision that this is the best instructional choice at a

particular time.

Again, I am not trying to make a brief for differentiated staffing nor am I trying to make one against differentiated staffing. I am suggesting that it is an option which people might consider if the right mix of personalities, resources and numbers of students and capacity to work in spaces and places with materials is right. So, I think the future of differentiated staffing in this district is going to be heavily influenced by whether there are perceptions that it is instructionally sound, given certain variables and circumstances. I don't believe there'll be a big Board push for increasing or decreasing the practice. I don't think there'll be a big administrative push for increasing or decreasing the practice. I wish we would decide, based on instructional merits in the given situation, rather than political considerations in the larger profession.

#### CHAPTER VI

# SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents a summary, a discussion, conclusions and recommendations for this study.

### The Problem

The study, as described in the first five chapters, investigated aspects of differentiated staffing in order to determine whether children learned better, less well or about the same when taught by teachers whose roles were hierarchical. The study concerned itself with the following hypotheses:

- (1) There is no significant difference in grade equivalent scores as measured by the Iowa Test of Basic Skills between children taught by a differentiated staff and those in a traditional setting.
- (2) There is no significant difference in the frequency of attendance between the two groups.
- (3) There is no significant difference in the frequency of absence from work between the teaching staffs of the two groups.

## Method

Five hundred twenty-one fourth, fifth and sixth grade pupils were used as subjects for this study. Three hundred twenty-four of these children were in classes taught by a staff organized in a differentiated manner. The remaining two hundred ninety-seven pupils were members of self-contained class-rooms.

Twenty-three teachers were involved in the study. Their record of attendance was obtained and studied in an effort to determine differences in absenteeism. Student attendance records were also secured and studied in order to determine a difference, if any, in school attendance between children taught by a differentiated staff as compared with those in a conventional classroom.

The study also described the status of differentiated staffing in Grand Forks for the past three years and speculated upon the future through an inverview with the District's chief administrative officer.

The study was discussed with various teachers, principals, college professors and school administrators. Their opinions and comments had much to do with this study's content.

### Findings

- (1) First hypothesis: There is no significant difference in academic achievement as measured by the scores of the Iowa Test of Basic Skills, except with the sixth grade where the differentiated staffing model exceeded the control group in both post-test scores and the adjusted post-test scores.
- (2) Second hypothesis: There is no difference in the frequency of attendance between the two groups of children.
- (3) Third hypothesis: There is no difference in the frequency of absence from work between the teaching staffs of the two groups.

### Conclusions

(1) That differentiated staffing does not demonstrate any superiority in pupil achievement over a conventionally

- organized room.
- (2) Differentiated staffing has no unique influence on pupil attendance.
- (3) Differentiated staffing does not have any unique effect on teacher absence from work.
- (4) Based upon a review of the events which affect differentiated staffing in Grand Forks, it would appear that the growth of the use of differentiated staffing has slowed. There is a likelihood that various deviations of differentiated staffing will occur as dictated by population pressures, availability of staff and materials, building design, community opinion, teacher attitude and administrative persuasion.

### Recommendations

- (1) Further research should be undertaken in order to test academic achievement as staffs develop skills in working within a role hierarchy.
- (2) Sex differences were not a concern in this study but inquiry into this area warrants consideration.
- (3) Differences in attitudes toward school and learning between the groups could be an inquiry of value.
- (4) A detailed cost accounting of the two systems of staffing would provide information upon which to base future educational decisions.
- (5) The history of differentiated staffing, as described in this study, shows that this staffing pattern has enjoyed popularity in schools designed to accommodate large

groups of children in a single area. The principal has often been the implementor of the plan or organization. Communities, students and other teachers have not always viewed differentiated staffing with favor. Teachers' associations offer wary support or none at all. Parents sometimes view innovations as tampering. Other administrators have often been in opposition to differentiated staffing, either because their building facilities were not conducive to implementing a new program of this type, because their staffs were opposed or because they felt threatened by a real or imagined infringement upon areas of responsibility or authority that have historically been vested in the administrator. School board members characteristically attempt to support an administrative request for staffing and materials. They tend also to do this for differentiated staffing. However, it has been observed that there is a good deal of apprehension about innovative staffing patterns and support can quickly be withdrawn if community or teacher opposition. becomes evident. Therefore, it is recommended that differentiated staffing, as described in this study, be attempted mainly in schools that have facilities to teach children in large groups. If differentiated staffing is to have some chance of success, faculties of these schools must be agreeable to the idea of a hierarchy of roles and responsibilities. If the faculties are adamant in opposing the differentiated concept,

there seems to be no compelling reason to force compliance. Wherever the differentiated staffing concept is to be implemented, adequate and thorough training should be accomplished before implementation. Parents should be involved in the planning and development of staffing pattern change, both for their contributions and because of the communication benefits of involvement.

In summary, the growth and future of differentiated staffing appears to be dependent upon a number of human and physical factors. Teachers in conventional classrooms frequently oppose efforts to assimilate them into a differentiated structure. On the other hand, those who function as head or master teachers are often advocates of the design. In that they are the direct beneficiaries of the rewards of differentiated staffing, their advocacy can be easily understood. These teachers enjoy a longer work year, higher salary and improved status because of a role that may be viewed as at least partly administrative. Commonly, staff teachers are less enthusiastic. Aides, particularly those who are engaged in teaching children, frequently feel that they are being assigned a teacher's responsibility without commensurate pay.

The need for members of a differentiated staff to work harmoniously together has emphasized the desirability for mixing and matching people who have personality and philosophical similarities. A willingness to cooperate and an ability to get along with others is a prerequisite of differentiated staffing. The loss of key members of a differentiated team has resulted in the abandoning of the structure when a suitable replacement was not available. In others, the effectiveness of a team was merely reduced when an

important member of the group left. It then appears that a successful differentiated staff is dependent upon its members. This dependence may explain the fragility of the structure. On the other hand, the evidence cited in the previous paragraph suggests that getting an appropriate mix may be a most difficult task. If the differentiated staff is viewed from a role-theoretic view, there seems to be ample reason to predict that disharmony will occur, particularly as the staff teacher and teacher aide feel that their contributions greatly exceed their remunerations, when compared to the master teacher.

in their areas of greatest strength. This is often a source of satisfaction to teachers and results in effective utilization of individual and unique talents. On the other hand, a surplus of certain abilities within a team can result in assigning teachers to tasks in which they have little talent or interest. When this happens, an important virtue of differentiated staffing is lost. Instead of skills and interests being utilized most fully, a teacher might be required to work with children in an area of least aptitude or interest.

Colleges and universities were likely the models for the differentiated patterns used in Grand Forks and elsewhere. Role hierarchy in higher education has been seen to be viable and identifiable through the titles assigned to individuals. A direct comparison between college and elementary school staffing is not possible because a subordinate role does not exist to the same degree in the two cases.

Because of the promotion opportunities differentiated staffing offers to exceptional teachers, because buildings are being built to accommodate large group instruction and because some principals practice innovation as

part of their administrative style, differentiated staffing will likely continue as a staffing pattern in many communities. This will be true for a time in the Grand Forks Public Schools. Considering the trends that are discussed in this study, it appears that the practice is decreasing and will eventually disappear from the educational scene.

It has been speculated by some administrators that teacher demands for higher salaries and increased benefits may force changes in education that would be quite opposite from popular needs that are strongly advocated by the profession. The incomes of experienced teachers normally increase rather substantially each year if the district has a salary schedule based on an index. There is, however, a demand for greater benefits as living expenses increase. Teacher salary and welfare requests might be met for awhile but in order to continue to satisfy the teachers' monetary demands, class size would have to be increased, with the resulting savings in money diverted to salaries for the surviving teachers.

There are several additional economic and social factors which could influence in one way or the other the continued use, or perhaps discontinuance, of differentiated staffing. Most projections into the future supply of teacher education graduates would indicate that a surplus of graduates will be on the "market" for the next several years. Also, the "supply" of children attending public schools, both in Grand Forks and in the nation generally, is decreasing. From an enrollment of 12,000 students in 1969, the Grand Forks Public Schools had an enrollment of 10,600 students in the fall of 1973. The tendency in such a situation is to decrease the number of teachers in most school districts in general and the Grand Forks Public Schools in particular. In turn, this process tends to "freeze" the job market, both for new graduates and for already employed teachers. The

teacher mobility so prevalent in the past will probably be dramatically less obvious in the future. Beyond the lack of mobility, there is likely to be a tendency for graduates in teacher education to be willing to accept lower level teaching positions such as a teacher aide because no regular teaching position is available. This will be particularly true if the job market in other positions (business and clerical) is slumping, also. Thus, differentiated staffing may be given a further chance, not so much because it deserves it educationally, but because it may prove to be useful economically to the school districts.

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